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**Mediterranean
Action Plan**
Barcelona
Convention

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22nd Meeting of the Contracting Parties to the
Convention for the Protection of the Marine Environment
and the Coastal Region of the Mediterranean and its Protocols

Antalya, Turkey, 7-10 December 2021

Agenda Item 3: Thematic Decisions

Report of the MAP Focal Points meeting

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**Mediterranean
Action Plan**
Barcelona
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17 September 2021
Original: English

Meeting of the MAP Focal Points

Teleconference, 10-17 September 2021

Report of the Meeting

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Report of the 2021 meeting of the Mediterranean Action Plan focal points

I. Introduction

1. In accordance with the programme of work¹ adopted by the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its protocols at their twenty-first meeting, held in Naples from 2 to 5 December 2019, and in view of restrictions resulting from the coronavirus disease (COVID-19) pandemic, a meeting of the Mediterranean Action Plan (MAP) focal points was held by videoconference from 10 to 17 September 2021.

II. Attendance

2. The following Contracting Parties to the Barcelona Convention were represented at the meeting: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, European Union, France, Greece, Israel, Italy, Lebanon, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syrian Arab Republic, Tunisia, Turkey.

3. The following United Nations bodies, specialized agencies, convention secretariats and intergovernmental organizations were represented as observers: Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS), Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM), European Environment Agency, European Maritime Safety Agency, International Maritime Organization (IMO), International Union for Conservation of Nature (IUCN), Secretariat of the Union for the Mediterranean, Economic and Social Commission for West Asia.

4. The following non-governmental organizations and other entities were also represented as observers: Association of Continuity of Generations, All for Blue, Agency for Sustainable Mediterranean Cities and Territories (AVITEM), Blue World Institute of Marine Research and Conservation (BWI), Center for Energy, Environment and Resources (CENER21), Cercle Mallorquí de Negocis, Cittadini per l'Aria Onlus, Fondazione UniVerde, Hellenic Marine Environment Protection Association (HELMPEA), International Centre of Comparative Environmental Law (CIDCE), International Association of Geophysical Contractors, International Association of Oil and Gas Producers (IOGP), Marevivo, Mediterranean Conservation Society, Mediterranean Association to Save the Sea Turtles (MEDASSET), Mediterranean Protected Areas Network (MedPAN), Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), Mediterranean Programme for International Environmental Law and Negotiation (MEPIELAN), Mohammed VI Foundation for Environmental Protection, OceanCare, PlasticsEurope, Surfrider Foundation Europe, University of Malaga European Topic Centre for Spatial Analysis and Synthesis (ETC-UMA), World Wide Fund for Nature Mediterranean Marine Initiative, Youth Love Egypt Foundation.

5. The United Nations Environment Programme (UNEP), including the Mediterranean Action Plan/Barcelona Convention secretariat (UNEP/MAP) along with the Programme for the Assessment and Control of Marine Pollution in the Mediterranean (MED POL), was also represented, along with the following Mediterranean Action Plan regional activity centres: Blue Plan (Plan Bleu) Regional Activity Centre (BP/RAC), Sustainable Consumption and Production Regional Activity Centre (SCP/RAC), Information and Communication Regional Activity Centre (INFO/RAC), Priority Actions Programme Regional Activity Centre (PAP/RAC), Specially Protected Areas Regional Activity Centre (SPA/RAC), Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC).

III. Opening of the meeting (agenda item 1)

6. The meeting was opened at 10 a.m.² on Friday, 10 September 2021 by Mr. Carlo Zaghi, President of the Bureau of the Contracting Parties to the Barcelona Convention, and Ms. Tatjana Hema, Coordinator of the Mediterranean Action Plan, both of whom delivered opening statements.

7. Mr. Zaghi, in his opening remarks (set out in annex I to the present report), said that the Mediterranean region had one of the highest rates of biodiversity loss in the world, with 40 per cent of its marine species in decline, and was adversely affected by climate change, the overexploitation of the coastal and marine environment, marine litter, and an increase in invasive alien species. Furthermore, growing levels of air pollution posed a serious threat to residents of port cities.

¹ Decision IG.24/14.

² All times mentioned are Eastern European Summer Time (UTC + 3).

8. Shipping accounted for almost 3 per cent of global greenhouse gas emissions and its contribution was forecast to triple by 2050 if no changes were made to energy sources and efficiency. Over the previous decade, the Mediterranean had experienced a steady rise in oil transport and cruise shipping and thus in the release of hazardous substances and emissions. In recent international forums – for example, the G20 under the Italian presidency – there had been calls for immediate change to prevent further degradation of the coastal and marine environment and reverse the decline in its biodiversity. Such change would be possible only through effective regional coordination.

9. The meeting represented a crucial step towards the adoption of a common programme of work at the twenty-second meeting of the Contracting Parties, to be held in December 2021. Among the important matters to be discussed were the approval of the medium-term strategy for 2022–2027, the designation of the Mediterranean Sea as a sulphur oxides emission control area, and the adoption of updated regional plans and guidelines on pollution. It was hoped that participants would endorse the first *Mediterranean Assessment Report*,³ along with its summary for policymakers, and the post-2020 strategic action programme for the conservation of biological diversity and the sustainable management of natural resources in the Mediterranean region.

10. The meeting was a time for concrete actions and reactions. He was confident that it would succeed by virtue of the spirit of collaboration that was typical of the Mediterranean family.

11. Ms. Hema, in her statement, said that the COVID-19 pandemic had shaken the Mediterranean region, causing unfathomable human suffering, exacerbating economic difficulties and inequalities, and fuelling resentment. Nevertheless, several countries had exhibited a remarkable degree of resilience to the socioeconomic impact of the pandemic by quickly upgrading their health systems, rolling out vaccination programmes, and putting in place furlough schemes. Those measures had been accompanied by strategic planning for the post-COVID-19 era.

12. The Mediterranean region was at a historic juncture. Authoritative sources confirmed that, despite progress in many areas, the region was in the throes of a triple crisis of pollution, biodiversity decline and climate change. To cope with those challenges, deep transformations were required in all sectors. Decision makers at the national level had to acknowledge the irrefutable scientific evidence demonstrating that it was no longer possible to maintain current trajectories.

13. In that context, as a response to those challenges, the Mediterranean Action Plan was bringing to the region, for the coming decade, an ambitious agenda addressing the need for concrete, legally binding measures to tackle land- and sea-based pollution, promote a circular economy and upstream action, protect and enhance biodiversity in the context of the post-2020 biodiversity framework, foster nature-based solutions, comprehensively address the challenges posed by climate change, and develop up-to-date tools to implement the Barcelona Convention and its protocols. Effective implementation, integration, outreach and advocacy were critical to the achievement of the 2030 Agenda in the Mediterranean region.

14. It was important to treat the Convention and its protocols as a regional public good. She invited all partners to participate actively in their implementation through exemplary multilateralism and regional cooperation.

IV. Organizational matters (agenda item 2)

A. Rules of procedure

15. The focal points were reminded that the rules of procedure for meetings and conferences of the Contracting Parties to the Barcelona Convention (UNEP/IG.43/6, annex XI), as amended by the Contracting Parties (UNEP(OCA)/MED IG.1/5 and UNEP(OCA)/MED IG.3/5), would apply mutatis mutandis to their deliberations at the meeting.

B. Election of officers

16. In accordance with rule 20 of the rules of procedure, the focal points unanimously agreed that the Bureau of the Contracting Parties would also serve as the Bureau for the current meeting:

President: Mr. Carlo Zaghi (Italy)

Vice-Presidents: Mr. Benoît Rodrigues (France)

³ Mediterranean Experts on Climate and Environmental Change (MedECC) (2020), *Climate and Environmental Change in the Mediterranean Basin: Current Situation and Risks for the Future*, First Mediterranean Assessment Report (Cramer, W., Guiot, J., Marini, K., eds.), Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, available at <https://www.medecc.org/first-mediterranean-assessment-report-mar1/>.

Ms. Ayelet Rosen (Israel)
Ms. Ivana Stojanovic (Montenegro)
Mr. Mehmet Tamer Çobanoğlu (Turkey)

Rapporteur : Ms. Khaoula Lagrini (Morocco)

C. Adoption of the provisional agenda

17. Two focal points requested that two separate matters be considered under agenda item 7. The first was a proposal to update the name of the Regional Activity Centre for Sustainable Consumption and Production; the second was an initiative by France, Italy, Monaco and Spain to develop a proposal to establish a Particularly Sensitive Sea Area in the north-west Mediterranean. With those additions, the focal points adopted their agenda on the basis of the provisional agenda circulated in document UNEP/MED WG.515/1:

1. Opening of the meeting
2. Organizational matters
 - 2.1 Rules of procedure
 - 2.2 Election of officers
 - 2.3 Adoption of the provisional agenda
 - 2.4 Organization of work
3. Progress report on activities carried out during the 2020–2021 biennium
4. Financial report for 2018–2019 and 2020–2021
5. Specific matters for consideration and action by the meeting, including draft decisions
 - 5.1 Governance
 - 5.2 Land- and sea-based pollution
 - 5.3 Biodiversity and ecosystems
 - 5.4 Sustainable consumption and production
 - 5.5 Outcome of the EcAp Coordination Group meeting
 - 5.6 Mediterranean Action Plan programme of work and budget for 2022–2023
6. Preparations for the twenty-second meeting of the Contracting Parties of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols
 - 6.1 Update on meeting preparations and on the expected outcome of the meeting
 - 6.2 Provisional agenda of the meeting
 - 6.3 Ministerial declaration: preparation process and main concepts
7. Any other business
8. Adoption of the report of the meeting
9. Closure of the meeting

D. Organization of work

18. One focal point, speaking on behalf of a group of countries, requested that agenda items 4 and 5.6 be considered concurrently, as they were intrinsically linked. The focal points agreed to do so, and to work in plenary session in line with the schedule proposed by the secretariat.

V. Progress report on activities carried out during the 2020–2021 biennium (agenda item 3)

19. The Coordinator gave a presentation based on the progress report on the activities carried out during the 2020–2021 biennium (UNEP/MED WG.515/3 and UNEP/MED WG.515/3/Corr.1) and on supporting information

documents. In the presentation, she gave her analysis of the main achievements of the Mediterranean Action Plan system with regard to substantive, political and organizational matters.

20. Summarizing the challenges faced within the UNEP/MAP-Barcelona Convention system, she said that more needed to be done with regard to the ratification of some protocols to the Convention and the timely submission of national implementation reports. Timely submission of high-quality reports was very important for assessing progress in the implementation of the Barcelona Convention and its protocols. In that connection, the focal points' attention was drawn to document UNEP/MED WG.515/24, which included overall findings from the status of progress in the implementation of the Convention and its protocols. The lack of in-person communication caused by the COVID-19 pandemic had brought additional challenges that were difficult to overcome. Thanking all Contracting Parties for their unstinting efforts to respond to the demands of the implementation of the programme of work at the national level, as appropriate, she said that steps should be taken to enhance the efficiency of the implementation of national activities and the availability and quality of data generated by the implementation of national monitoring programmes.

21. In the ensuing discussion, one focal point, speaking on behalf of a group of countries, welcomed the wide range of activities undertaken by the secretariat. Noting that the level of reporting by the Contracting Parties remained somewhat low, she said that the progress report nevertheless marked a step in the right direction and that the implementation of the ecosystem approach (EcAp) in the Mediterranean was an important priority.

22. The representative of the Regional Activity Centre for Sustainable Consumption and Production said that the Centre was honoured to have been entrusted with significant responsibilities in recent years, responsibilities that were set to increase in the 2022–2023 biennium thanks to the emphasis on promoting a circular economy and sustainable consumption and production.

VI. Financial report for 2018–2019 and 2020–2021 (agenda item 4)

23. As had been agreed during the adoption of the agenda, the consideration of agenda item 4 was combined with the consideration of the programme of work and budget (agenda item 5.6).

VII. Specific matters for consideration and action by the meeting, including draft decisions (agenda item 5)

24. The focal points considered the draft decisions set out in documents UNEP/MED WG.515/4–UNEP/MED WG.515/21.

A. Governance

Draft decision on the medium-term strategy

25. The Coordinator introduced a draft decision relating to the UNEP/Mediterranean Action Plan medium-term strategy 2022–2027, set out in document UNEP/MED WG.515/4. She gave an overview of the preparation of the draft strategy and outlined the strategy's vision, structure and main elements, presented by programme area, and the related resource mobilization and monitoring and evaluation activities. She highlighted the fact that, for the first time, the strategy contained targets and indicators. The focal points, in their consideration of the draft decision and the related draft strategy, were asked to attempt to resolve the issues related to text that remained in square brackets.

26. During the ensuing discussion, two focal points, including one speaking on behalf of a group of countries, said that they appreciated the fact that their comments on the strategy had been considered carefully and that the majority had been taken into account in the draft under discussion. The focal point speaking on behalf of a group of countries added, however, that there should be even more emphasis on the notion of good environmental status and integrated monitoring and assessment in support of the ecosystems approach and its mainstreaming within the strategy. She emphasized the need to ensure that data products, especially those with political implications, were robust, given that the Contracting Parties were expected to review or endorse the forthcoming 2023 *Mediterranean Quality Status Report* at their twenty-third meeting. All necessary measures should be taken to ensure that the delivery date for the database for the *Quality Status Report* was met.

27. With regard to resource mobilization, one focal point proposed that the resource mobilization strategy adopted at the twentieth meeting of the Contracting Parties be revised in the light of current circumstances, including the COVID-19 pandemic, in order to enable parties to accelerate implementation of the medium-term strategy. Another representative, speaking on behalf of a group of countries, said that the resource mobilization strategy should go beyond the budgetary implications of the implementation of the activities in the strategy. She proposed that the

secretariat be requested, in the draft decision, to prepare a revised resource mobilization strategy according to that principle.

28. In relation to monitoring and evaluation, a representative of an observer organization/Mediterranean Action Plan partner noted that the evaluation of the medium-term strategy, as planned, would fall too late in the strategy's implementation period. It could be useful to evaluate progress earlier to aid resource prioritization. In response, the Coordinator said that the rationale for the timing of the evaluation was to ensure that the results would feed into the development of the subsequent medium-term strategy. She acknowledged that it was not easy to conduct an evaluation and prepare a new strategy at the same time, but the secretariat was convinced that the approach was sound. It would also ensure that the evaluation covered as much as possible of the implementation period. Furthermore, it was to be recalled that other monitoring and evaluation actions would take place throughout the implementation period, such as the evaluation of progress in the implementation of the biennial programmes of work, the preparation of the biennial reports and the conduct of the midterm evaluation of the Mediterranean Strategy for Sustainable Development 2016–2025. Resource prioritization was already practised within the Mediterranean Action Plan, with the sharing of resources among components, and it would be done at the programme level within the strategy.

29. A representative speaking on behalf of a group of countries, while welcoming the use of concrete targets and indicators as an efficient way of monitoring implementation of activities and demonstrating what had been achieved, proposed that there be a new monitoring framework for the strategy, interconnected with the programmes of work. The monitoring framework should analyse the functioning of the UNEP/MAP-Barcelona Convention system, the current institutional set-up, and the technical and financial means needed for implementation of the strategy. It was also important to take into account the importance of knowledge products, monitoring and evaluation deliverables, and capacity-building when engaging in resource prioritization.

30. The same representative stressed that systemic analysis and assessment of the required capacity and operational costs needed for delivery of the medium-term strategy for 2022–2027 was important to enable the group to finalize its overall position on the strategy. She hoped that such an analysis would be available before the twenty-second meeting of the Contracting Parties. The Coordinator replied that the secretariat had requested the organization recruited to conduct the analysis to deliver a presentation to the meeting under agenda item 5.6 on the programme of work and budget for 2022–2023.

31. One focal point, noting that the SwitchMed programme would end in 2023, said that the subsequent involvement of the secretariat in funds mobilization for sustainable consumption and production and circular economy initiatives should be reflected in the strategy, under implementation. Responding, the Coordinator said that it was preferable not to mix financial aspects with the implementation of the strategy and suggested that the issue be taken up during consideration of the programme of work and budget.

32. During the discussion on the parts of the text that remained in square brackets, one focal point expressed a preference for the term “green recovery” over “green renaissance”. She was supported by another, who said that it was important that the text of the strategy be in plain language that everyone could understand.

33. The focal point for Turkey reiterated his Government's view that the medium-term strategy was not to be interpreted in such a way as to imply the express or tacit acceptance of all or parts of the provisions included in United Nations Convention on the Law of the Sea (UNCLOS), as was indicated in a footnote in the strategy text. He nevertheless agreed to the removal of the footnote, provided that his Government's reservation was noted in the present report.

34. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/1) is set out in annex V to the present report.

Draft decision on the Compliance Committee

35. The Coordinator introduced a draft decision related to the Compliance Committee, set out in document UNEP/MED WG.515/5, and an addendum thereto (UNEP/MED WG.515/5/Add.1).

36. The activity report of the Compliance Committee for the 2020–2021 biennium included proposals by the Committee to amend both its own rules of procedure and the Compliance Procedures and Mechanisms under the Barcelona Convention and Its Protocols, which were presented as appendices to the activity report of the Committee, in annex I to the draft decision. The secretariat was of the view that such proposals needed to be considered in relation to the mandate given to the Committee by the Contracting Parties at their twenty-first meeting, and that they required careful consideration by all the Contracting Parties. The secretariat had therefore prepared, pending finalization of the

full activity report of the Compliance Committee, an addendum (UNEP/MED WG.515/5/Add.1) setting out the amendments proposed by the Committee for possible review by the focal points at the current meeting. Alternatively, the focal points might wish to defer consideration of the proposals to the next biennium, with a view to enabling the Contracting Parties to decide on the proposed amendments in 2023.

37. In the ensuing discussion, two focal points, including one speaking on behalf of a group of countries, thanked the secretariat for bringing to their attention the amendments proposed by the Compliance Committee and requested additional time to discuss them before determining a possible way forward.

38. A representative of an observer organization/Mediterranean Action Plan partner said that there was a need to increase transparency in the Compliance Committee and that the proposed changes were a welcome development that would strengthen the compliance mechanism.

39. Responding to queries from the floor, the Coordinator said that the content and value of the proposed changes was not being challenged but that, as was explained in document UNEP/MED WG.515/5, the Contracting Parties had requested the Compliance Committee to resolve a number of outstanding issues related to its membership, and the Committee had gone further than that. The proposed changes would modify the status of Committee members and alternates but did not include interim provisions, which could create difficulties for the functioning of the Committee in the short term. Furthermore, the proposed changes to the rules of procedure of the Committee were in line with the proposed changes to the compliance procedures and mechanisms, so the two sets of changes would need to be approved together, or not at all. It was therefore advisable that the focal points discuss the way forward to ensure the proper functioning of the Committee.

40. One focal point proposed that consideration be given to how to disentangle those proposed changes that were in line with the Committee's mandate, and that related to outstanding issues that appeared to be impeding its efficient functioning, from other proposed changes, so that consideration of former could be expedited. The latter should be the subject of another decision by the Contracting Parties, and, if the issue was transparency, consideration could be given to that issue at the next meeting of the Contracting Parties.

41. Another focal point, speaking on behalf of a group of countries, expressed support for the proposal and stressed that the Contracting Parties would need to hold consultations on the matter in order to determine their position on the way forward.

42. Subsequently, the two focal points who had requested additional time to discuss a possible way forward reported on their consultations.

43. One of the focal points said that she remained concerned that the proposals made by the Compliance Committee went beyond the very specific mandate given to it by the Contracting Parties at their twenty-first meeting, which related to two technical issues pertaining to the Committee's membership. It was her understanding that the Committee had sought, obtained and implemented the advice of UNEP on both issues, and she would therefore support a draft decision recognizing that the Committee had obtained and implemented such advice on both issues. Given the central role of the Compliance Committee in furthering the objectives of the Barcelona Convention and its protocols, its work should focus on substantive compliance issues, rather than procedural matters. She would therefore not support a decision by the Contracting Parties to mandate the Committee to re-examine its rules or other procedural matters, or the compliance mechanism and its procedures, during the upcoming biennium.

44. The other focal point, speaking on behalf of a group of countries, said that a clear understanding of whether the changes proposed by the Compliance Committee were in line with the mandate given to it by the Contracting Parties at their twenty-first meeting was required before a decision could be made on the way forward. The solution was either to defer further discussion on the issue to the twenty-third meeting of the Contracting Parties or to conduct further work prior to the twenty-second meeting in order to enable the Contracting Parties to decide whether to endorse the proposed changes, or, if the mandate had been exceeded, to give a new mandate.

45. The Coordinator confirmed that it would indeed be very difficult for the secretariat to support another consultation process to resolve outstanding issues related to the proposed changes to the compliance procedures and mechanisms by the Compliance Committee prior to the twenty-second meeting of the Contracting Parties, given the heavy workload resulting from preparations for the twenty-second meeting of the Contracting Parties and the recent departure of the Mediterranean Action Plan legal officer, and the limited time available to complete that work.

46. Turning to the draft decision set out in document UNEP/MED WG.515/5, the focal point speaking on behalf of a group of countries proposed adding a reference to the provision of support by the Regional Activity Centre for

Information and Communication (INFO/RAC) to those Contracting Parties that had not yet submitted their national implementation reports for the biennium 2018–2019 via the online Barcelona Convention Reporting System.

47. With regard to the vacant seats of the Compliance Committee, the representative of Spain submitted the nomination of Mr. José Juste Ruiz to the Committee for regional group II.

48. The President and the Coordinator invited all other groups to present their nominations as soon as possible.

49. One focal point said that the activities mentioned in paragraph 6 of the proposed programme of work of the Compliance Committee for the biennium 2022–2023, set out in annex II to the draft decision, could be interpreted as entailing further work on procedural matters. She stressed that the mandate given to the Committee by the Contracting Parties needed to be very clear.

50. The Coordinator said that the paragraph could be placed in square brackets for further consideration by the Contracting Parties, as it was they who decided on the programme of work of the Compliance Committee, depending on the decision to be taken regarding the proposed changes to the compliance mechanism and procedures.

51. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/2) is set out in annex V to the present report.

Draft decision on governance

52. A representative of the secretariat introduced a draft decision on governance, set out in document UNEP/MED WG.515/6. The draft decision covered a number of topics and included six annexes. Additional elements of annex III and the text of annex VI were set out in documents UNEP/MED WG.515/6/Add.1 and Add.2, respectively. The text of annex VI, on the governance mechanism for the implementation of the ecosystem approach in the Mediterranean, had been prepared following a meeting of the Ecosystem Approach Coordination Group held the previous day.

53. The Coordinator pointed out that most of the annexes to the decision had not yet been reviewed by any Barcelona Convention bodies and therefore merited close review by the focal points. She provided additional details on the individual annexes, drawing attention to the most important elements of each.

54. A focal point speaking on behalf of a group of countries, praising the comprehensiveness of the decision, added that it had to be consistent with all the other decisions, in line with the principle of a united UNEP/MAP-Barcelona Convention system and in the interest of avoiding a siloed approach. Expressing particular appreciation for the new annex VI, she asked whether it could be given greater visibility, and be repositioned as the first annex of the draft decision. In her view, the text of the new annex would require further development to clearly present the interactions between the meetings of the ecosystem approach governance structure meetings and how the preparatory process was run, including specifying which meetings preceded the technical meetings and the decision-making meetings.

55. Another focal point said that, with a view to streamlining the governance mechanism of the Ecosystem Approach Coordination Group into the UNEP/MAP-Barcelona Convention governance system, the new annex I could include details concerning the type and content of the documents whose approval needed to be assigned to bodies at different levels of the governance system – the Ecosystem Approach Correspondence Group on Monitoring, meetings of thematic focal points, the Ecosystem Approach Coordination Group, meetings of MAP focal points, and meetings of the Conference of the Parties. A time frame could be set for processing documents from one level to another. That would, in her view, improve the efficiency of work and clarify the roles and responsibilities of the different bodies within the governance mechanism of the Ecosystem Approach Coordination Group. To ensure continuity in work and optimal knowledge-based management for the implementation of the ecosystem approach and the Integrated Monitoring and Assessment Programme (IMAP) at the national level, the Ecosystem Approach Correspondence Group on Monitoring should have a permanent composition instead of temporary appointments being made for each meeting.

56. Following also the discussion under agenda item 5.6, on the outcome of the eighth meeting of the Ecosystem Approach Coordination Group, the focal points agreed to amend the annex setting out the ecosystem approach governance structure, and to reposition it as annex I, in order to address the comments made during the earlier discussion.

57. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/3) is set out in annex V to the present report.

Draft decision on assessment studies

58. The Coordinator introduced a draft decision related to assessment studies, set out in document UNEP/MED WG.515/7. She drew attention to the summary for policymakers of the first Mediterranean Assessment Report, set out in the annex to the draft decision.

59. In the ensuing discussion, one focal point, speaking on behalf of a group of countries, welcomed the draft decision and the emphasis that it placed on strengthening the science-policy interface in a holistic manner, taking into account environmental, sustainable-development- and climate-change-related aspects and focusing on the ecosystems approach. Regarding the dissemination of the results, she proposed that the secretariat be requested, and the Contracting Parties be invited, to disseminate the results of the assessment report and its summary in all relevant national and international forums beyond the UNEP/MAP-Barcelona Convention system

60. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/4) is set out in annex V to the present report.

Draft decision on the UNEP/MAP Data Policy

61. The Coordinator introduced a draft decision relating to the UNEP/MAP Data Policy, set out in document UNEP/MED WG.515/13. The Policy, which had been developed in response to a request made by the Contracting Parties at their twenty-first meeting, was intended to ensure that data acquired or processed in the framework of the Barcelona Convention were handled in a consistent and transparent manner. The document had been reviewed and approved at the meeting of the INFO/RAC focal points on 8 and 9 June 2021.

62. The focal points endorsed the draft decision, with a minor amendment, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/10) is set out in annex V to the present report.

B. Land- and sea-based pollution***Draft decision on amendments to annexes I, II and IV to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (LBS Protocol)***

63. The Coordinator introduced a draft decision concerning proposed amendments to annexes I, II and IV to the LBS Protocol, set out in document UNEP/MED WG.515/8. The idea behind the amendments, which would be the first to be introduced to the annexes since the adoption of the Protocol in 1999, was to reflect achievements and policy considerations related to implementation of the ecosystem approach as well as relevant regional and global developments. The amendments had been considered and approved at the meeting of the Programme for the Assessment and Control of Marine Pollution in the Mediterranean (MED POL) focal points on 27 and 28 May 2021.

64. In the ensuing discussion, one focal point, speaking on behalf of a group of countries, welcomed the initiative to amend the annexes in order to take into account recent regulatory, scientific and technical developments.

65. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a revised version of the draft decision and its annexes relating to the amendments to the annexes to the Protocol based on suggestions made during the discussions at the meeting.

66. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/5) is set out in annex V to the present report.

Draft decision on amendments to the annex to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea

67. The Coordinator introduced a draft decision related to amendments to the annex to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea, set out in document UNEP/MED WG.515/9.

68. The focal points endorsed the draft decision for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/6) is set out in annex V to the present report.

Draft decision on amendments to the Annexes to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)

69. The Coordinator introduced a draft decision concerning proposed amendments to the annexes to the Offshore Protocol, set out in document UNEP/MED WG.515/10. Recalling the Contracting Parties' obligation to review and revise the annexes, and the mandate of the Barcelona Convention Offshore Oil and Gas Group (OFOG) to keep under review the technical content of the Annexes and make relevant recommendations, she said that the significant developments since the adoption of the Protocol in 1994 needed to be reflected.
70. During the ensuing discussion, one focal point, speaking on behalf of a group of countries, asked the secretariat to clarify whether the proposed figure in the annex contradicted the relevant provision of the Protocol. The Coordinator replied that in the secretariat's view there was no contradiction.
71. The representative of an observer organization/Mediterranean Action Plan partner said that, while the Association fully supported amending the Annexes to the Protocol, it had several concerns regarding the draft decision, which was inconsistent with decision IG.24/9, adopted during the twenty-first meeting of the Contracting Parties, and contained contradictions and redundancies that rendered it confusing, potentially hindering the implementation of the Protocol. Moreover, a different approach was followed in the draft decision, in which entire categories of substances were prohibited, than in the Convention for the Protection of the Marine Environment of the North-East Atlantic and in the European Commission's REACH regulation (EC 1907/2006) for the registration, evaluation, authorization and restriction of chemicals, for example, in which individual substances were listed. Lastly, some concepts mentioned in the draft decision, such as "persistence" and "interference with legitimate use of the sea", should be better defined for the purposes of clarity. It might be worth establishing a working group to turn the draft decision into a high-quality, deliverable document that brought real added value.
72. Responding to the concerns raised, the Coordinator said that the document had been developed and approved by OFOG and that in the time remaining before the twenty-second meeting of the Contracting Parties it would be difficult to negotiate substantial changes to the draft decision. It was for the Contracting Parties to decide whether they wished to endorse the draft decision with minor amendments or further refine it in the 2022–2023 biennium.
73. One focal point said that maximum dry weights in stock barite should be established not only for mercury and cadmium but also for other harmful metals. Regarding paragraph 8 of appendix 1 to the draft decision, it would be helpful to know what criteria had been used to calculate the threshold distance from shore.
74. Subsequently, the focal points considered a conference room paper prepared by the secretariat containing a revised version of the draft decision and its annexes relating to amendments to the Annexes to the Protocol. Another minor modification was proposed to ensure consistency with other documentation in the UNEP/MAP-Barcelona Convention system.
75. A representative of an observer organization/Mediterranean Action Plan partner expressed concern that not all the consequences of including individual substances in Annex I to the Protocol had been fully assessed. The technologies for eliminating certain of the substances were not suitable for use in an offshore environment, owing to, for example, weight, space and energy requirements. Instead of focusing on one component of the effluent, it was best practice to look at the impact of the effluent as a whole, using a risk-based approach. She therefore recommended that the Offshore Oil and Gas Group and the UNEP/MAP-Barcelona Convention system consider introducing the use of such a risk-based approach. In response, the Coordinator said that the secretariat took note of the proposal and that, unless any Contracting Party wished to discuss the issue during the current meeting, the matter of using a risk-based approach would be taken up with the Offshore Oil and Gas Group after the twenty-second meeting of the Conference of the Parties.
76. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/7) is set out in annex V to the present report.

Draft decision on regional plans on urban wastewater treatment and sewage sludge management in the framework of article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol)

77. The Coordinator introduced a draft decision related to regional plans on urban wastewater treatment and sewage sludge management in the framework of article 15 of the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources, set out in document UNEP/MED WG.515/11.

Regional plan on urban wastewater treatment

78. The Coordinator, recalling the mandate for, and process of, preparation of the regional plan on urban wastewater, gave an overview of the regional plan's structure and the elements on which agreement had still to be reached. The focal points, in their consideration of the plan, were asked to attempt to resolve the issues related to text that remained in square brackets.

79. In the ensuing discussion, two focal points expressed concern about the proposed deadline of 2025 for implementation of certain measures in the plan, given the speed of their national processes and the ambitious nature of the measures to be taken. One focal point, while stressing the importance given by her country to this regional plan and its willingness to respect its commitments, proposed 2030 and 2035 as adequate deadlines that can be respected by her country. She also suggested to add the mention "to the extent possible" in front of strict deadlines mentioned in the text of the action plan, in order to allow for more flexibility in terms of implementation for certain countries.

80. A focal point, speaking on behalf of a group of countries, made a series of proposals aimed at providing greater clarity or precision or ensuring coherence with existing regulations to which the group was subject. Another focal point highlighted the technical nature of many of the proposed modifications and said that she wished to consult her technical colleagues about them. She stressed the importance of using clear and simple language in the document.

81. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a revised version of the draft decision and the two regional plans.

82. In the ensuing discussion on the regional plan on urban wastewater, a few minor amendments were proposed. In particular, it was agreed to add the mention "to the extent possible" in front of certain deadlines of the action plan. In addition, one focal point expressed concern that the proposal to insert "entering collecting systems" after "industrial wastewater" in article II (2) of the plan would impose limitations on the applicability of that section. Ideally, all wastewater should be entering collecting systems, and not just that which Contracting Parties allowed to enter. The Coordinator explained that the current plan covered only those industrial discharges that entered collecting systems. After analysing which industrial sectors most affected the marine and coastal environment of the region, the secretariat intended to eventually prepare another regional plan with explicit standards relating to wastewater from those industries, acknowledging that it was not possible to treat industrial wastewater through an urban wastewater collecting system.

Regional plan on sewage sludge management

83. The Coordinator introduced the regional plan on sewage sludge management, the first plan to address sludge management in the UNEP/MAP-Barcelona Convention system. The secretariat had had a very clear framework for the preparation of the plan, as the main elements had been negotiated in the previous biennium. The plan had been prepared using the same approach as for the regional plan on urban wastewater treatment. The Coordinator presented the various elements, drawing particular attention to the one paragraph with text remaining in square brackets.

84. One focal point, speaking on behalf of a group of countries, while agreeing to remove the square brackets in the paragraph in question, also proposed an amendment aimed at better framing the context in which the provisions of the paragraph applied.

85. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a revised version of the draft decision and the two regional plans.

86. The focal points endorsed the draft decision and its annexes, including the regional plans on urban wastewater treatment and sewage sludge management, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/8) is set out in annex V to the present report.

Draft decision on amendments to the Regional Plan for Marine Litter Management in the Mediterranean in the framework of article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol)

87. Introducing the draft decision, the Coordinator recalled that the UNEP/MAP-Barcelona Convention system had been a pioneer in introducing legally binding measures on marine litter, given that the Regional Plan dated from 2013. The rationale for updating the Plan was to reflect recent work done at the global level to better control plastic pollution and to draw inspiration from the European Union directive on the reduction of the impact of certain plastic products

on the environment⁴ and work done in the region itself, in particular through MED POL and the Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC). The proposed amendments thus included new elements focusing on the prevention aspect of marine litter management and on microlitter and microplastics as well as aspects related to marine protected areas.

88. She then presented the draft decision, as set out in document UNEP/MED WG.515/12, along with its annexes containing the updated version of the regional plan with the proposed amendments highlighted, a workplan for the implementation of the regional plan and a list of research topics to support implementation. She also drew attention to a recently issued corrigendum (UNEP/MED WG.515/12/Corr.1) introducing a fourth annex to the draft decision as an outcome of the recent meeting of the Ecosystem Approach Coordination Group.

89. One focal point, speaking on behalf of a group of countries, expressed appreciation for the updated provisions regarding prevention of marine litter, which, while setting out obligations, did so in terms that allowed countries time to prepare for the eventual introduction of a regulatory framework. The same focal point, intervening on the question of the implementation of environmentally sound practices for the “Fishing for Litter” project, asked for proposed text to be deleted as it might promote fishing for litter, which would be contrary to the passive approach currently preferred.

90. Another focal point proposed the inclusion of text providing for the identification of land-based hotspots of marine litter generation to make it clear which areas should be watched. He also asked that a reference to the Marine LitterWatch platform, developed by the European Environment Agency, be added. After some discussion, the focal points agreed to add the reference and to allow the secretariat to determine how to best incorporate it into the text.

91. The focal points endorsed the draft decision and the annexes thereto, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/9) is set out in annex V to the present report.

Draft decision on the designation of the Mediterranean Sea as an Emission Control Area for Sulphur Oxides

92. The Coordinator introduced a draft decision relating to the designation of the Mediterranean Sea, as a whole, as an emission control area for sulphur oxides (SOx ECA) under Annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997 (MARPOL), set out in document UNEP/MED WG.515/17. Considerable progress had been made since the twenty-first meeting of the Contracting Parties, and all the work mandated by the Contracting Parties at that meeting under decision IG.24/8 had been delivered in a timely manner. The outcome of the studies conducted showed that there were clear environmental, socioeconomic and health benefits to the proposed designation.

93. The representative of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) provided an update on progress achieved towards the ratification of MARPOL Annex VI by those Contracting Parties to the Barcelona Convention that had not yet ratified it, stressing that some Contracting Parties that were not parties to MARPOL Annex VI nevertheless supported the proposal to designate the Mediterranean Sea as an emission control area for sulphur oxides under the treaty.

94. In the ensuing discussion, the focal points first made general comments on the proposed draft decision. One focal point said that, while the designation proposal under consideration was laudable from an environmental standpoint, she was not in a position to support it because of concerns expressed by the maritime sector and delays in the ratification process and related activities caused by the coronavirus pandemic. Another focal point said that efforts by his country concerning the proposed designation were still under way.

95. One focal point, speaking on behalf of a group of countries, said that she appreciated the difficulties some Contracting Parties were facing with regard to the ratification of MARPOL Annex VI, and that technical support was available from the European Maritime Safety Agency to facilitate the ratification process. Stressing that the draft decision under consideration was critical for tackling air pollution and pollution from ships in general, and for delivering on other key strategies adopted by the group of countries on behalf of which she spoke, she welcomed the news that many countries had made progress toward the ratification of MARPOL Annex VI, and the willingness of countries that had not yet ratified the treaty to nevertheless join the submission to IMO.

⁴ Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment.

96. The representative of an observer organization/Mediterranean Action Plan partner, welcoming the progress made thus far regarding the designation for sulphur oxides urged that a similar designation be considered for nitrogen oxides, which were important contributors to acidification and negative health outcomes, including as precursors of ground-level ozone.

97. Turning to the draft decision, the representative speaking on behalf of a group of countries proposed two amendments. The first related to indicating, in the operative part of the decision, the date by which the proposed designation would enter into force. The latter sought to emphasize, also in the operative part of the decision, the need to begin work on nitrogen oxides, which was already recognized in previous decisions as a possible element for future consideration.

98. Reacting to queries from a focal point about the intent of the second proposed amendment, the representative speaking on behalf of a group of countries said that it was meant to highlight the issue of nitrogen oxides and signal a high level of political commitment to starting work on such pollutants. In response, the Coordinator clarified that, in line with the usual approach for formulating decisions, the paragraph fit better in the preambular than in the operative part of the draft decision, as the related activity was already included in the programme of work.

99. The focal points agreed that the proposed changes, including more emphasis on the need for financial support, would be inserted in the draft decision for consideration by the Contracting Parties at their twenty-second meeting. The secretariat would continue supporting the process. The focal points endorsed the draft decision and the annexes thereto, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/14) is set out in annex V to the present report.

Draft decision on guidelines for the conduct of environmental impact assessments under the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)

100. The Coordinator introduced a draft decision regarding the conduct of environmental impact assessments under the Offshore Protocol, set out in document UNEP/MED WG.515/18. Environmental impact assessments were a well-known tool in the Mediterranean region. The purpose of having guidelines for their conduct was to harmonize regional practices related to offshore activities and provide clear standards to minimize the environmental impact of those activities. The process of developing the guidelines had been protracted, having begun during the previous biennium, but inclusive, with strong participation by civil-society partners.

101. In the ensuing discussion, one focal point, speaking on behalf of a group of countries, said that, while the group supported the proposed guidelines as a whole, it had a reservation regarding subparagraph 40 (d) and would need time for further consultations with technical experts. Another focal point proposed amendments to subparagraphs 14 (ii) and (iii).

102. The representative of an observer organization/Mediterranean Action Plan partner said that the guidelines could be improved through amendments to paragraphs 14 (ii), 40 (d), 41, 45, 98, 101 and 107, and that she would be happy to submit proposals in writing. The Coordinator subsequently confirmed that the comments had been received by the secretariat and would be transmitted to the respective technical bodies for their consideration during the next biennium.

103. The Coordinator said that, while further comments on the guidelines were welcome, there was not enough time, before the twenty-second meeting of the Contracting Parties, to reopen the discussion on technical aspects. Stakeholders had already been given the opportunity to provide comments and other feedback during the consultation process. Any changes proposed at the current meeting should thus be strictly substantive.

104. Following consultations with technical experts, one focal point, speaking on behalf of a group of countries, proposed an amendment to address her earlier reservation. The focal points agreed to include that amendment in the document, along with amendments proposed earlier by another focal point, and the reservation was subsequently lifted.

105. The representative of an observer organization/Mediterranean Action Plan partner suggested that, for the purposes of consistency between guidelines, reference be made to annex II of decision IG.24/9, on Mediterranean offshore guidelines and standards, which was directly related to operating in specially protected areas. The Coordinator said that it was not customary to include cross-references to other decisions, as documents evolved and versions could become obsolete.

106. The focal points endorsed the draft decision and the annex thereto, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/15) is set out in annex V to the present report.

Draft decision on the Mediterranean strategy for the prevention of, preparedness for and response to marine pollution from ships (2022–2031)

107. The Coordinator introduced a draft decision concerning the Mediterranean strategy for the prevention of, preparedness for and response to marine pollution from ships (2022–2031), set out in document UNEP/MED WG.515/19. The strategy, which was expected to make a significant contribution to the implementation of policy instruments in the UNEP/MAP-Barcelona Convention system and of initiatives such as the European Green Deal, built on the very successful Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016–2021). The strategy had seven strategic objectives and was supported by an action plan with clear indicators, priorities and targets. A midterm review and evaluation of the strategy and its action plan was planned for 2026 in order to ensure full alignment with the medium-term strategy for 2022–2027. The preparation of the strategy, which had been organized by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), had involved constructive discussions with key partners in the Mediterranean region.

108. During the ensuing discussion, one focal point, speaking on behalf of a group of countries, congratulated REMPEC and the secretariat for the hard work that underpinned the Strategy and proposed that, in the preambular part of the draft decision, reference be made to the International Convention for the Prevention of Pollution from Ships (MARPOL). In the operative part, the Contracting Parties should be invited to ratify relevant annexes to the Convention.

109. The Coordinator suggested taking the opportunity to refer not only to MARPOL but also to all other relevant conventions of the International Maritime Organization (IMO).

110. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a revised version of the draft decision and the strategy. A representative of an observer organization/Mediterranean Action Plan partner expressed his organization's willingness to support implementation of the strategy.

111. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/16) is set out in annex V to the present report.

Draft decision on the Ballast Water Management Strategy for the Mediterranean Sea (2022–2027)

112. The Coordinator introduced a draft decision on the Ballast Water Management Strategy for the Mediterranean Sea (2022–2027), set out in document UNEP/MED WG.515/20. She outlined the mandate for, and process of, preparation of the strategy and gave an overview of its structure. She drew attention to the rough estimate of the cost of implementing the strategy, 4.5 million euros, provided in the document.

113. The focal points endorsed the draft decision for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/17) is set out in annex V to the present report.

C. Biodiversity and ecosystems

Draft decision on the post-2020 strategic action programme for the conservation of biodiversity and sustainable management of natural resources in the Mediterranean region

114. The Coordinator introduced a draft decision on the post-2020 strategic action programme for the conservation of biodiversity and sustainable management of natural resources in the Mediterranean region, set out in document UNEP/MED WG.515/14. She said that the commitments relating to biodiversity and sustainable management of natural resources made recently by countries at the 2021 World Conservation Congress of the International Union for Conservation of Nature and Natural Resources (IUCN) should give strong impetus to adoption of the post-2020 strategic action programme by the Contracting Parties.

115. The focal points, in their consideration of the draft decision, were asked to attempt to resolve the issues related to text that remained in square brackets.

116. The representative of an observer organization/Mediterranean Action Plan partner proposed that the secretariat be invited to conduct, by 2025, with the support of the Compliance Committee, a midterm assessment of the collective implementation of the strategic action programme, and that the Contracting Parties be invited to review their national

biodiversity strategies and action plans accordingly to ensure the achievement of the objectives of the strategic action programme by 2030.

117. The Coordinator explained that the mandate of the Compliance Committee was to undertake reviews, not to conduct evaluations, and thus the reference to the Committee in the proposal would have to be removed. The representative of the Regional Activity Centre for Specially Protected Areas (SPA/RAC) explained that the expected results of the actions in the table in annex III to the strategy had been divided into two time frames: those expected by 2027, which coincided with the final year of the UNEP/Mediterranean Action Plan medium-term strategy 2022–2027, and those expected by 2030. In that sense, a way of evaluating progress in implementation was already built into the strategic action programme.

118. Several focal points, including one speaking on behalf of a group of countries, supported the proposal to conduct a midterm evaluation of the strategic action programme in 2025 (and not 2027) to allow ample time for corrective measures to be taken if necessary. Other proposals for changes were made with a view to improving the clarity and precision of the text or the alignment between the wording of the draft decision and that of the strategic action programme.

119. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a proposal for an editorial change submitted to the secretariat after the initial discussion on the strategic action programme.

120. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/11) is set out in annex V to the present report.

Draft decision on protecting and conserving the Mediterranean through well-connected and effective systems of marine and coastal protected areas and other effective area-based conservation measures, including specially protected areas and specially protected areas of Mediterranean importance

121. The Coordinator, introducing the draft decision set out in document UNEP/MED WG.515/15, said that the global context for the proposed decision included the strong support emerging from the recent World Conservation Congress for a well-connected network of protected areas and other effective area-based conservation measures, with specific reference to marine protected areas as a means of protecting marine biodiversity, as well as the ongoing development of the post-2020 global biodiversity framework, all against the backdrop of the United Nations Decade on Ecosystem Restoration. In that context, the parties were being asked to adopt the post-2020 regional strategy for marine and coastal protected areas set out in the annex to the decision.

122. One focal point, speaking on behalf of a group of countries, welcoming the draft decision and its annex, expressed particular appreciation for the references in the annex to the new European Union Biodiversity Strategy for 2030, as such references would enable European Union member States to aim for the more ambitious targets to which they had committed themselves, which at the same time did not constitute binding targets for other parties to the Barcelona Convention and its protocols. She proposed that all remaining brackets in the strategy text be removed.

123. The focal points agreed to the removal of the brackets, as well as to amendments proposed to take into account the ongoing nature of the development of the post-2020 global biodiversity framework of the Convention on Biological Diversity and to some other minor adjustments proposed during the meeting.

124. Subsequently, the focal points considered a conference room paper prepared by the secretariat setting out a proposal for an editorial change submitted to the secretariat by an observer organization/Mediterranean Action Plan partner after the initial discussion of the draft decision.

125. Following the discussion, the focal points endorsed the draft decision, as orally amended, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/12) is set out in annex V to the present report.

Draft decision on strategies and action plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol)

126. The Coordinator introduced a draft decision on strategies and action plans for the conservation of species and habitats under the SPA/BD Protocol, set out in document UNEP/MED WG.515/16. The updated plans had been reviewed and approved at the meeting of SPA/BD thematic focal points held from 23 to 25 June 2021.

127. In the ensuing discussion, the representative of Turkey requested that the following statements be included in the report:

“Related to information documents, including maps and visual documents covering the Marmara Sea as a part of the Mediterranean Sea, even when those are part of scientific literature, Turkey recalls that the geographical scope of the Barcelona Convention does not cover the internal waters of the Contracting Parties. Therefore, Turkey would like to recall that the Marmara Sea is not covered by the Convention.”

“Natura2000 sites in the marine areas beyond the national jurisdiction of European Union member States should be designated in consultation with neighbouring States.”

128. Another focal point, speaking on behalf of a group of countries, expressed support for the updated action plans. She welcomed the establishment of the multidisciplinary group of experts proposed in the draft decision and requested that, in the future, the secretariat consider how to streamline the number of groups in the UNEP/MAP-Barcelona Convention system, given resource constraints.

129. The representative of an observer organization/Mediterranean Action Plan partner proposed two changes related to underwater noise in the action plan related to cetaceans. The first change entailed deleting a reference to high levels of acute noise from the offshore industry, which she said was not supported by science; the second change entailed replacing a reference to “appropriate” environmental impact assessments to manage underwater noise, as that term was used in the Environmental Impact Assessment Directive of the European Union,⁵ with a reference to “proportionate” environmental impact assessments; the latter would signal that assessments should be proportional to the scale and potential damage of proposed operations.

130. The representative speaking on behalf of a group of countries objected to the two proposed changes, noting that the action plan had already been reviewed and approved by technical experts. The text being proposed for deletion had been discussed many times by a technical group created by the countries to tackle underwater noise on the basis of science, while the term “appropriate” indicated that, if a given operation required an environmental impact assessment, then such an assessment was needed and was therefore appropriate.

131. Following the discussion, the focal points endorsed the draft decision, including its annexes and without amendment, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/13) is set out in annex V to the present report.

D. Sustainable consumption and production

Draft decision on regional measures to support green and circular businesses and sustainable products

132. The Coordinator introduced a draft decision related to regional measures to support the development of green and circular businesses and to strengthen the demand for more sustainable products, set out in document UNEP/MED WG.515/21. The proposed measures would contribute to a green recovery from the COVID-19 pandemic and support circular-economy-based solutions, eco-innovation and eco-design in the Mediterranean region in support of efforts by public authorities to decouple economic development from pollution and environmental degradation. The draft decision and its two annexes had been thoroughly discussed by the SCP/RAC focal points, and there were no outstanding issues requiring consideration at the current meeting. The decision was the first of its kind in the Mediterranean region to promote green businesses as a way of contributing to the implementation of circular economy approaches and sustainable resource use in the region.

133. The focal points endorsed the draft decision, including its annexes, for consideration by the Contracting Parties at their twenty-second meeting. The draft decision (IG.25/18) is set out in annex V to the present report.

E. Outcome of the Ecosystem Approach (EcAp) Coordination Group meeting

134. A representative of the secretariat briefed the focal points on the outcome of the eighth meeting of the Ecosystem Approach Coordination Group (UNEP/MED WG.515/25). She recalled that annex I to the document, setting out the proposed ecosystem approach governance structure, had been transmitted to the focal points during the current meeting for consideration as part of the draft decision on governance, under agenda item 5.1.

⁵ 85/337/EEC.

135. One focal point, speaking on behalf of a group of countries, provided comments on the ecosystem approach governance structure. She noted that under the correspondence group on monitoring (COR MON) there were now four subgroups, with marine litter and pollution as separate subgroups, and she suggested recombining the two topics to better balance the scope of the subgroups. Also on the topic of governance, she asked for the inclusion of a list of documents to be developed and approved by each body, as appropriate. Such a list would clearly show which documents supported the various milestones, an important requisite for making timely progress together.

136. Another focal point also expressed support for the inclusion of a list of documents in the ecosystem approach governance structure, as well as the classification of the documents by type. She said that more permanent membership of the bodies of the governance structure, particularly the COR MON, would provide continuity from one meeting to the next.

137. Responding to the comments, the Coordinator explained that the pollution cluster was quite aggregated, covering contaminants, eutrophication and even noise. While in practice it also included marine litter, the latter called for very specific expertise and could not be addressed by the same experts; hence the secretariat had deemed it appropriate to have a separate group. That said, it was up to the focal points to decide whether that was the preferable approach. With respect to clarifying the interaction between bodies and ensuring maximum efficiency and minimum overlap, the Coordinator acknowledged the need to strengthen that important element in the draft annex prepared. While the text of the report of the Ecosystem Approach Coordination Group meeting could not be modified, the focal points could propose amendments to the relevant annex to the decision on governance. The Group had already recommended that terms of reference for the bodies of the governance structure be prepared for its consideration in 2022.

138. The focal point speaking on behalf of a group of countries proposed an amendment to annex II to the report of the Ecosystem Approach Coordination Group meeting, with respect to the sea-floor integrity elements of the 2023 *Mediterranean Quality Status Report*. The focal points agreed to strongly recommend that the secretariat and SPA/RAC undertake a first assessment of sea-floor integrity.

F. Mediterranean Action Plan programme of work and budget for 2022–2023

139. The Coordinator introduced the draft decision set out in document UNEP/MED WG.515/22 and gave a presentation on the main elements of, and rationale behind, the proposed programme of work, including the key principles that had guided its preparation, the lessons learned from the implementation of the medium-term strategy for 2016–2021 and the deliverables and targets of the seven programmes envisaged in the strategy for 2022–2027 as they related to the biennium 2022–2023. The presentation also included analysis through graphs, charts and tables to explain the proposed budget in detail. She stressed the importance of early payment of contributions and noted an improvement in the first-quarter collection rate from 34.33 per cent in 2020 to 51.20 per cent in 2021. Highlighting the need to strengthen the capacity of the secretariat, she concluded by urging the Contracting Parties to endorse the draft decision in order to ensure a smooth implementation of the programme of work.

140. A representative of the secretariat delivered a presentation on the financial implementation of the programme of work and budget for 2018–2019 and on the status, as at mid-July 2021, of the financial implementation of the programme of work and budget for 2020–2021, which showed that the implementation of planned activities was on track despite the disruption caused by the COVID-19 pandemic.

141. In the ensuing discussion, appreciation was expressed to the secretariat for the presentations and detailed information provided. One focal point, speaking on behalf of a group of countries, said that additional information on how the budget had been used in the previous two bienniums would be required to enable the Contracting Parties to make an informed decision on the programme of work and budget for 2022–2023. She asked the secretariat to provide a more detailed explanation of how the surplus in the Mediterranean Trust Fund had accumulated. In particular, she requested that the secretariat provide to the Contracting Parties, ideally by October 2021, an additional assessment of the reasons for the accumulation of the surplus for the period 2018–2019, in line with the breakdown of the surplus provided in document UNEP/MED WG.515/INF/4, and a preliminary assessment for the period 2020–2021. She asked the secretariat to explain a discrepancy in the figures provided in documents UNEP/MED WG.515/22 and UNEP/MED WG.515/INF/4 related to the rates of financial implementation of the programme of work and budget for 2020–2021.

142. One focal point, speaking on behalf of a group of countries, asked whether the working capital reserve foreseen for 2022–2023 represented 15 per cent of the total budget, and whether the Coordinator could transfer funds between activities. She wondered why there was no reference in the draft decision to the need to retain a net cash balance equivalent to the budget required for covering the cost of the implementation of the programme of work for up to 4

months, mentioned in paragraph 36 of the note by the secretariat, or of the call by the Coordinator for an increase in assessed contributions to the Mediterranean Trust Fund of between 2 and 6 per cent.

143. Several focal points, including one speaking on behalf of a group of countries, asked the secretariat to explain the rationale for the changes in budget allocations for the secretariat and the regional activity centres, as well as the proposed changes related to the staffing of MED POL.

144. One focal point urged consideration of his proposal that a new regional activity centre to boost common efforts around climate change in the Mediterranean region be established. Another focal point said that the proposal should be examined with caution, as other regional activity centres had been established with assurances that they would be fully funded by their host country but those situations had changed over time. It was important to ensure that resources were allocated to the regional activity centres on the basis of a careful analysis of the activities and needs of each centre.

145. Several focal points suggested maintaining the budget of the regional activity centres at the previous biennium's level, given the level of ambition reflected in the new medium-term strategy for 2022–2027 and programme of work and the key role of the centres in their implementation. Two of the focal points voiced concern about the substantial decrease in Mediterranean Trust Fund contributions to the centres, as well as the marked imbalance between funds allocated to activities and funds allocated to administrative support, which represented a considerable departure from the previous biennium.

146. The focal point for Spain drew attention to the situation of SCP/RAC, stressing that the proposed allocation from the Mediterranean Trust Fund to the centre during 2022–2023 represented an overall decrease of 26 per cent, and a decrease of more than 65 per cent in administrative support, from the previous biennium – that at a time when the centre was undertaking ever more work on the circular economy and other issues critical for meet the objectives of the new medium-term strategy. He therefore proposed that, in addition to retaining the 2020–2021 budget allocation levels for 2022–2023, all regional activity centres be allowed to transfer resources from activities to administrative support or, if that was not possible, to shift the budget for activities to administrative support.

147. The focal point for France said that his Government would continue to support the Blue Plan Regional Activity Centre and would contribute at least 500,000 euros to the centre in 2022. It would also second an official to the secretariat to support work relating to the coalition for an exemplary Mediterranean by 2030, as well as the work of MED POL on marine litter. He requested that the secondment be reflected in the relevant sections of the programme of work and budget for 2022–2023.

148. The focal point for Italy said that her Government would sign a bilateral cooperation agreement with the UNEP/MAP secretariat to support the implementation of activities in the new medium-term strategy during the 2022–2023 biennium. Noting that continued support would also be provided to INFO/RAC, she asked why the host country contribution from Italy to INFO/RAC in 2020 and 2021 was missing from the table on page 24 of the annex to document UNEP/MED WG.515/22. She also noted the relatively low percentage of Mediterranean Trust Fund funds allocated to the outcome on visibility and communication and asked the secretariat to reconsider the distribution of funds for the biennium 2022–2023 to strengthen that outcome, for consideration by the Conference of the Parties at its twenty-second meeting.

149. Following the ensuing discussion, the focal points agreed to remove the brackets from the activity related to work on the possible future designation of the Mediterranean Sea as an Emission Control Area for nitrogen oxides.

150. The focal point for Montenegro said that the programme of work should include activities to ensure full interoperability between national information systems and the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) information system. She called for the provision of support to her country in the implementation of an integrated monitoring programme in line with IMAP, developed under a Global Environment Facility project for the Adriatic Sea, and asked whether the activities related to polychlorinated biphenyls in Montenegro mentioned in the programme of work and budget for 2022–2023 would be limited to inventories or would also encompass remediation and other activities as discussed and agreed on for Child Project 1.1 at the meetings of the MEDProgramme.

151. Responding to comments and questions, the Coordinator provided additional clarifications.

152. With regard to requests for information on the surplus, she said that most of the savings were coming from posts vacant since 2016, when the system had gone through a functional review, with many structural changes that had made it difficult to complete certain processes in a timely way. Her secretariat colleagues would provide additional information on the issue later in the session, drawing attention to relevant sections in the budget narrative of the programme of work document.

153. Drawing attention to the report of the twenty-first meeting of the Contracting Parties, she said that the Contracting Parties had supported an increase in funding for the regional activity centres for specified activities on an exceptional basis for the biennium 2020–2021. The secretariat had prepared the programme of work and budget for 2022–2023 on the basis of the guidance provided by the Contracting Parties at their twenty-first meeting. Given that operational costs for the centres had been suspended since 2014, the secretariat had presented a proposal that provided for a modest annual increase in the centres' operating costs across the board. It was the prerogative of the Conference of the Parties to consider and agree on higher allocations from the Mediterranean Trust Fund to the regional activity centres.

154. Regarding the issue of contributions, she said that, given the COVID-19 pandemic, the secretariat was not proposing any increase in assessed contributions for 2022 or 2023. Instead, it was recommending the use of 1.6 million euros of the Mediterranean Trust Fund surplus to support the implementation of the programme of work. Options to secure additional funds after 2023 included the use of smaller amounts from the Fund surplus; annual increases in assessed contributions of 2 to 6 per cent; and an increase in voluntary contributions by the Contracting Parties.

155. With regard to the assertion that budget allocations for the secretariat, including MED POL, had increased, in fact, she confirmed that budget allocations to MED POL had decreased over the last 10 years. The abolishment in 2016 of the leadership position at MED POL, which had traditionally been filled by a marine scientist, had left a gap that was difficult to fill completely with existing technical posts in the secretariat. The rationale for creating a P-5 post to lead MED POL was that leadership combining technical and management expertise would strengthen the scientific and technical capacity of the entire secretariat to deliver on mandates, especially considering the very important mandate of the MAP-Barcelona Convention system relating to monitoring and assessment. Creating the post would allow the Coordinator and the Deputy Coordinator to focus on policy and on the overall management of the entire system. The secretariat would have preferred to create a new P-5 level position that did not entail losing the Mediterranean Trust Fund resources for the P-4 position; however, in order to limit costs, it was proposing to use the funds allocated to the P-4 post to fund a P-5 post in 2023, provided that was acceptable to the Contracting Parties.

156. Supporting the previous intervention of another focal point who favoured the creation of a new P-3 rather than a P-5 post, one focal point said that adding a P-5 post could be justifiable if it were created for management purposes, taking into account the P-3 QSR Officer post recently filled with a staff member with a scientific background, the existing posts of P-3 Monitoring and Assessment Officer and P-2 Marine Litter, both occupied by staff members with a scientific and technical background and approved by the Conference of the Parties at its twentieth meeting, and the newly announced secondment of a staff member to support the MED POL marine litter portfolio.

157. The use of the formulation “posts and operational costs” for the Coordination Unit and MED POL and of “administrative costs” for the regional activity centres stemmed from a decision by the Contracting Parties that the posts of the centres should no longer be referred to in programmes of work. The administrative costs of the budget of the centres constituted a lump sum that did include posts, travel and other administrative issues, all of which were detailed in the legal instrument the secretariat signed with each centre for the implementation of the programme of work.

158. Regarding secondments, she said that, under United Nations rules, countries that seconded staff paid the costs associated with retaining such staff and were charged a 14 per cent administrative fee that needed to be paid in cash to UNEP. France would pay for the official seconded to the secretariat for 2 to 3 years but had signalled that paying the 14 per cent fee presented difficulties and had identified a modality in the framework of the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) whereby that fee had been paid from the Convention trust fund. The secretariat was discussing with UNEP Headquarters how that could be done. Once the discussion was concluded, the Contracting Parties would be informed of all the details.

159. The Chief Financial Officer of UNEP responded to questions related to the authority of the Coordinator to transfer funds between different budget lines. He said that the general practice within UNEP and the United Nations Secretariat was to allow heads of entities flexibility in dealing with unforeseen changes between budget lines, while maintaining the intention of the relevant governing bodies regarding allocations. Thus, the practice had been to permit executive heads to make necessary reallocations between budget lines within a range of 10 to 20 per cent. In the proposed programme of work and budget, a 20 per cent range had been proposed for consideration by the Contracting Parties at their twenty-second meeting. The Coordinator was expected not to abuse the flexibility to reallocate funds and would be required to report on and justify any reallocations. Additional restrictions applied to transfers from programme to staffing costs.

160. A representative of the secretariat, responding to a number of technical questions raised by the focal points, said that the different financial implementation rates for 2020–2021 reported in documents UNEP/MED WG.515/22 and UNEP/MED WG.515/INF/4 stemmed from the fact that the former document focused on the implementation rates of the assessed ordinary contribution fund (MEL), while the latter dealt with all the funds of the Mediterranean Trust Fund (Assessed Ordinary Contribution – MEL, EU Discretionary Contribution – QML, Greek Host Country Contribution – CAL) and did not include commitments from the regional activity centres. The working capital reserve amount proposed for the 2022–2023 biennium represented 15 per cent of the budget but was, in absolute terms, lower than the amount for the previous biennium, for which the Contracting Parties had agreed to an extraordinary additional budget allocation.

161. Finally, regarding the Mediterranean Trust Fund surplus, for a long time the secretariat had programmed only for amounts of income received, which meant that programming for which no cash was available could not occur. After the deficit had been recovered, stricter programming measures had continued to apply. The surplus had increased year by year because of a prolonged vacancy at the secretariat, which, coupled with an appreciation of the euro in relation to the United States dollar over a number of years, had led to additional savings. The secretariat would prepare a document with the relevant information for consideration by the Contracting Parties at their twenty-second meeting.

162. One focal point, speaking on behalf of a group of countries and thanking the secretariat for the information provided on the surplus, said that she would nevertheless like a more detailed explanation of how the surplus had accumulated, along the lines of the information provided by the secretariat, and in relation to each element of the Mediterranean Trust Fund in 2018–2019, supported by an audit, and a similar analysis for 2020–2021, which could later be supported by an audit, in line with UNEP practice. A better understanding of past budget use by the secretariat would help the Contracting Parties to decide on the future.

163. The Chief Financial Officer of UNEP said that, though transitions through different reporting systems presented difficulties in comparing and aligning different types of reporting, UNEP was committed to transparency and full disclosure of financial information. In that spirit, UNEP would examine how it could disaggregate the available data in order to provide to the Contracting Parties at their twenty-second meeting, to the extent possible, a breakdown of sizable elements that could have led to the surplus, such as exchange rates or slow implementation. While audit reports were very helpful in providing data assurance, because they were consolidated reports, they would likely not provide the level of detail the Contracting Parties required.

164. Following the discussion, the focal points agreed that the draft decision on the programme of work and budget, including the programme of work and budget tables of the annex, would remain in brackets (as reflected in draft decision IG.25/19, set out in annex V to the present report). The secretariat would prepare a working document providing additional information to the Contracting Parties and identifying the main reasons for the Fund surplus. A request was made to also include in that working document the rationale for the proposal to establish a P-5 post at MED POL using the Mediterranean Trust Fund resources previously allocated for the P-4 post.

165. During the adoption of the report of the meeting, one focal point asked that sectoral studies for operationalizing national sustainable consumption and production plans continue.

166. Under the same agenda item, Ms. Léa Badoz presented the results of the assessment of the capacity and funding needed to implement the medium-term strategy for 2022–2027, speaking on behalf of Serova, a non-profit organization mandated by the Environmental Law Institute to carry out the assessment. The mandate for the assessment had been to evaluate the requirements of the strategy and the existing capacity to implement it, identify gaps and make recommendations. The methodology used had included analysing the medium-term strategy, reviewing documents and reports, conducting a survey and comparing the UNEP/MAP-Barcelona Convention system with the systems of other global and regional multilateral environmental agreements.

167. Recommendations arising from the assessment were to ensure that staffing was sufficient; to cover staff costs with core funding, particularly during periods between projects, to enable staff to plan, raise funds and grow professionally; to always fully cover core secretariat operational functions with core funding; to fundraise strategically, ensuring that projects were aligned with the strategy and the priorities of MAP rather than the priorities of donors, and that projects fully covered their own costs, including staffing, overhead and administrative costs; and to prioritize the core functions of the secretariat over projects and programmatic activities.

VIII. Preparations for the twenty-second meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols (agenda item 6)

A. Update on meeting preparations and on the expected outcome of the meeting

168. The Coordinator briefed the focal points on the status of preparations for the twenty-second meeting of the Conference of the Parties, to be held in Antalya, Turkey, in December 2021. The secretariat had participated in a number of discussions with the host country team. The host country agreement had been cleared on both sides and was expected to be signed soon, and meeting preparations would begin as soon as it was signed. The host country was also devoting considerable attention to the COVID-19 safety measures needed to ensure a safe meeting.

169. The focal point for Turkey delivered a presentation on the vision for the meeting. The preferred theme was “Towards a Blue Mediterranean: Leaving a Litter-Free Legacy, Protecting Biodiversity and Sustaining Climate Stability”. In that light, he reviewed the current situation in the Mediterranean, as the Barcelona Convention marked its forty-fifth anniversary, including the important steps that had been taken in the thematic areas of pollution, biodiversity and climate change, such as the development of the medium-term strategy and regional plans for marine litter, and the important work that lay ahead, including boosting of joint efforts to stabilize the climate of the region. The goals were a recovery from the COVID-19 pandemic that could be described as a “green renaissance” and the creation of a sustainable blue economy for the Mediterranean region. It was hoped that the meeting would be an opportunity to consider the way forward, through nature-based solutions and circular economies; to take effective steps towards achieving the Sustainable Development Goal targets and the post-2020 global biodiversity goals and targets; and to promote effective cooperation, inclusiveness, increased ambition on the part of decision-makers, and a shared vision in the region.

170. The Chair of the Mediterranean Commission on Sustainable Development, reporting on the outcome of the nineteenth meeting of the Commission, said that it had discussed progress in implementing the Mediterranean Strategy for Sustainable Development (UNEP/MED WG.515/Inf.26); had heard from parties on their progress towards achieving the Sustainable Development Goals; and had recognized the sustainable blue economy as an enabler of a post-pandemic “green renaissance” in the Mediterranean. *The State of the Environment and Development in the Mediterranean report*⁶ and the first Mediterranean Assessment Report provided a scientific basis for discussions on development, and resource mobilization for the post-pandemic recovery presented an opportunity to accelerate implementation and enforcement of obligations under the Barcelona Convention and its protocols. While the science-policy interface needed further development, the reports provided incentives to act. The 2022–2023 programme of work being considered for the UNEP/MAP-Barcelona Convention system was a positive step in that direction.

171. The focal points took note of the information provided and agreed that the theme of the COP will be: “Towards a blue Mediterranean: Leaving a pollution-free legacy, protecting biodiversity and sustaining climate stability”..

B. Provisional agenda of the meeting

172. The Coordinator presented the provisional agenda for the twenty-second meeting of the Conference of the Parties (UNEP/MED WG.515/23).

173. The focal points agreed to adopt the provisional agenda for the twenty-second meeting of the Contracting Parties, as orally amended, and as set out in annex III to the present report.

C. Ministerial declaration: preparation process and main concepts

174. The Coordinator gave an overview of the concept note for the declaration. Discussions at the ministerial session would focus on three issues: effective management of land- and sea-based pollution, including litter as an important element; restoration of biodiversity and ecosystems, including a focus on specially protected areas and endangered species; and combating climate change and its impact. The discussions would be followed by consideration of the way forward for the parties to the Barcelona Convention, under the theme of “paving the way to common achievement”, and for the UNEP/MAP-Barcelona Convention system.

175. The Coordinator outlined some elements on which the declaration could be built and added that the secretariat would share the concept note for the ministerial session prepared by the host country with a deadline of two weeks for providing input. On the basis of that input, the host country would prepare the first draft of the declaration, and the secretariat would invite the Contracting Parties to set up a working group to work online under the leadership of the host country, following established practice, for the finalization of the draft declaration and its submission to the twenty-second meeting of the Contracting Parties.

⁶ UNEP/MAP and Plan Bleu (2020), *State of the Environment and Development in the Mediterranean* (Nairobi), available at <https://medblueconomyplatform.org/wp-content/uploads/2021/01/file-library-ef1a1dfee5accd4a52d1.pdf>.

IX. Any other business (agenda item 7)

Proposal to update the name of the Regional Activity Centre for Sustainable Consumption and Production

176. The focal point for Spain presented a proposal to update the name of the regional activity centre hosted by Spain, the purpose being to broaden the centre's audience and enable it to raise more funds. The outcome of a recent poll had resulted in the selection of the name "MED Waves"; however, the current name would be retained for formal purposes.

177. The representative of the secretariat suggested that the proposed tag line for the new name be modified to read "the UNEP/MAP regional activity centre for sustainable consumption and production".

178. Several focal points expressed support for the proposed new name.

Proposal to establish a Particularly Sensitive Sea Area in the north-west Mediterranean

179. The focal point for Italy provided information on an initiative by France, Italy, Monaco and Spain to develop a proposal to establish a Particularly Sensitive Sea Area in the north-west Mediterranean for the protection of cetaceans. The area was subject to substantial pressure from human activities affecting marine mammal populations, owing in part to collisions with ships. The initiative, which had originated in 2019 in the context of the Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) and was mainly led by France, was aimed at addressing the problem. While the goal was to submit the proposal to IMO as soon as possible, the group was considering working on the identification of measures to begin to address the problem in the interim period leading up to formal designation. The focal points were being informed of the initiative to make all Mediterranean countries aware of it. The initiative would strengthen the network of Particularly Sensitive Sea Areas in the Mediterranean, thus supporting an important element of the new medium-term strategy.

180. The focal points took note of the information provided.

X. Adoption of the report of the meeting (agenda item 8)

181. The focal points adopted the draft report set out in document UNEP/MED WG.515/L.1, as orally amended. The secretariat was entrusted with the finalization of the report.

XI. Closure of the meeting (agenda item 9)

182. After closing remarks by Ms. Kerstin Stendahl, Head of the Ecosystems Integration Branch, UNEP, and the customary exchange of courtesies, the meeting was declared closed by the President, following his closing remarks (set out in annex I to the present report), at 5.45 p.m. on Friday, 17 September 2021.

Annex I

Statements by Dr. Carlos Zaghi, President of the Bureau and of the MAP Focal Points meeting

MAP Focal Point Meeting (10-17 September 2021)

Welcome speech of the President

Good morning all,

I wish to express to all Mediterranean colleagues a warm welcome to the MAP Focal Point Meeting of the Barcelona Convention and a particular acknowledgment to the UNEP/MAP Coordinator, Mrs Tatjana Hema, and her team, for the relevant work done for its preparation.

We all know that the health of our *Mare Nostrum* is at serious risk. As revealed by the last UNEP/MAP State of the Environment Report and the First Mediterranean Climate Assessment, the Mediterranean region has one of the highest rates of biodiversity loss in the world, with 40% of its marine species in decline.

The adverse effects of climate change, together with the effects of overexploitation of our marine/coastal environment, marine litter and the increase of invasive alien species, are affecting the Mediterranean Sea.

Moreover, the increasing levels of air pollutants from maritime and tourism sectors represent a serious threat to the people who live in port cities. Shipping contributes almost 3% of the total greenhouse emissions, and it can triple by 2050 following the current economic growth, without any change in energy sources and efficiency.

It is also recognized that our Region is at the crossroads of major global maritime routes hosting the major oil transportation lines. Over the last decade, the Mediterranean has experienced a steady increase, in particular in oil transport and cruise shipping.

This has meant a significant impact on our marine and coastal biodiversity, related to the release of oil, hazardous substances and pollutant emissions.

The recent global fora as the G20, under the Italian Presidency, the IUCN World Congress, hosted by France, the Ministerial Conference on a global agreement on Marine litter and plastic pollution, in Geneva, and the third CBD Open Ended Working Group on the post 2020 Global Biodiversity Framework, to name a few, call for an immediate change to reduce the pressures and the evident degradation of our coastal and marine environment and revert the decline of its precious biodiversity. This change, as we know, will be possible only through the effective coordination among all the actors of the Mediterranean Community, starting from us today.

The Barcelona Convention is our common strategic framework to build upon our policies and the meeting of today represents the crucial step towards the adoption, at the 22 meeting of the Contracting Parties of next December 2021, in Antalya, of a comprehensive common programme of work that will guide us in the upcoming future.

The draft decisions in the agenda of this meeting, that I hope we will progress with and jointly agree upon, are numerous.

One of the key decisions is of course the approval of the MAP Medium-Term Strategy 2022-2027, setting the political priorities and areas of action in our Region for the next 6 years. Similarly, we will discuss the process of designation of the Mediterranean, as a whole, as Sulphur Emission Control Area, on which the final agreement between the Parties is needed in order to proceed with its submission to the IMO in due time, as well as the adoption of the updated regional plans and guidelines on pollution, as in particular the Action Plan on marine litter.

We will hopefully endorse and promote the 2021 UNEP/MAP assessment studies as the first Mediterranean assessment report on environment and climate change in the region, done by the MedECC network, and its

Summary for Policy makers, as well as the new MAP Data Policy on the access and transfer of environmental data among the Mediterranean Countries of Barcelona. Last but not least comes the post 2020 Strategic Action Programme for the Conservation of Biodiversity in the Mediterranean Region, which will surely contribute, at regional level, to the current global processes under negotiation in the CBD fora, including the achievement of the unanimous *consensus* on the target of protection of 30% of marine areas by 2030.

As I said before, this meeting is key and calls us to rapid and concrete reactions, while respectful of the current social, political and economical situations of our Countries.

Having said that, I declare this session open confident of its success by virtue of the spirit of collaboration and comprehension, which are typical of the Mediterranean family.

Thank you all and good work.

CLOSING STATEMENT OF PRESIDENT ZAGHI
UNEP/MAP FOCAL POINT MEETING
10-17 SEPTEMBER 2021

Dear Colleagues,

before officially closing the meeting, let me express many thanks all of you and few final words as President of this Meeting and member of our MAP family.

In my opening speech, I stressed the relevance of this meeting as key momentum of our discussion towards the adoption of the policies that will guide us in the next biennium, considering the very limited time to act and prevent further degradation of our common blue heritage.

For this reason, I called to your active involvement and participation while reminding the spirit of collaboration and solidarity that is needed when we have to face common challenges.

Indeed, these days have been very intense with constructive discussions on the different items in the agenda. The Draft Decisions adopted today reflect both the ambition that our policies have, with particular reference to the Medium Term Strategy for the next 6 years.

The thematic outcomes included in the MTS, namely Marine pollution in all its forms, the conservation of biodiversity and ecosystem restoration, blue and circular economy and climate change stability, are the key frameworks that have progressed with the identification of specific actions which are the effective tools to integrate and harmonize our national and regional policies.

Next months towards the COP in Turkey will be crucial to this regard. Again I invite you all to be collaborative but also ambitious for the health of the Mediterranean and the people that depend on its marine and coastal ecosystems.

Finally, I wish to congratulate with Turkey for hosting the 22 COP in Antalya, next December 2021, and sincere good luck for the preparatory phases that will accompany you till December.

We are very much looking for a solid and inspiring Declaration, to be adopted by our Ministries, and on that you can definitely count on our collaboration and support.

My final word is for Tatjana of course. Given it has been your first MAP Focal Point meeting as MAP Coordinator, let me openly and truly thank you and your very effective Team for guiding us all these days with the strength, passion and dedication that you have always shown for the MAP family. Before closing the session, I give the floor to you Tatjana to also express your wishes.

Annex II

Agenda

Agenda

- 1. Opening of the Meeting**
- 2. Organizational Matters**
 - 2.1 Rules of Procedure
 - 2.2 Election of Officers
 - 2.3 Adoption of the Provisional Agenda
 - 2.4 Organization of Work
- 3. Progress Report on Activities Carried Out during the 2020-2021 Biennium**
- 4. Financial Report for 2018-2019 and 2020-2021**
- 5. Specific Matters for Consideration and Action by the Meeting, including draft Decisions**
 - 5.1 Governance
Including: Compliance Committee; Medium-Term Strategy; MCSD Composition; Information and Communication; Cooperation and Partners; Host Country Agreements for Regional Activity Centres; Assessment Studies
 - 5.2 Land and Sea-based Pollution
Including: Amendments to Annexes of the Land-Based Sources, Dumping and Offshore Protocols; Regional Plans to Reduce/Prevent Marine Pollution from Land-Based Sources; Guidelines under the Offshore Protocol; Designation of the Mediterranean as SO_x Emission Control Area; Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships; Ballast Water Management Strategy for the Mediterranean Sea
 - 5.3 Biodiversity and Ecosystems
Including: Post-2020 SAP BIO; Strategies and Action Plans under the SPA/BD Protocol; Marine Protected Areas and SPAMIs
 - 5.4 Sustainable Consumption and Production
Including: Regional Measures on Green and Circular Businesses and Sustainable Products
 - 5.5 Outcome of the ECAP Coordination Group meeting
 - 5.6 MAP Programme of Work and Budget 2022-2023
- 6. Preparation of the 22nd Meeting of the Contracting Parties (COP 22)**
 - 6.1 Update on COP 22 Preparation and Expected Outcome
 - 6.2 Provisional Agenda of COP 22
 - 6.3 Ministerial Declaration: Preparation Process and Main Concepts
- 7. Any Other Business**
- 8. Adoption of the Report**
- 9. Closure of the Meeting**

Annex III

Provisional Agenda of the 22nd Meeting of the Contracting Parties

Provisional Agenda

1. Opening of the Meeting

2. Organizational Matters

- 2.1 Rules of Procedure
- 2.2 Election of Officers
- 2.3 Adoption of the Agenda
- 2.4 Organization of Work
- 2.5 Verification of Credentials

3. Thematic Decisions

- 3.1 Draft Decision 25/1: UNEP/MAP Medium-Term Strategy 2022-2027
- 3.2 Draft Decision 25/2: Compliance Committee
- 3.3 Draft Decision 25/3: Governance
- 3.4 Draft Decision 25/4: Assessment Studies
- 3.5 Draft Decision 25/5: Amendments to Annexes I, II and IV to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (LBS Protocol)
- 3.6 Draft Decision 25/6: Amendments to the Annex to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea (Dumping Protocol)
- 3.7 Draft Decision 25/7: Amendments to the Annexes to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)
- 3.8 Draft Decision 25/8: Regional Plans in the framework of Article 15 of the LBS Protocol on Urban Wastewater Treatment and Sewage Sludge Management
- 3.9 Draft Decision 25/9: Regional Plan in the framework of Article 15 of the LBS Protocol on Marine Litter Management in the Mediterranean
- 3.10 Draft Decision 25/10: MAP Data Policy
- 3.11 Draft Decision 25/11: Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO)
- 3.12 Draft Decision 25/12: Protecting and conserving the Mediterranean through well connected and effective systems of marine and coastal protected areas and other effective area-based conservation measures, including Specially Protected Areas and Specially Protected Areas of Mediterranean Importance
- 3.13 Draft Decision 25/13: Action Plans for the conservation of species and habitats under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean
- 3.14 Draft Decision 25/14: Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides (MED SO_x ECA) pursuant to MARPOL Annex VI
- 3.15 Draft Decision 25/15: Guidelines for the Conduct of Environmental Impact Assessment

(EIA) under the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil

- 3.16 Draft Decision 25/16: Mediterranean Strategy for the Prevention, Preparedness and Response to Marine Pollution from Ships (2022-2031)
- 3.17 Draft Decision 25/17: Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)
- 3.18 Draft Decision 25/18: Set of Regional Measures to Support the Development of Green and Circular Businesses and to Strengthen the Demand for more Sustainable Products

4. Programme of Work and Budget 2022-2023

5. Ministerial Session

- 5.1 Opening of the Session
- 5.2 Report on Activities carried out in the framework of UNEP/MAP since the 21st Meeting of the Contracting Parties (COP 21)
- 5.3 Ministerial Session: Towards a Blue Mediterranean: Leaving a Pollution-Free Legacy, Protecting Biodiversity and Sustaining Climate Stability
- 5.4 Istanbul Environment Friendly City Award 2020-2021
- 5.5 Antalya Ministerial Declaration

6. Dates and Place of the 23rd Meeting of the Contracting Parties (COP 23)

7. Any Other Business

8. Adoption of the Report

9. Closure of the Meeting

Annex IV

List of Participants / Liste des participants

LIST OF PARTICIPANTS / LISTE DES PARTICIPANTS

**REPRESENTATIVES OF THE CONTRACTING PARTIES / REPRESENTANTS DES
PARTIES CONTRACTANTES**

ALBANIA / ALBANIE

Ms. Klodiana Marika
Director of Development Programmes on Environment
Ministry of Tourism and Environment

ALGERIA / ALGÉRIE

Mr. Raouf Hadj Aissa
Directeur de la Biodiversité
Ministère de l'Environnement

**BOSNIA AND HERZEGOVINA /
BOSNIE ET HERZÉGOVINE**

Mr. Tarik Kupusovic
Senior Advisor
Hydro-Engineering Institute

Ms. Selma Cengic
Deputy Director
Hydro-Engineering Institute

Mr. Admir Aladžuz
Biologist
Hydro-Engineering Institute

Ms. Sabina Hadziahmetovic
Leading Researcher
Hydro- Engineering Institute Sarajevo

CROATIA / CROATIE

Mr. Ivan Radic
Senior Advisor
Ministry of Economy and Sustainable Development

Ms. Sandra Troselj Stanisic
Senior Advisor
Ministry of Economy and Sustainable Development

Ms. Snježana Dominković Alavanja
Senior Advisor
Ministry of Economy and Sustainable Development

Ms. Anica Brlek Juren
Senior advisor
Ministry of Economy and Sustainable Development

Ms. Biserka Vištica
Head of Department for Safety of Navigation and Environmental
Protection
Ministry of the Sea, Transport and Infrastructure

CYPRUS / CHYPRE

Ms. Marina Argyrou
Director
Department of Fisheries and Marine Research

Ministry of Agriculture, Rural Development and Environment

Mr. Lavrentios Vasiliades

Fisheries Officer
Department of Fisheries and Marine Research

Mr. Konstantinos Antoniadis

Department of Fisheries and Marine Research

EGYPT / ÉGYPTE

Mr. Mohamed Eissawy

Assistant Minister
Ministry of Environment

Ms. Heba Sharawy

General Director
Studies and International Environmental Policies

Ms. Samah Saleh

General Director
Ministry of Environment

Ms. Yosra Abdelaziz

General manager of Environmental Crisis Management
Minister's technical support - REMPEC focal point
Ministry of Environment

Mr. Mohamed Said Abdelwarith

Environmental Researcher
Ministry of Environment

Mr. Sameh Ayoub

MED POL Focal point
Egyptian Environmental Affairs Agency (EEAA)

**EUROPEAN UNION / UNION
EUROPÉENNE**

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Annex V
Draft Decisions

Draft Decision IG.25/1

UNEP/MAP Medium-Term Strategy 2022-2027

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”,

Recalling also General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Considering the United Nations Environment Assembly decision 5/2 of 23 February 2021, entitled “Medium-Term Strategy for the period 2022-2025 and programme of work and budget for the biennium 2022-2023”,

Considering also Decision IG.22/1 on the UNEP/MAP Mid-Term Strategy 2016-2021, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016), and Decision IG.24/2 on Governance, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Acknowledging the need for translating to the Mediterranean regional and national levels the global aspirations expressed by Rio+20 and the 2030 Agenda for Sustainable Development and its Sustainable Development Goals,

Bearing in mind that achieving the 2030 Agenda in the Mediterranean region requires a new paradigm for sustainable development in which work is no longer conducted in silos, but is intrinsically linked,

Aware of the need for a strategic framework that ensures continuity, efficiency, integration and coherence across the UNEP/MAP-Barcelona Convention system, and considering the need to match the ambition with the required capacity and operational costs of the entire Secretariat including MAP Components,

Noting with appreciation the work undertaken by the MTS Steering Committee and the Bureau of the Contracting Parties in providing guidance for the preparation of the UNEP/MAP Medium-Term Strategy 2022-2027,

1. *Adopt* the UNEP/MAP Medium-Term Strategy 2022-2027 (hereinafter referred to as "the MTS 2022-2027"), set out in the Annex to this Decision, as key strategic framework for the development and implementation of the Programmes of Work of UNEP/MAP;
2. *Call upon* Contracting Parties to fully take part and contribute to its implementation with the support from the Secretariat and MAP components to achieve its vision and concrete results on the ground;
3. *Urge* MAP Partners, international organizations, non-governmental organizations, industry, the private sector and other stakeholders to collaborate and support the implementation of the MTS, ensuring synergy, harmonization of efforts, and optimization of the use of resources, avoiding duplication;
4. *Request* the Secretariat to maximize efforts for the implementation of the MTS in an integrated manner and for the mobilization of adequate resources and reach out, in cooperation with Contracting Parties and relevant stakeholders;
5. *Request also* the Secretariat to monitor and report on the MTS implementation on the basis of each biennial Programme of Work as adopted by the Conference of the Parties, highlighting the contribution of the Programmes of Work to the achievement of the MTS objectives, strategic

outcomes and related targets and update to this aim the MAP Resource Mobilization Strategy for its implementation.

Annex I

UNEP/MAP Medium-Term Strategy 2022-2027

UNEP/MAP MEDIUM-TERM STRATEGY 2022-2027

A Medium-Term Strategy contributing to the Decade of Action for the SDGs

With a 2030 deadline to achieve the UN 2030 Agenda for Sustainable Development and Sustainable Development Goals (SDG's), the Decade of Action calls for accelerating sustainable solutions from the global to the regional and to the national/local level. The 2022-2027 Medium-Term Strategy (MTS) of UNEP/MAP contributes to the implementation of the Agenda and the achievements of the SDG Goals and targets which are relevant to the protection of the marine and coastal environment and the sustainable development of the coastal regions. The MTS will also contribute to the implementation of the Post-2020 Biodiversity Framework and the Paris Agreement under the UNFCCC. Furthermore, it provides an opportunity to contribute to the UN Decade of Action for the SDGs, the UN Decade on Ecosystem Restoration and the UN Decade of Ocean Science.

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1. Introduction

1. UNEP/MAP and the Contracting Parties to the Barcelona Convention and its Protocols – 21 coastal Mediterranean countries and the European Union – have progressively erected a uniquely comprehensive institutional, legal, and implementing framework integrating essential building blocks for sustainability in the Mediterranean. With the Barcelona Convention and its seven Protocols, its structure encompassing the Secretariat, MED POL and six Regional Activity Centres and most importantly its 22 Contracting Parties, this UN Regional Sea Programme builds on a meaningful experience to define its future goals and work in an impactful and integrated way.
2. The timing of the Medium-Term Strategy (MTS) 2022-2027 presents the opportunity to contribute in a coherent way to global processes, in particular the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs), and actions towards the UN Decade on Ecosystem Restoration and the UN Decade of Ocean Science for Sustainable Development. It also gives the opportunity for coherence with UNEP's Medium-Term Strategy 2022-2025, approved at UNEA-5 in February 2021.
3. The global context for the development of the MTS includes a number of processes, such as the Convention on Biological Diversity (CBD) and the post-2020 Global Biodiversity Framework currently under negotiation, the Paris Agreement under the UN Framework Convention on Climate Change (UNFCCC), the ongoing UN Intergovernmental Conference on an international legally binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) relevant UNEA resolutions, and the implementation of global Multilateral Environmental Agreements of relevance to the Mediterranean region.
4. The design of the MTS 2022-2027 integrates key recommendations from the evaluation of the MTS 2016-2021; the mid-term evaluations of the 2016-2025 Mediterranean Strategy on Sustainable Development (MSSD) and the Sustainable Consumption and Production (SCP) Action Plan, as well as the main findings and recommendations of the Mediterranean 2017 Quality Status Report (QSR), the 2020 State of Environment and Development (SoED) report, and the Climate and Environmental Change in the Mediterranean Basin Current Situation and Risks for the Future First Mediterranean Assessment Report (MAR1) prepared by MedECC.
5. The MTS reflects the broad political impetus expressed by the Naples Ministerial Declaration, adopted at COP 21 (Naples, Italy, 2-5 December 2019). The Naples Declaration showcased strong political commitment for specific action in achieving good environmental status and shoring up sustainable development in the Mediterranean region and constitutes a clear inspiration for the strategic design of that action. The MTS also assimilates the consultation process completed in 2019 to evaluate the implementation of the current SAP/BIO, as well as the processes for the elaboration of the Mediterranean Strategy for Sustainable Development 2026-2035, the Post-2020 SAP/BIO, the Post-2020 Regional Strategy for MPAs and OECMs and the Strategy to combat Pollution from Ships 2022-2030.
6. The implementation of the MTS aims at achieving transformational change and in substantively progressing in the implementation of the Barcelona Convention and its Protocols by the Contracting Parties, strengthening enforcement and compliance with their provisions and implementation of ecosystem approach for achieving and maintaining Good Environmental Status (GES) and substantively progressing in achieving the SDGs in the Mediterranean. To achieve this

ambition, it is important to highlight the need for adequate resources and outreach, *in primis*, the leadership and full involvement of the Contracting Parties as well as solid and inclusive partnerships and coordination with national, regional and global actors. The COVID-19 pandemic and the unpredictability that surrounds it compounds the triple crisis of pollution, nature loss and climate change. The UNEP/MAP MTS 2022-2027 aims to contribute to a “green recovery” in the Mediterranean that will effectively tackle this crisis, a concept which highlights the pressing need for a recovery from COVID-19 that is more environmentally sustainable and resilient than the pre-pandemic status quo and which can support a transformation of Mediterranean economies as part of a deliberate shift towards greater sustainability and resilience.

2. Background

2.1. UNEP/MAP AND THE BARCELONA CONVENTION

7. The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention-signed in 1976 and amended in 1995), with its related seven Protocols, is the only regional multilateral legal framework setting the obligations “*to prevent, abate, combat and to the fullest extent possible eliminate pollution of the Mediterranean Sea Area*” and “*to protect and enhance the marine environment in that area so as to contribute towards its sustainable development*”. The MAP regulatory framework is subject to continuous update and expansion, remaining unique and fully relevant. The seven Protocols to the Barcelona Convention have expanded its application to the seabed and its subsoil, to terrestrial coastal areas, including wetlands, and to river watershed; taken measures to conserve marine biodiversity, enhancing the alignment with global targets; promoted specially protected areas; strengthened the commitments of the region to more ambitious objectives for ensuring integrated coastal zone management; phased out pollution from land- and sea-based sources; promoting transition to sustainable patterns of consumption and production and circular economies; and ensured litter-free Mediterranean sea and coast and sustainable offshore activities.

8. The work of UNEP/MAP and of the entire MAP-Barcelona Convention system for the implementation of the Barcelona Convention and its Protocols, the 2016-2025 MSSD and other Regional Strategies and Action Plans as well as the Ecosystem Approach Roadmap and Integrated Monitoring and Assessment Programme, is guided by a six-year Medium-term Strategy (MTS) and implemented through two-year Programmes of Work and Budgets. The 2016-2021 MTS was adopted by the 19th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (COP 19) (Athens, Greece, 9-12 February 2016) with the vision of “*A healthy Mediterranean with marine and coastal ecosystems that are productive and biologically diverse contributing to sustainable development for the benefit of present and future generations*”.

9. In recent years, UNEP/MAP has increasingly prioritized partnerships with global and regional organizations for the implementation of its mandate to coordinate and maximize impact and achieve transformational change. Activities are also supported through a number of donor-funded projects and initiatives. UNEP/MAP and the MTS 2022-2027 will benefit from a major Programme funded by GEF (MedProgramme, 42 million USD) and three projects funded by the EC (8+ million USD) which have been instrumental for taking up ambitious objectives in several areas of MAP mandate

10. The 21st Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (COP 21) (Naples, Italy, 2-5 December 2019) provided the political commitment through its Naples Ministerial Declaration and outlined the principles and timeline for the MTS 2022-2027 through its

relevant decisions. The Contracting Parties, through the Naples Ministerial Declaration agreed “*on the four priority areas for actions and commitments identified at COP 21 to be part of the 2022- 2027 Medium-Term Strategy of the UNEP/MAP-Barcelona Convention system, and to foster its governance and enforcement mechanisms*”.

Extract from the COP 21 Report (UNEP/MED IG.24/22)**The new MTS is based on the following principles and requirements:**

- The new MTS needs to be aligned with the global context of the UN 2030 Agenda for Sustainable Development, the CBD post-2020 Biodiversity Framework, the implementation of the Paris Agreement, the relevant UNEA resolutions and the implementation of global Multilateral Environmental Agreements in the Mediterranean region;

The new MTS will build on the following elements, among others:

- the uniqueness of the MAP system's mandate in the region;
 - the comparative advantages that the MAP-Barcelona Convention system has in its three dimensions (institutional, regulatory, implementation);
 - the experience, achievements, major processes and lessons learned of the past four decades and in particular of the most recent biennia;
 - the needs, policies and commitments of the Contracting Parties, at national, sub-regional and regional level;
 - the vision, key considerations, evaluation of the current MTS as well as lessons learned from its implementation;
 - the increasingly more accurate assessment work being undertaken on the Mediterranean;
 - the analysis of significant environmental challenges that the Mediterranean region will face in the coming years;
 - the analysis of emerging issues that are of particular relevance to the region;
 - the new paradigm required to achieve Agenda 2030, in which work on environment and sustainable development issues is not conducted in silos, but is intrinsically linked;
 - the implementation and enforcement of the comprehensive body of instruments of the MAP-Barcelona Convention system;
 - the increasing interest demonstrated by actors in the Mediterranean and beyond in partnering with the MAP-Barcelona Convention system;
 - the opportunities presented in the region in terms of access to financial resources, to knowledge, and to stakeholders' involvement; and
 - the advantages provided by being part of a global inter-governmental mechanism such as UNEP and the UN.
- Focus, integration and diversification of responses and approaches will drive the development of the MTS in order to reflect the diversity of the region
 - The evaluation of the current MTS and the preparation of the next MTS need to take into account the relevant evaluation and assessment processes within the MAP-Barcelona Convention system (including the MSSD 2016-2025 mid-term evaluation, the SCP Action Plan mid-term evaluation, the 2017 MED QSR, the 2020 SoED and the MED 2050 foresight study preparation);
 - The process needs to be conducted under the leadership of the Bureau; preparation of the new MTS needs to be Contracting Party-driven, to involve the Executive Coordination Panel (ECP), and to ensure stakeholder participation to the widest extent possible."

11. A strategic response of UNEP/MAP to the COVID-19 crisis builds upon the blocks set forth in the UNEP's COVID-19 Response paper "*Working With the Environment to Protect People*", namely: (1) The medical and humanitarian emergency phase; (2) A transformational change for nature and people; (3) Investing to build back better; and (4) Modernising global environmental governance, with a focus

on elements related to the UNEP/MAP—Barcelona Convention system’s legal, policy and action framework. Its identified priority actions are fully considered into the MTS 2022-2027.

2.2. INTERNATIONAL CONTEXT

12. The 2022-2027 MTS has been developed fully in line with global initiatives and their objectives. Central to this is the **UN 2030 Agenda for Sustainable Development** and relevant SDG Goals and targets, in particular Goal 14. Life below water related to pollution (target 14.1), marine and coastal ecosystems (target 14.2), marine protected areas (target 14.5); as well as numerous other targets as presented in the following sections. A regional approach to the implementation and reporting of the SDG’s is regarded as essential especially for targets which are more transboundary in nature and especially considering that in voluntary national reviews the least reported are related to environment and nature, such as life below water (SDG 14), climate action (SDG 13), life on land (SDG 15), responsible consumption and production (SDG 12) as well as partnership for the goals (SDG 17).

13. The **UN Decade of Action** launched in 2020, includes numerous thematic decades. The UN Decade on Ecosystem Restoration [[LINK](#)], supported by UNEP, FAO and CBD has as overarching goal to stop and reverse the destruction and degradation of billions of hectares of ecosystems in cooperation with all key stakeholders, organizations and governments. Also, the UN Decade of Ocean Science [[LINK](#)], coordinated by IOC-UNESCO will provide a common framework to ensure that ocean science can fully support countries’ actions to sustainably manage the Oceans, embracing a participative and transformative process, so that scientists, policy makers, managers, and service users can work together to ensure that ocean science delivers greater benefits for both the ocean ecosystem and society.

14. The relevant **United Nations Environment Assembly (UNEA)** resolutions are considered in the development of the MTS [[LINK](#)]. The Contributions of the UN Environment Assembly to the 2020 High-level Political Forum on Sustainable Development [[LINK](#)], which notes that the COVID-19 outbreak calls for the urgent need to address threats to wildlife and ecosystems and recognizes the role of regional level coordination as key to address transboundary issues and facilitate regionally coherent approaches, are also considered.

Relevant UNEA Resolutions

- UNEA 1 (2014) resolutions 1/5 Chemical and waste; 1/6 Marine plastic debris and microplastics; and 1/8 Ecosystem-based adaptation;
- UNEA 2 (2016) “*Strengthening the science-policy interface*” resolutions on 2/7 Sound management of chemicals and waste; 2/8 Sustainable consumption and production; and 2/10 Oceans and seas;
- UNEA 3 (2017) “*Towards a Pollution-Free Planet*” resolutions 3/7. Marine litter and microplastics; 3/10 Addressing water pollution to protect and restore water-related ecosystems;
- UNEA 4 (2019) “*Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production*” resolutions: 4/1 Innovative pathways to achieve sustainable consumption and production; 4/4 Addressing environmental challenges through sustainable business practices; 4/6 Marine plastic litter and microplastics; 4/7 Environmentally sound management of waste; 4/8 Sound management of chemicals and waste; 4/9 Addressing single-use plastic products pollution; 4/11 Protection of the marine environment from land-based activities; 4/14 Sustainable nitrogen management
- Forthcoming UNEA Resolutions of MAP relevance

15. The **UNEP Medium-Term Strategy 2022-2025** was developed with a focus on supporting the 2030 Agenda and Decade of Action, with three strategic objectives and programmes related to achieving climate stability; living in harmony with nature; and a pollution-free planet. It is supported by seven sub programmes which will, in particular, support, accelerate and scale up a shift to sustainable consumption and production patterns, to achieve planetary sustainability for people, prosperity, and equity.

16. Other relevant UNEP-led strategies include the **Regional Seas Strategic Directions (2021-2024)**, which has identified initially five strategic directions (climate change, SCP/circular economy/pollution, marine biodiversity, monitoring and assessments and knowledge management). In 2019, the Regional Seas published a report on the “*Follow Up and Review of the Sustainable Development Goals (SDGS)*” guidelines [\[LINK\]](#) and case studies [\[LINK\]](#), including guidance and recommendations on the role of Regional Seas in contribution to the SDG reporting. This is complemented by the **UNEP Marine and Coastal Strategy (2020-2030)** focussed on four strategic objectives related to knowledge; circular economy and sustainable consumption and production; policies and strategies for integrated management; and innovative financing instruments. Since 2020, UNEP has published numerous reports in response to COVID-19, including its **COVID-19 Response paper “Working with the Environment to Protect People”**; Green approaches to COVID-19 recovery: Policy note for parliamentarians [\[LINK\]](#); and COVID19, the Environment, and Food Systems: Contain, Cope and Rebuild Better report [\[LINK\]](#).

17. The **Convention on Biological Diversity’s (CBD) Strategic Plan for Biodiversity 2011-2020** [\[LINK\]](#), includes five Strategic Goals and 20 Aichi Biodiversity Targets, with corresponding indicators [\[LINK\]](#). Work is ongoing to develop the **Post 2020 Biodiversity Framework** [\[LINK\]](#) which includes regional and thematic consultations. UNEP/MAP has closely followed the process and contributed with its Mediterranean views to the different reviews of documents contributing to the Framework elaboration, including on monitoring issues as set by the adopted IMAP. This Framework is very relevant for the Post-2020 SAP BIO and will be duly considered in the implementation of the MTS.

18. The **United Nations Framework Convention on Climate Change (UNFCCC)** is the parent treaty of the 2015 Paris Agreement [\[LINK\]](#) and of the 1997 Kyoto Protocol. The ultimate objective of these

agreements under the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development. In 2019, IPCC published a Special Report on the Ocean and Cryosphere in a Changing Climate [\[LINK\]](#) including recommended responses. Following this, the dialogue has continued among Parties and non-Party stakeholders to discuss how to strengthen adaptation and mitigation action on ocean and climate change, drawing upon the knowledge and scientific findings from the IPCC Report and the submissions from Parties and non-Party stakeholders [\[LINK\]](#).

19. Other global strategies, MEAs and processes include:

- The International Maritime Organization (IMO) Strategic Plan for 2018-2025 [\[LINK\]](#) focuses on seven strategic Directions and for each has developed a number of performance indicators and includes a list of concrete outputs per biennium. Also relevant is the IMO GHG Strategy [\[LINK\]](#) and the IMO Action Plan to address Marine Litter from Ships [\[LINK\]](#), both adopted in 2018;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal - Strategic framework 2012-2021 [\[LINK\]](#);
- Minamata Convention on Mercury, programme of work and Decisions adopted during COP 3 (2019) [\[LINK\]](#);
- Stockholm Convention on Persistent Organic Pollutants, and Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade programme of work and decisions adopted at COP 9 (2019) [\[LINK\]](#).
- Convention on the Conservation of Migratory Species of Wild Animals (CMS) Strategic Plan for Migration Species 2015-2023 [\[LINK\]](#);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Strategic Vision 2021-2030 [\[LINK\]](#);
- Ramsar Convention on Wetlands of International Importance - Strategic Plan 2016-2024 [\[LINK\]](#);
- Strategic Approach to International Chemicals Management (SAICM), a policy framework to promote chemical safety around the world [\[LINK\]](#);

20. Links are also established with working groups such as the “*Ad hoc open-ended expert group on marine litter and microplastics*” established at UNEA 3 [\[LINK\]](#) and key ocean conferences such as the UN Ocean Conference [\[LINK\]](#), Our Ocean Conference [\[LINK\]](#) and IUCN World Conservation Congress [\[LINK\]](#).

2.3. REGIONAL CONTEXT

21. UNEP/MAP works and delivers in a region characterised by a variety of multilateral and bilateral collaboration platforms and partnerships. Being the most comprehensive and longest-standing one for the Mediterranean on matters related to environmental sustainability, and the only one providing a comprehensive legal framework for all Mediterranean countries, the UNEP/MAP-Barcelona Convention system has inspired strong cooperation within the region, with important regional actors and initiatives through its official partnership policies. This outreach experience is a great asset with potential for replication for the effective implementation of the MTS 2022-2027. UNEP/MAP is supported in its work regarding marine and coastal biodiversity, in particular through a

number of partnerships. The regional context in which the MTS is developed also includes the UN Regional Economic Commissions, conventions and initiatives.

22. UNEP/MAP has over 45 accredited partners and several MOUs of cooperation (including with FAO/GFCM, ACCOBAMS, UfMS, IUCN, Black Sea Commission). The **UfM Secretariat** and the UNEP/MAP-Barcelona Convention Secretariat signed a Memorandum of Understanding (MOU) in Istanbul (Turkey), in December 2013, which provides for stronger collaboration in a number of issues of common interest, in line with decisions and Ministerial Declarations of the Meetings of Contracting Parties of the Barcelona Convention and its Protocols and relevant UfM Ministerial Declarations [[LINK](#)], as well as the respective Programmes of Work of the two organizations. **FAO's General Fisheries Commission for the Mediterranean (FAO/GFCM)** and UNEP/MAP signed an MOU in 2012. UNEP/MAP and GFCM work in close partnership towards bringing together biodiversity and fisheries in terms of shared data and information and joint reporting and assessments, in particular, for the implementation of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria and the publication of the first Mediterranean Quality Status Report (2017 MED QSR); but also in terms of spatial-based protection and management measures for marine biodiversity. **ACCOBAMS** strategy (Period 2014-2025) has the overall objective to "*Improve conservation status of cetaceans and their habitats in the ACCOBAMS area by 2023*"; collaboration with ACCOBAMS is ongoing. **The IUCN Mediterranean Programme 2017-2020** was developed in line with the global IUCN Programme; collaboration and complementarities in implementing the strategies and programmes of work of the two organizations is continuous.

23. At the European Union (EU) level, the **Marine Strategy Framework Directive (MSFD)** adopted on 17 June 2008 and its implementation framework remains extremely important for the implementation of UNEP/MAP Ecosystem Approach Roadmap and its Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP). This is complemented by the EU's biodiversity strategy for 2030, which includes the objectives that "at least 30% of the land and 30% of the sea should be protected in the EU" of which 10% are to be strictly protected, as well as an initiative comprising specific restoration targets. Regarding green and circular economy and climate change, the European Commission has 6 priorities for 2019-2024, which includes "**A European Green Deal - Striving to be the first climate-neutral continent**" which, through this biodiversity strategy and zero-pollution ambition—provides a roadmap with actions to boost the efficient use of resources by moving to a clean, circular economy and to restore biodiversity and cut pollution. Furthermore, the work of the **European Environment Agency (EEA)** in providing sound, independent information on the environment, such as in the 2020 Joint Report EEA-UNEP/MAP, is of relevance to the future work of UNEP/MAP, especially regarding the knowledge base.

24. Cooperation is also continuous with other UN bodies, Agencies and Offices. To this end, collaboration is ongoing with the relevant UN Economic Commissions (UNECA, UNECE and UNESCWA), in relation to the Mediterranean Commission on Sustainable Development and beyond, as well as with the UNEP Regional Offices of relevance to the Mediterranean Region.

25. Furthermore, the collaboration with other regional seas, such as OSPAR, HELCOM and the Black Sea Commission, has been strengthened; this collaboration is *inter alia* addressing the challenge of marine litter and plastic pollution. On this issue, UNEP/MAP is also collaborating with the Basel Convention and is actively engaged in its Plastic Waste Partnership (PWP), while the UNEP/MAP-Barcelona Convention system has also initiated the Regional Cooperation Platform on Marine Litter. Both initiatives aim to mobilize all relevant stakeholders, including the private sector.

26. This list is not exhaustive, and other regional processes will also be considered, including those supported by the Mediterranean Experts on Climate and Environmental Change (MedECC), the

MedFund, and several NGOs and professional associations/organisations which are very active in the Mediterranean.

27. Finally, the Mediterranean represents a solid example of collaboration and partnerships at sub-regional, multilateral and bilateral collaboration platforms and partnerships, addressing transboundary issues, including but not limited to the EUSAIR, the West Mediterranean Initiative, sub-regional agreements for preparedness and response to major marine pollution incidents (e.g. RAMOGE Agreement), etc.

3. Situation Analysis or State of the Mediterranean Environment

28. Key assessments conducted in the Mediterranean provide an essential basis for the 2022-2027 MTS. These include:

- UNEP/MAP, 2017 Mediterranean Quality Status Report, the first assessment based on the Mediterranean Action Plan Ecological Objectives and the Integrated Monitoring and Assessment Programme (IMAP) indicators adopted in 2016 by all Mediterranean riparian countries, Parties to the Barcelona Convention;
- UNEP/MAP-Plan Bleu (2020), State of the Environment and Development in the Mediterranean (SoED) report;
- Joint EEA-UNEP/MAP (2020), Towards a cleaner Mediterranean: a decade of progress. Monitoring Horizon 2020 regional initiative;
- MedECC, 2020, Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report (MAR1);
- MedPAN and SPA/RAC, 2019, The 2016 status of Marine Protected Areas in the Mediterranean, updated in 2021 (and used as baseline reference for the post 2020 progress on MPAs); and
- Numerous other thematic assessments by UNEP/MAP, IUCN, WWF, EU and Joint Research Centre (JRC) and others.

29. This exhaustive body of recent assessments show that, despite notable progress, Mediterranean countries are not on track to achieve and fully implement the agreed upon goals, including the Sustainable Development Goals (SDGs) and Ecological Objectives for Good Environmental Status of the Mediterranean Sea and Coast. The majority of observed trends show developments that are either progressing towards the set targets, but at an insufficient rate or unequally across the countries, or moving away from the target. Based on the 2020 Sustainable Development Report [\[LINK\]](#) the Mediterranean countries overall require further efforts in achieving all the SDGs with particular challenges remaining in achieving SDG 14 “*Life Below Water*” and SDG 15 “*Life On Land*” for all Mediterranean countries. Particular focus is needed to ensure a regional approach is taken for those SDG’s relevant to the environment which have been the least reported on by countries, in particular SDG 12, SDG 13, SDG 14 and SDG 15. Finally, since 2020, it has been reported that COVID-19 will have severe negative impacts on most SDGs although impacts on the environment related SDGs (SDG 12, 13, 14 and 15) is not fully assessed.

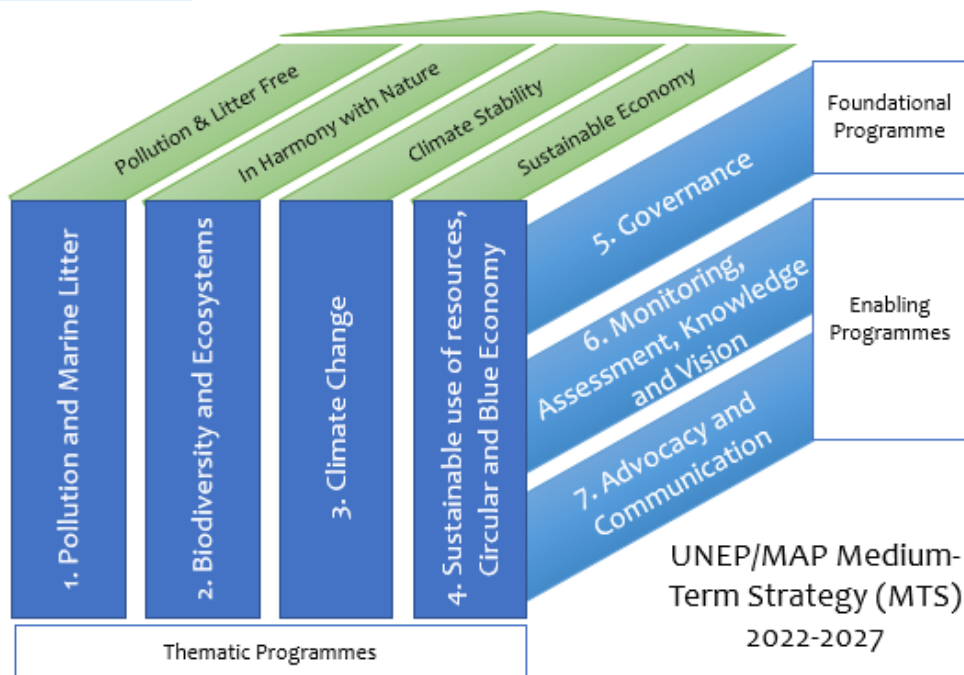
30. The Mediterranean marine and coastal environment therefore continues to be under threat due to increasing pressures and threats which are summarized on the 2020 SoED Report as due to: 1) Climate Change, with the Mediterranean identified as a hotspot by the IPCC; 2) Population densities in coastal areas which continue to increase 3) Health impacts from atmospheric pollution in urban areas, ports and emissions from ships; 4) Health impacts from lack of water supply and wastewater treatment particularly in the southern and eastern Mediterranean; 5) Waste and its management, in particular plastic waste; 6) Fisheries practices with 78% of assessed stocks are overfished; 7) Fossil fuels; and 8) Excessive use of chemical and pharmaceutical products, which are increasingly used especially in northern Mediterranean countries; 9) The increasing number of recorded and established Non-indigenous species in the Mediterranean.

31. Progress is also discernible, in particular in relation to active cooperation on environmental matters and integrating the environment into sectoral policies, especially in relation to the mandate of the UNEP/MAP-Barcelona Convention system and its Contracting Parties. Mediterranean countries

have adopted common objectives and cooperation frameworks, setting a shared path towards sustainable development, including the ecosystem approach (EcAp), adopted plans and frameworks, pollution control and prevention, climate change, sustainable consumption and production, and other strategies and plans in support of the Protocols of the Barcelona Convention. As a result, Integration and system-based approaches are increasingly recognized as the most efficient way to address systemic factors, combined pressures and cumulated impacts such as EcAp, Integrated Coastal Zone Management (ICZM), Marine Spatial Planning (MSP), and SCP and major funding has been mobilized through GEF and the EC to implement concrete actions to support countries. The Mediterranean has seen a decrease in some of the major pollution sources and health hazards, with increased sanitation and wastewater treatment and a reduction in accidental spillages of oil and other harmful substances from ships in spite of heavy traffic. Also, particular efforts have been made throughout the region to build capacity for monitoring and assessment in particular with the adoption of the Integrated Monitoring and Assessment Programme (IMAP) and its implementation with the support of the EC, as well as the EU-supported Shared Environmental Information System (SEIS) for reducing marine pollution and the development of Sustainable development indicators and the Mediterranean Sustainability Dashboard.

32. Findings from the recent SoED report highlight some of the strengths of the Mediterranean region. Countries along the Mediterranean Sea share a common history and legacy (as testifies the number of UNESCO-labelled natural and cultural heritage sites), as well as analogies in lifestyle and values (culture of creativity and leadership, the world-renowned Mediterranean diet). It is also a region of widespread access to education in primary and secondary schools for both boys and girls (with limited but persistent disparities) and the first region in the world to develop a regional Strategy for Education on Sustainable Development. While facing contrasted situations, countries in the region are connected by flows of people, goods, financial resources, information and social interaction, as well as via environmental flows and shared natural resources (the Mediterranean Sea and its marine currents, river flows and basins, migratory species, etc.). Such interconnections have led to a high number of pan-Mediterranean collaboration mechanisms: scientific networks and cooperation's, civil society organizations, thematic networks (cities, youth, women, etc.), institutional frameworks, etc. The region also shows a high level of ratification of Multilateral Environmental Agreements, which demonstrates the region's level of awareness on sustainability issues and poses the basis for common action for sustainable development.

4. Rationale and Vision



1

33. The vision of the MTS 2022-2027 is the following:

“Progress towards a healthy, clean, sustainable and climate resilient Mediterranean Sea and Coast with productive and biologically diverse marine and coastal ecosystems, where the 2030 Agenda for sustainable development and its SDGs are achieved through the effective implementation of the Barcelona Convention, its Protocols and the Mediterranean Strategy for Sustainable Development for the benefit of people and nature.”

¹ The scheme will be updated to reflect the vision and title of theme 6, when finalized.

34. This vision considers:
- i. The previous 2016-2021 MTS Vision *“A healthy Mediterranean with marine and coastal ecosystems that are productive and biologically diverse contributing to sustainable development for the benefit of present and future generations”*;
 - ii. The Vision of the Ecosystem Approach Roadmap *“A healthy Mediterranean with marine and coastal ecosystems that are productive and biologically diverse for the benefit of present and future generations”*;
 - iii. The 2016-2025 MSSD Vision: *“A prosperous and peaceful Mediterranean region in which people enjoy a high quality of life and where sustainable development takes place within the carrying capacity of healthy ecosystems”*; and
 - iv. The vision on SCP Regional Plan adopted by COP 19 (Athens 2016): *“By 2027 a prosperous Mediterranean region is established, with non-pollutant, circular, socially inclusive economies based on sustainable consumption and production patterns, preserving natural resources and energy, ensuring the well-being of societies and contributing to clean environment and healthy ecosystems that provide goods and services for present and future generations.”*
35. It also reflects:
- The UNEP 2050 vision of: *“Planetary sustainability for people, prosperity and equity, where net zero carbon emissions and resilience towards climate change are achieved, humanity prospers in harmony with nature and pollution is prevented and controlled, while ensuring good environmental quality and improved health and well-being for all”*;
 - *The CBD Post-2020 Global Biodiversity Framework vision // The 2050 Vision for Biodiversity “Living in harmony with nature” (CBD)*; and
 - The European Green Deal Vision.

4.1. GOALS AND OBJECTIVES

36. The MTS 2022-2027 aims at contributing to the long-term goals and objectives of the Barcelona Convention including Article 4, General Obligations:
- *“(1)... to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development”* and
 - *“(2)... to pursue the protection of the marine environment and the natural resources of the Mediterranean Sea Area as an integral part of the development process, meeting the needs of present and future generations in an equitable manner”*.
37. The **Long-Term Goals** to which the MTS 2022-2027 is contributing are *the achievement and maintenance of Good Environmental Status (GES) of the Mediterranean Sea and Coast, achieving sustainable development through the SDGs, and living in harmony with nature*.
38. The MTS 2022-2027 **Overall Objectives** are:
- To drive transformational change in enhancing the impact of the “delivery as one” of the MAP-Barcelona Convention system, and its contribution to the region;
 - To ensure that the Good Environmental Status (GES) of the Mediterranean Sea and Coast, the relevant SDGs and their targets, and the post-2020 global biodiversity goals and targets are

achieved, through concrete actions to effectively manage and reduce threats and enhance marine and coastal resources;

- To contribute to strengthening Mediterranean solidarity and peoples' prosperity; and
- To contribute to the Building Back Better approach of the “UN framework for the immediate socio-economic response to COVID-19” and towards a “green recovery” of the Mediterranean by supporting new and sustainable business models, enabling a just and green transition to a nature-based solutions and circular economy.

4.2. MTS 2022-2027 CONCEPT AND PRINCIPLES

39. The MTS 2022-2027 has been structured in a way to be: ***integrated and coherent across the system; consistent; inclusive; adaptive and flexible; attentive to regional and national needs; collaborative, based on participation and partnerships; knowledge generating and sharing; result-based, and resource-efficient.***

40. Inspired by the UNEP 2022-2025 MTS, and in line with UNEP Marine and Coastal Strategy 2020-2030, the UNEP/MAP MTS 2022-2027 charts the contribution of the UNEP/MAP-Barcelona Convention system towards the 2030 Agenda and the Decade of Action, delivered against a 2022-2027 timeframe, and with a 2050 outlook.

41. The MTS 2022-2027 is structured through seven programmes. In developing the main areas of work, the MTS 2022-2027 stems from the mandate of the UNEP/MAP-Barcelona Convention system, the obligations and commitments under the Barcelona Convention and its Protocols, the needs of the Contracting Parties, the long experience and best practices gathered during 45 years of working in the Mediterranean, and the synergies with partners.

5. Main Areas of Work

42. The MTS 2022-2027 contains 7 Programmes - 4 of which are Thematic, 1 Foundational, addressing a systemic governance and regulatory mechanism in its entirety in an integrated manner, and 2 Enabling, addressing the capacity of the system to generate knowledge and evidence-based assessment to feed policy and measures formulation and implementation through advocacy and awareness-raising - which in their entirety will allow the UNEP/MAP-Barcelona Convention system and the Contracting Parties to commit to ambitious priorities and move forward together with their partners for the full and effective implementation of the Barcelona Convention and its Protocols and contribute to the promotion of the ecosystem approach in the Mediterranean and the achievement of GES and the SDGs.

PROGRAMME: 1. TOWARDS A POLLUTION AND LITTER FREE MEDITERRANEAN SEA AND COAST EMBRACING CIRCULAR ECONOMY

General introduction

43. The elimination and improved management of marine and coastal pollution from sea and land-based sources, using ecosystems-based management, remains a core priority for the Mediterranean through cooperation amongst countries and partnerships for effective implementation of the Protocols addressing pollution, the thematic Regional Plans, Strategies and the NAPs. The importance of this issue is highlighted in a number of recent assessment reports, such as the EEA-UNEP/MAP joint Horizon 2020 Mediterranean report, the 2015 Marine Litter Assessment in the Mediterranean, the 2016 SAP-Med evaluation, the 2017 Quality Status Report and the 2020 EEA-UNEP/MAP Towards a cleaner Mediterranean report and the 2019 State of the Environment and Development report. Whilst levels of major pollutants show a decreasing trend important issues remain, especially for heavy metals in coastal sediments, as well as in known hotspots associated with urban and industrial coastal areas and wastewater. There is a recognized need to also assess the threat emerging pollutants, such as plastic additives, cosmetics, plasticizers, microplastics, nanoparticles, and pharmaceuticals, to ecosystems and human health. In addition, further work will be undertaken regarding the impacts of underwater noise. Major attention is also needed with regards to marine litter, as the Mediterranean is one of the areas in the world most highly affected by marine litter due to an increase in plastic use, littering, inadequate and ineffective waste management, the lack of proper separate collection and recycling, unsustainable consumption patterns, high pressures from tourism and shipping, coupled with significant riverine inputs. More than 730 tonnes of plastic enter the Mediterranean Sea every day, and plastics account for up to 95 to 100% of total floating marine litter, and more than 50% of seabed litter. Single-use plastics represent more than 60% of the total recorded marine litter on Mediterranean beaches, which is typically generated from beach recreational activities. Lost, abandoned or otherwise discarded fishing gear (ghost-gear) in particular is a major concern and source of marine litter, resulting also in entanglement of marine animals, including sharks, dolphins, seals and turtles, and risks of disseminating invasive species, disease and parasites in endemic habitats.

44. This Programme, aims to provide effective support to the Contracting Parties in delivering concrete achievements in the strategic directions explained above, using up-to-date integrated, ecosystem approach-based management and nature-based solution tools, as well as One Health approach. This will lead to ensure a transformational change towards an environmentally-sustainable and socially-inclusive integration into sectoral policies of pollution prevention and control including the ICZM Protocol, the Mediterranean Strategy for Sustainable Development, the Strategy on Pollution from Ships and the Sustainable Consumption and Production (SCP) Action Plan, translated onto actions on the ground in the respective up-to-date NAPs. Key consideration is given in particular to the impacts of pollution and marine litter on human health, building upon long cooperation with WHO, and also in line with UNEP/MAP's Strategic response to the COVID-19.

45. This is achieved through the effective implementation of the Regional Plans adopted in the framework of LBS Protocol of the Barcelona Convention and NAPs as also facilitated through the SAP MED Policy Framework and associated targets, the Mediterranean Strategy for the Prevention of and Response to Marine Pollution from Ships (2022-2031); the Offshore Action Plan; and the Regional Action Plan on SCP and the Common Regional Framework for Integrated Coastal Zone Management.

Contribution to global and regional priorities and targets

46. Programme 1 directly contributes to a number of **global and regional objectives and targets** including the SDG's and multilateral environmental agreements (the Minamata Convention, the Basel, Rotterdam and Stockholm Conventions, and the Montreal Protocol on Substances that Deplete the Ozone Layer) and the International Maritime Organization (IMO) Conventions (e.g., MARPOL, OPRC and Dumping Conventions). It also considers the resolutions of UNEA 3 (2017) and UNEA 4 (2019) towards a pollution-free planet including with regards to innovative pathways to achieve Sustainable Consumption and Production and environmental sound management, Marine Plastic Litter and Microplastics and, Environmentally Sound Management of Waste and Sound Management of Chemicals and Waste and Protection of the Marine Environment from Land-Based Activities. It also contributes to the implementation of relevant EU Directives and Strategies, including the Green Deal zero-pollution ambition, the Marine Strategy Framework Directive, where applicable, the Union for the Mediterranean (UfM) and relevant UN regional priorities. Finally, Programme 1 is in line with UNEP's Marine and Coastal Strategy 2020-2030 Strategic Objective 2.

47. For the development of Programme 1, due consideration was given to the recommendations of two reports on Analysis of Existing Regional Measures identifying gaps vis a vis the achievement of Good Environmental Status and potential new/updated regional and national measures, building on the work that has been since undertaken in line with these recommendations, envisaging measures development and implementation in a number of sectors such as agriculture, aquaculture, desalination etc., further consideration of microplastics, integration of circular economy approaches into marine litter management, etc.

Programme 1 key relevant SDG targets:

Goal 14. Life below Water:	Target 14.1
Goal 6. Clean Water and Sanitation:	Target 6.3
Goal 8. Decent Work and Economic Growth:	Targets 8.3 and 8.4
Goal 9. Industry, Innovation and Infrastructure:	Target 9.4
Goal 11. Sustainable Cities and Communities:	Target 11.6
Goal 12. Responsible Consumption and Production:	Targets 12.4 and 12.5

Objectives

48. Programme 1 includes the following strategic objectives linked to the Pollution control related Protocols of the Barcelona Convention:

1. To eliminate to the extent possible, prevent, reduce, monitor and control selected/regulated pollutant inputs, oil discharges and spills;
2. To prevent, reduce, monitor and control marine litter generation and its impact on the coastal and marine environment;
3. To consolidate the development and implementation of national programmes for circular economy businesses (including the polluter pays principle) addressing main sources of pollution, including plastics and promote SCP in key economic sectors and lifestyles which are upstream drivers of chemicals and plastic pollution

49. This will also contribute overall to the Ecosystem Approach achievement of Good Environmental status and the Ecological Objectives and indicators defined in the Integrated Monitoring

and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria as well as the objectives of the 2016-2025 Mediterranean Strategy on Sustainable Development.

Relevant Ecological Objectives:

- EO5. Human-induced eutrophication is prevented, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms, and oxygen deficiency in bottom waters;
- EO9. Contaminants cause no significant impact on coastal and marine ecosystems and human health;
- EO10. Marine and coastal litter does not adversely affect coastal and marine environments;
- EO11. Noise from human activities causes no significant impact on marine and coastal ecosystems;

Outcomes

50. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 1.1. Strategies and Action plan addressing marine litter and plastics developed and implemented through comprehensive, coherent and collaborative approaches

51. The Mediterranean Sea is one of the most marine litter affected areas in the world. To achieve this outcome the Contracting Parties to the Barcelona will be supported to implement the UNEP/MAP Regional Plan on Marine Litter Management in the Mediterranean, considering other global and regional processes i.e., the IMO Action Plan to address marine plastic litter from ships, the Global Partnership on Marine Litter (GPML) and Basel Convention Plastic Waste Partnership. Actions will include the development and application of harmonised approaches and tools, the provision of technical support for the drafting of legislation and cooperation agreements between public and private stakeholders (i.e. Regional and National Plastic Pacts), as well as capacity building, pilot actions and awareness raising activities. Through these activities UNEP/MAP will strengthen prevention and control measures to reduce Land- and Sea-based sources marine litter and plastic pollutions in the Mediterranean, thus contributing to the GES. Priority will be given to actions which address: 1) single-use plastics which represent more than 60% of the total recorded marine litter on Mediterranean beaches; 2) recycling, including support to the private sector for the creation of a lucrative market based on recycled products (subsidies, incentives, etc.); 3) the harmonization of technical standards., 4) Strengthened control and regulation of recycled plastic; 5) Collection of beach litter including technical and financial support from municipalities, campaigns, etc.

Outcome 1.2. A holistic and efficient response to land and sea-based pollution, as a part of overall Ecosystem Approach policy for the Mediterranean, (chemicals, contaminants, eutrophication, noise, oil and emerging pollution) for a sustainable Mediterranean coastal and marine ecosystem is implemented

52. Outcome 1.2 focuses on measures dealing with land-based pollution including negotiating and adopting new/update legally binding Regional Plans containing measures and timetables for their implementation in a number of sectors; updating national actions plans, pilot actions on the national level to eliminate hazardous chemicals; updated guidelines and technical standards developed and implemented to facilitate transfer of knowhow, sharing best practices and promoting transfer of

knowhow among Contracting Parties; targeted support for the implementation of the Dumping and Hazardous Waste Protocols and compliance with their obligations including joint activities with London Dumping Protocol and Basel Convention Secretariats as well as with Stockholm convention for the management of obsolete chemicals. This will include the implementation of common approaches and tools to update, test, interlink and implement national and sub-regional operational systems for preparedness and response to marine pollution from ships, the establishment of a regional financing mechanism (i.e. "Blue Fund"), avoiding overlapping and maximizing synergies with existing mechanisms, through a collaborative and harmonised enforcement system, the provision of technical support as well as capacity building, and awareness raising activities. Finally, in order to avoid costly remediation actions and irreversible impacts on environment and health, this outcome will also develop strategies to prevent the use of toxic chemicals, in particular those POPs listed under the Stockholm Convention, and promote alternatives to toxic chemicals and promote zero-waste initiatives by the Contracting Parties. This will be achieved through technical assistance to strengthen national policy frameworks regulating the use of POPs and toxic chemicals and through the development of mechanisms to accompany companies in phasing out certain hazardous chemicals. Likewise, access to information on Chemicals and products and pathways for a transition to a Circular Economy Free of Toxic Chemicals will be improved. The issue of discharging the effluents of sulphur scrubbers directly into the water should also be addressed.

53. Through these activities UNEP/MAP will reinforce the prevention of, response to and the enforcement of measures to eliminate chemicals, contaminants, eutrophication, noise, oil and emerging pollution in the Mediterranean, thus contributing to the GES.

Outcome 1.3. Systemic approaches for Circular Economy, eco-innovation as well as Sustainable Consumption and Production incorporated into key sectors of activity which are main sources of pollution

54. The promotion of eco-innovation and innovative business models is a major leverage point to prevent pollution. By adopting Circular Economy and SCP approaches, sustainable business models are based on the principle of preventing pollution and saving resources. Through eco-innovation, circular, life-cycle and system thinking approaches (including the promotion of product durability reusability, upgradability and reparability) and eco-design, industrial symbiosis, businesses are able to design out waste and pollution and keep products and materials in use.

55. Actions foreseen under this Outcome will promote networking among public, private and non-profit Business Support Organizations (BSOs) and Financial Institutions (FI) gathered in National Partnerships for Sustainable/Circular Business Development. Regional exchange and networking will also be promoted at Mediterranean level. Capacities for green business development of the BSOs and FI will be reinforced through training programmes and provision of methodologies and tools. BSOs will also be supported to deliver programmes for eco-innovation, circular economy-based business development targeting green entrepreneurs, while FI will be engaged in national and regional fora and working groups. These actions will also encourage the uptake of Green Public Procurement (GPP) practices to support the systemic transition towards circular economy.

Outcome 1.4. One Health approach developed and implemented, linking human and ecosystems health with pollution reduction and prevention, taking into account lessons learnt from the COVID-19 pandemic.

56. While health has overall improved in the region, air pollutants, new lifestyles and consumption patterns are raising increasing health concerns. Climate change also affects social and environmental determinants of health – i.e. clean air, safe drinking water, sufficient food and secure shelter. The "One

Health” approach is “a cross-cutting and systemic approach to health based on the fact that human health and animal health are interdependent and linked to the health of the ecosystems in which they co-exist.”

The air polluting emissions can contribute to adverse effects on human health (e.g. lung cancer, cardiovascular illnesses and asthma), as well as on the environment. Due to lack of sufficient water resources, several Mediterranean countries revert to reuse treated wastewater for irrigation and aquifer recharge, as well as use in sludge in agriculture. These activities without harmonized minimum water quality requirements, entail significant risk on human health. Recent scientific reports have shown a direct correlation between air pollution as well as population infection with the COVID-19 virus. Infection was monitored through the quality of effluents in terms of virus load in wastewater effluents.

57. To ensure that a One Health approach is applied in the Mediterranean region, relevant partnerships will be established with regional and global organizations (e.g. WHO, World Bank, FAO, IMO, other international agencies, etc.). Actions will aim at the reduction of air polluting emissions, deriving from the maritime sector, considering the utilization of alternative energies and the implementation of the Mediterranean SO_x Emissions Control Area (ECA), as a whole, once designated, as well as, possibly widening of the work towards a cost-benefit case, including socioeconomic aspects, for NO_x ECA, covering the whole Mediterranean Sea, and possible way forward, while acknowledging the existing NO_x ECA studies; strengthen the health-related dimension of LBS Protocol and its Regional Plans; publish a study on COVID-19 impacts on environment and development in the Mediterranean. All of the above will be achieved through the organization of Med-wide conferences; the preparation of relevant feasibility technical studies; the provision of technical support, as well as capacity building and awareness raising activities.

PROGRAMME 2: TOWARDS HEALTHY MEDITERRANEAN ECOSYSTEMS AND ENHANCED BIODIVERSITY

General introduction

58. The Mediterranean remains a hotspot for marine biodiversity and endemism, which are fragile and threatened by species extinctions, habitat losses, pollution and climate change. The preservation of these marine and coastal habitats is not only vital in terms of their unique biodiversity but also play an essential role in water quality regulation, coastal protection, carbon fixation and storage and increased resilience from climate change as well as providing feeding, breeding or nursery grounds, including species of commercial interest for fisheries and endangered or threatened species, such as the seagrass *Posidonia oceanica*, which is endemic to the Mediterranean. Whilst there have been significant advances towards a strengthened and coordinated approach to protect and restore key vulnerable habitats and species, the Mediterranean sea and its coasts are under constant and growing human pressure caused by increasing population in coastal and urban areas (where one out of three people live in a Mediterranean coastal region), an additional 360 million tourists per year (~27% of world tourism in 2017), intensive resource exploitation and increasing maritime transport.

59. Programme 2 aims at the protection, preservation and sustainable management of marine and coastal areas of particular natural and cultural value, and threatened and endangered species of flora and fauna, in line with the SDG's and the CBD Post-2020 Global Biodiversity Framework. This will be achieved through assistance to the Contracting Parties in meeting their obligations under Articles 4 and 10 of the Barcelona Convention, and under the "*Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean*" (SPA/BD Protocol), Ecosystem Approach-related COP decisions and the "*Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region*" (Post-2020 SAP-BIO), currently under development, as well as the Mediterranean Strategy on Sustainable Development (MSSD). To guide and facilitate the implementation of the SPA/BD Protocol and Post-2020 SAP-BIO, a number of regional strategies and action plans have been developed, adopted and regularly updated, aiming at the protection, preservation and sustainable and effective management of marine and coastal areas of particular natural and cultural value and threatened and endangered species of flora and fauna:

- The "*Regional Working Programme for the Coastal and Marine Protected Areas in the Mediterranean Sea including the High Sea*", and the emanating "*Roadmap for a Comprehensive, Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean*";
- Eight Action Plans for the conservation and/or management of endangered or threatened species and key habitats: Mediterranean Monk Seal, Marine Turtles, Cetaceans, Marine Vegetation, Marine and Coastal Birds, Cartilaginous Fishes (Chondrichthyans), Coralligenous and other Calcareous Bio-concretions, and Dark Habitats;
- A Regional Strategy for the Conservation of Mediterranean Monk Seal;
- An Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea; and
- The Mediterranean Strategy on Ships' Ballast Water Management Strategy and its Action Plan.

60. To improve synergy and avoid overlapping and duplication of activities, collaboration will be enhanced with relevant intergovernmental and non-governmental organisations and other regional, national and local stakeholders, as well as the MAP Components. Many of the regional partners collaborating in marine conservation issues rely very much on technical tools, strategic documents and other outputs produced within the Barcelona Convention context.

Contribution to global and regional priorities and targets

61. Programme 2 directly contributes to a number global and regional objectives and targets including the SDG's and actions towards the UN Decade on Ecosystem Restoration as well as multilateral environmental agreements such as the Convention on Biological Diversity and Post-2020 Global Diversity Framework, the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and its Strategic Plan for Migratory Species 2015-2023, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and its Strategic Vision 2021-2030, the Ramsar Convention on Wetlands of International Importance and its Strategic Plan 2016-2024, and the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS). It also contributes to European level policies such as the EU Green Deal, the Marine Strategy Framework Directive, and Birds and Habitats Directives, where applicable.

62. For the development of Programme 2, due consideration was given to the recommendations of two reports on Analysis of Existing Regional Measures identifying gaps vis a vis the achievement of Good Environmental Status and potential new/updated regional and national measures, building on the work that has been since undertaken in line with these recommendations, i.e. strengthen implementation of SAP BIO and Action Plans in key areas, enhance MPA and other spatial measures networks and improve their management, support restoration actions, improve NIS control and management, enhance protection of sea-floor integrity, better address impacts from aquaculture and fisheries related activities etc.

Programme 2 key relevant SDG targets:

Goal 14. Life below Water:	Targets 14.2, 14.4, 14.5
Goal 12. Responsible Consumption and Production:	Target 12.2
Goal 15. Life on Land:	Targets 15.5, 15.8, 15.9, 15a

63. It also considers the resolutions of UNEA and in particular UNEA-5 which will be conducted virtually on 22-23 February 2021, with the overall theme of "Strengthening Actions for Nature to Achieve the Sustainable Development Goals". Also important are the Contributions of the UN Environment Assembly to the 2020 High-level Political Forum on Sustainable Development [\[LINK\]](#) which notes that the COVID-19 outbreak calls for the urgent need to address threats to wildlife and ecosystems and recognizes the role of regional level coordination as key to address transboundary issues and facilitate regionally coherent approaches.

64. Programme 2 is also coordinated with global and regional partners in particular the Convention on Biological Diversity (CBD), the General Fisheries Commission for the Mediterranean (GFCM), ACCOBAMS, relevant EU Directives and Strategies, including the European Green Deal, the EU Biodiversity strategy for 2030 and the EU nature restoration targets under development, as well as to MSFD where applicable, the International Union for Conservation of Nature (IUCN), the World Wide Fund for Nature (WWF), Union for the Mediterranean (UfM), the Network of Marine Protected Areas Managers in the Mediterranean (MedPAN), the Trust Fund for Mediterranean Marine Protected Areas (The MedFund), OCEANA, etc. It is in line with UNEP's Marine and Coastal Strategy 2020-2030 Strategic Objective 3.

Objectives

65. Programme 2 includes the following strategic objectives linked to the Specially Protected Areas and Biodiversity, and ICZM Protocols:

1. To protect, preserve and manage in a sustainable and environmentally sound way areas of particular natural or cultural value notably by the establishment of specially protected areas in areas within and beyond national jurisdiction as provided for/in line with Article 5 of the Biodiversity and SPA Protocol of the Barcelona Convention;
2. To protect, preserve and manage threatened or endangered species of flora and fauna and their habitats; and
3. To ensure preservation of the integrity of coastal and marine ecosystems, landscapes and geomorphology.

Relevant Ecological Objectives:

- EO 1. Biological diversity is maintained or enhanced: the quality and occurrence of coastal and marine habitats and the distribution and abundance of coastal and marine species are in line with prevailing physiographic, hydrographic, geographic, and climatic conditions;
- EO 2. Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem;
- EO 3. Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock;
- EO 4. Alterations to components of marine food webs caused by resource extraction or human induced environmental changes do not have long-term adverse effects on food web dynamics and related viability; and
- EO 6. Sea-floor integrity is maintained, especially in priority benthic habitats;
- EO 8. The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved; and
- Contribution to all other EO's in particular EO5, EO9, EO10, and EO11.

Outcomes

66. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 2.1. Ecosystem resilience improved through restoration of those with best regeneration potential.

67. To ensure ecosystem function for the future, restoration programs must: (1) learn from the past; (2) integrate ecological knowledge; (3) advance regeneration techniques and systems; (4) overcome biotic and abiotic disturbances. Certain habitats are not particularly resilient, that is, making them vulnerable to adverse outcomes that are irreversible. In this sense irreversibility is indirectly proportional to a system's resilience. A system with greater biological diversity is also usually more resilient than one with less diversity. The aim of this outcome is to assist the Contracting Parties to implement national measure to restore the most resilient marine and coastal habitats and address the artificialisation of the coast and soils, as mean to allow successful restorations during the Decade for Ecosystem Restoration and get experience in the future, through the elaboration of tools and guidelines, specific training and where and whenever possible action in the field by countries, including actions to support ecosystem evaluation and the mapping of ecosystem services, development of

methodologies for valorisation and monitoring of their status. This outcome is expected to also cover the restoration of degraded priority/of key importance ecosystems or specific habitats, for example to tackle climate change or other priority issues.

Outcome 2.2. Comprehensive, coherent Mediterranean network of well-managed MPAs and OECMs in place, expanded, effective and sustainable.

68. In order to establish, expand and operationalize a comprehensive coherent Mediterranean network of effectively-managed marine protected areas (MPAs) and other effective area-based conservation measures (OECMs), countries will be supported in the elaboration or updating of their national strategies and action plans for the development of MPAs and OECMs networks, based on the orientations and priorities of the post-2020 SAPBIO, post-2020 regional strategy for MPAs and OECMs, the CBD post-2020 global biodiversity framework, and other relevant global and regional goals and targets. Parties will be encouraged to streamline the updated regional strategies and action plans into their national legal and institutional frameworks. At the implementation level, countries will be assisted, as much as possible, in collaboration with each other, in extending their national MPAs and Specially Protected Areas of Mediterranean Importance (SPAMIs), Particularly Sensitive Sea Areas (PSSAs) and OECM networks, by extending existing areas, declaring new ones, including in Areas Beyond National Jurisdictions (ABNJ), designating highly and fully protected zones, and enforcing efficient management measures for their long-term conservation, in line with the obligation to protect and preserve the marine environment under international law, as reflected in the UNCLOS. Specific support will be provided in terms of strengthening effective SPAMI management through SPAMI Twinning Programmes. Enforcement activities will be guided and supported by technical tools, standards, criteria, guidelines, tailored at regional or sub-regional level, as needed and relevant. The multidisciplinary Ad hoc group of Experts for Marine Protected Areas in the Mediterranean (AGEM) will deliver timely advice and orientations to support the Secretariat and Contracting Parties. Synergies and collaboration with regional partners will be strengthened to support effective management of MPAs at local level through joint activities of capacity building, knowledge development, experience-sharing and networking.

Outcome 2.3. Mediterranean endangered and threatened species and key habitats in favourable status of conservation.

69. The Regional Action Plans on key species and habitats and the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean are adopted by the Contracting Parties as regional governance tools setting priorities and activities to be undertaken. They call for greater solidarity between the States of the region, and for co-ordination of efforts to protect the species and Habitats in question. This approach has been proved to be necessary to ensure conservation and sustainable management of the concerned species in every Mediterranean area of their distribution. To be more efficient, they are adapted to the sub-regional and national context. Strengthened cooperation and joint actions with relevant regional institutions (e.g., ACCOBAMS, GFCM, MedPAN etc.) and the main stakeholders (fisheries stakeholders, fishery and marine scientists, MPA managers, environmental and fisheries governmental institutions, NGOs, citizen science) is essential towards a better optimised conservation status and the sustainability of the natural resources use. The deliverables and targets of this outcome will contribute to the implementation of the Specially Protected Areas and Biological Diversity (SPA/BD) Protocol, following the priorities of the Post 2020 Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean region (SAP BIO) and Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) of the Ecosystem Approach.

70. The actions foreseen under this outcome aim to improve the conservation status of marine and coastal species and habitats covered by Regional Action Plans for endangered species or by the Annex II and III of the SPA/BD Protocol through assistance to the Contracting Parties including capacity building programmes (symposia, workshops and thematic regional, sub-regional and national training sessions). It will also support the updating and elaboration of regional and national annexes/regional action plans/strategies. It will ensure the implementation of measures to mitigate the impact and interaction with coastal and human activities and enhance the adoption of national measures by the Contracting Parties.

Outcome 2.4. Non-indigenous species introductions minimized and introduction pathways under control.

71. Non-indigenous species (NIS), particularly invasive ones, are considered among the greatest threat faced by coastal environments, and can contribute substantially to altering the abundance, diversity, and distribution of many native species. Unlike many forms of pressures that degrade over time, non-indigenous species can persist, increase, and even disperse. Records of NIS on the Marine Mediterranean Non-Indigenous and Invasive Species database (www.mamias.org) indicate that corridors are the most important pathway for introductions into the Mediterranean, followed by shipping and aquaculture. Assessing pathways of introduction of marine non-indigenous species is essential to identify appropriate measures and evaluate management decisions to regulate and prevent new introductions.

72. The actions foreseen under this outcome aim at assisting the Contracting Parties to update and implement the Regional Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea in line with Post 2020 SAPBIO to prevent, manage and control NIS and invasive non-indigenous species and their introduction pathways to minimize/reduce their impact on ecosystem integrity. It includes the elaboration of tools and guidelines and their adaptation to sub-regional and national contexts, to enhance knowledge and capacities. These measures will also contribute to the collective enforcement of the Ballast Water Management Strategy for the Mediterranean Sea (2022-2027) and other international instruments and guidelines to minimize the transfer of invasive alien species.

PROGRAMME 3: TOWARDS A CLIMATE RESILIENT MEDITERRANEAN

General introduction

73. The combination of various ongoing climate drivers of environmental change (e.g. sea warming, ocean acidification, and sea level rise) has numerous detectable effects on marine organisms acting at individual, population, and ecosystem scales. Expected future impacts include major reorganizations of the biota distribution, species loss, decrease in marine productivity, increase in non-indigenous species, and potential species extinctions. The importance of specifically addressing climate change in the Mediterranean has been recognized recently by the Intergovernmental Panel on Climate Change (IPCC): In the upcoming 6th Assessment Report (IPCC AR6) there will be, for the first time, a cross-chapter paper specifically on the Mediterranean, co-coordinated by one of the MedECC Coordinators, who work in close coordination with the UNEP/MAP-Barcelona Convention system.

74. The 2020 Mediterranean Experts on Climate Change and Environmental Change (MedECC) First Mediterranean Assessment Report (MAR1) notes that due to anthropogenic emissions of greenhouse gases, climate is changing in the Mediterranean Basin, historically and projected by climate models, faster than global trends. Virtually all sub-regions of the Mediterranean Basin, on land and in the sea, are impacted by recent anthropogenic changes in the environment. The main drivers of change include climate (temperature, precipitation, atmospheric circulation, extreme events, sea-level rise, sea water temperature, salinity and acidification), population increase, pollution, unsustainable land and sea use practices and alien invasive species. In most areas, both natural ecosystems and human livelihoods are affected. Most impacts of climate change are exacerbated by other environmental challenges such as changing land use, increasing urbanization and tourism, agricultural intensification, overfishing, land degradation, desertification, and pollution (air, land, rivers and ocean).

75. The 2020 State of Environment Report also stressed that climate change already exacerbates regional challenges, inducing an increase in risks of droughts, floods, erosion, and fires. In the upcoming decades, climate change is expected to further threaten food and water security, as well as human livelihoods and health, which is why it is essential that climate change is tackled in parallel to ensuring the sustainable management of the marine and coastal environment as well as addressing socioeconomic aspects such as poverty, security and human health.

76. UNEP/MAP has been working on the issue of climate change impacts on the marine and coastal zone as far back as in the 1990's and, after a first comprehensive bottom-up assessment of vulnerability and impacts of climate change on Mediterranean biodiversity done at national, sub-regional and regional levels and related priorities identification in 2008-2009, followed by works on its monitoring possibilities, climate related activities were integrated into the work of UNEP/MAP as a transversal common work theme within the 2016-2022 MTS. Programme 3 aims to provide even more consolidated support to Contracting Parties as noted in the Naples Declaration agreed in 2019 by COP 21 and in line with the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas and Objective 4 of the Mediterranean Strategy on Sustainable Development 2016-2025, both adopted in 2016 by COP 19, and as support to the implementation of the Common Regional Framework for Integrated Coastal Zone Management adopted in 2019 by COP 21.

Contribution to global and regional priorities and targets

77. Programme 3 directly contributes to a number of global and regional objectives and targets including the SDG's and the Paris Agreement under the UN Framework Convention on Climate Change (UNFCCC). It also considers the resolutions UNEA in particular UNEA 4 (2019) resolution on Ecosystem-

based adaptation which stresses ecosystem-based adaptation as a mechanism to reduce vulnerability to climate change and subsequent vulnerabilities in areas such as food security, water, health or biodiversity. It is also fully in line with UNEP's 2022-2025 MTS Climate Action Programme.

78. For the development of Programme 3, due consideration was given to the recommendations of two reports on Analysis of Existing Regional Measures identifying gaps vis a vis the achievement of Good Environmental Status and potential new/updated regional and national measures, which although structured around the MAP Ecological Objectives, they also addressed to some lesser extent climate change issues, mainly relating to the need to fill knowledge gaps about the impacts of climate change on marine and coastal ecosystems, especially the impacts of acidification.

Programme 3 key relevant SDG targets:

Goal 14. Life below Water:	Targets 14.2 and 14.3
Goal 13. Climate Action:	Targets 13.1, 13.2 and 13.3
Goal 6. Clean Water and Sanitation:	Target 6.6
Goal 11. Sustainable Cities and Communities:	Target 11.6 and 11.b

79. At the regional level, of great relevance is the network of Mediterranean Experts on Climate and Environmental Change (MedECC) and the First Mediterranean Assessment Report (MAR1) published in 2020 [[LINK](#)]. This programme also contributes to the implementation of the relevant EU Directives and Strategies - climate action is at the heart of the European Green Deal [[LINK](#)], where applicable as well as with the relevant work of UfM, including the first Ministerial Declaration on Environment and Climate Change (adopted in Athens on 13 May 2014) and the progress since. The work of several other regional partners is considered, including IUCN-Mediterranean work on nature-based Solutions, WWF Mediterranean (WWF Med), Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), the Euro-Mediterranean Center on Climate Change (CMCC) [[LINK](#)] and the Global Water Partnership-Mediterranean (GWP-Med).

Objectives

80. Programme 3 includes the following strategic objectives linked to the ICZM Protocol and the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas endorsed by COP 19:

1. To strengthen the resilience of the Mediterranean natural and socioeconomic systems to climate change by promoting integrated adaptation approaches and better understanding of impacts; and
2. To reduce anthropogenic pressure on coastal and marine ecosystems to maintain their contribution to adapt to and mitigate the effects of climate change

Relevant Ecological Objectives:

- EO 7. Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems

Outcomes

81. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 3.1. Legal, policy and institutional framework strengthened at the regional and national level to efficiently address climate change related challenges (flooding, erosion, land degradation, pollution, disasters etc.)

82. Climate change related challenges including among others sea level rise, extreme weather events and storm surges are expected to generate additional pressures on coastal and marine areas. The increase of temperature will have an impact on both, terrestrial and marine ecosystems and will affect land- and sea-based activities. In this regard, support will be provided in effectively mainstreaming climate change into national and regional strategic and policy instruments. At regional level, work will be undertaken to review the implementation of the current Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas, having a timeframe until 2025, and develop an updated Regional Strategy on Climate Change Adaptation taking into consideration the findings of MedECC report and other key regional and national assessments. Contracting Parties will be supported to integrate into National ICZM and MSP Strategies and management plans adaptation and mitigation measures as well as expected climate change projections and the increased uncertainty it brings to the environment, human health, and economic activities. To this end, leverage of adequate climate finance mechanisms will also be promoted, as well as stronger engagement of private, banking and insurance sectors. Activities will be undertaken to progress towards climate neutrality in line with regional and global commitments.

Outcome 3.2. Nature-based, technical solutions promoting prevention or reduction of the impact of climate change on coastal and marine ecosystems and increase resilience to climatic variability and change.

83. The actions foreseen under this outcome aim to assist the Contracting Parties through the elaboration of guidelines and technical tools as well as through sharing of best practices for optimizing the use of ecosystem restoration as a means to maintain its ecosystem services. Adequate spatial planning and management can have important resilience enhancement effects, in particular through the establishment of coastal setback - that allows implementation of nature-based solutions in the sensitive land-sea interface areas - as well as measures related to green infrastructure and greening of coastal cities that improve quality of life of coastal populations by ensuring clean air and reducing risks of flooding, heat waves and other similar events. Coastal erosion prevention at national level will be supported also through mapping of key coastal ecosystems and targeted conservation and restoration actions.

Outcome 3.3. Better understanding and knowledge of climate change and its impacts on environment and development.

84. Scientific evidence and knowledge about the current and projected impacts of climate change on the environment and development will enable decision-makers to anticipate and design policies that take into account the systemic interrelations between human activities, nature and climate change. The identification of particularly sensitive coastal areas and species threatened by climate change will support decision-makers and stakeholders to increase resilience and focus efforts when drawing-up inclusive and resource-efficient strategies for climate change mitigation and adaptation. Coastal areas, as the interface between land and marine ecosystems and landscapes, are of exceptional value; they are also mainly urbanized areas, with a high population density and

concentration of activities, which make them more vulnerable to impacts of climate change. It is therefore necessary to identify and assess the most threatened areas and propose planning and management measures in order to achieve preservation, restoration or adaptation in various coastal contexts, e.g. pristine areas, coastal cities, the narrow coastline, and the coastal sea.

85. Efficient climate change mitigation and adaptation measures will take into account the local environmental and socio-economic conditions and lead to a virtuous cycle where positive outcomes in addressing climate change also lead to positive outcomes for the environment and communities. Technical assistance to local authorities will support them in taking into account local socio-economic contexts and impacts of nature-based solutions from the design phase of such solutions to their implementation and replication. Human lifestyles are also a driver of climate and environmental change; investigating how changes in lifestyles towards sustainable consumer choices can impact climate outcomes can be a powerful lever for policies that target consumer behaviour.

Outcome 3.4. Mitigation of Climate Change progressed through Circular Economy, increased resource efficiency and carbon neutrality business strategies.

86. This Outcome aims at supporting climate change mitigation efforts by exploiting the positive nexus between sustainable production and consumption and action-led societal transformation. To this end, Circular Economy, industrial symbiosis, eco-innovation and value co-creation will be fostered through a number of activities targeting primarily the private sector, including entrepreneurs and small businesses, with the aim to support circular economy entrepreneurs and business ventures to address climate change mitigation, increased resource efficiency and reduced emissions and to promote tools for improved measurement frameworks and consumption-based accounting. Specific actions and innovative solutions will be also developed and implemented to reduce GHG emissions from ships in selected ports, including energy efficiency and decarbonisation. Also, energy efficiency and larger shares of renewable sources in the energy mix, in line with international agreements will be encouraged.

87. In achieving this outcome's goals, sustainable business support will be complemented by actions targeting civil society and local authorities, by offering appropriate tools to boost a change of lifestyles according to the pressing, climate change related, needs. In this respect, this outcome aims to promote cities and municipalities to be engaged to pivot climate positive lifestyles assessments and plans, using consumption-based accounting models to inform local mitigation pathways, identifying carbon hotspots and triggering effective consumption-production nexus.

PROGRAMME 4: TOWARDS THE SUSTAINABLE USE OF COASTAL AND MARINE RESOURCES INCLUDING CIRCULAR AND BLUE ECONOMY

General introduction

88. The circular and blue economy concept, which includes Sustainable Consumption and Production (SCP) is a response to the aspiration for sustainable development, given the growing pressure of consumption and production on the world's resources and environment. The Regional Action Plan on Sustainable Consumption and Production in the Mediterranean and the SoED Report both recognize that patterns of consumption and production need to be changed to decouple human development from degradation of the marine and coastal environment. The SCP Action Plan gives guidelines for a shift towards sustainable consumption and production patterns, long-term sustainability, a circular economy and new paradigms in the use of resources, while taking into account climate change and contributing to the United Nations 2030 Agenda. Furthermore, as the SoED Report highlights, the increasing attractiveness of coastal regions and cities comes with a concentration of the population in urban coastal areas, with a decline in rural economic and population dynamics, with less than 50% of national populations living in rural areas in all but two Mediterranean countries today. Recently, new activities such as renewable marine energies or the extraction of marine minerals and organisms have emerged and coexist with other maritime activities, such as offshore oil and gas, maritime transport, and with Marine Protected Areas. This multiplication and intensification of sometimes conflicting maritime uses represents new challenges for achieving or maintaining Good Environmental Status of the Mediterranean. A good planning of the sea space is essential to avoid conflicts between current and emerging sectors, while creating synergies and enhancing cost effectiveness of activities at sea.

89. Programme 4 brings together essential, integrated and cross-cutting approaches to ensure the sustainable use of coastal and marine resources, implementation of the Mediterranean Strategy on Sustainable Development, the – worldwide unique – ICZM Protocol and the Common Regional Framework for Integrated Coastal Zone Management (adopted in 2019 at COP 21), the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean (adopted in 2016 at COP 19), and in line with the Conceptual Framework for Marine Spatial Planning (MSP) in the Mediterranean, Blue economy and related COP decisions and recommendations. ICZM and MSP have a special role to play, as a transversal policy, with strategic options, plans and management measures, which can integrate and reflect on the same coastal geographic unit (with its terrestrial and marine parts) all thematic policies and horizontal dimensions, encompassing development measures, environmental protection, SCP, adaptation to climate change etc. Furthermore, a combined implementation of diverse actions, involving policy makers, businesses, retailers, academia and civil society is needed, in order to redesign in an innovative manner, the way in which goods and services are produced and consumed to drive the revitalisation of industrial and socio-economic development towards non-pollutant, no-waste, low-carbon, resource efficient, socially inclusive, green and circular economies. A regional approach to planning at sea is essential, especially for environmental impacts and renewable energy production.

Contribution to global and regional priorities and targets

90. Programme 4 directly contributes to all SDG Goals 14 and in particular Goals 6, 8, 9, 11 and 12. It also considers a number of UNEA resolutions, in particular UNEA 4 (2019) resolutions on Innovative pathways to achieve sustainable consumption and production; Addressing environmental challenges through sustainable business practices; and Ecosystem-based adaptation. The outcome of UNEA 5 with its theme of “*Strengthening Actions for Nature to Achieve the Sustainable Development Goals*” is of particular relevance. At the regional level, Programme 4 contributes to the work of all partners in the region including the objectives of the European Green Deal, EU Biodiversity Strategy for 2030, zero-pollution ambition, MSFD and MSPD, where applicable, as well as UfM’s work on Blue Economy. It is also in line with UNEP’s Marine and Coastal Strategy 2020-2030 Strategic Objective 4.

91. For the development of Programme 4, due consideration was given to the recommendations of two reports on Analysis of Existing Regional Measures identifying gaps vis a vis the achievement of Good Environmental Status and potential new/updated regional and national measures, building on the work that has been since undertaken in line with these recommendations, i.e. integrate circular economy in the policy and regulatory instruments implementation, strengthen the application of MSP linked with ICZM, enhance implementation of the Offshore Protocol, etc.

Programme 4 key relevant SDG targets:

Goal 12. Responsible Consumption and Production:	Targets 12.1, 12.2, 12.4, and 12.5 and 12a
Goal 11. Sustainable Cities and Communities:	Targets 11.4, et 11.6
Goal 8. Decent Work and Economic Growth:	Targets 8.3, 8.4 and 8.9
Goal 9. Industry, Innovation and Infrastructure:	Target 9.4
Goal 6. Clean Water and Sanitation:	Targets 6.5 and 6.6

Objectives

92. Programme 4, in addition to the contribution to the objectives of programme 1, addresses the following strategic objectives, linked to the objectives of the ICZM Protocol and its Common Regional Framework adopted by COP 21, and the objectives of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean adopted by COP 19 and the MSSD:

1. To facilitate the sustainable development of coastal zones by ensuring that the environment and landscapes are taken into account in harmony with economic, social and cultural development;
2. To ensure the sustainable use of natural resources, particularly with regard to safe water use, though, notably, more sustainable consumption and production patterns and the promotion of the circular economy;
3. To achieve coherence between public and private initiatives and between all decisions by the public authorities, at the national, regional and local levels, which affect the use of the coastal zone;
4. To provide innovative services and products, taking advantage of the significant advances with regards to digital technology, and strengthen technical capacities of businesses, entrepreneurs, financing agents, and civil society organisations, contributing to the conservation and sustainable management of biodiversity and ecosystems;

93. These in turn also contribute to the following Ecological Objectives adopted by COP 17:

Relevant Ecological Objectives:

- EO 6. Sea-floor integrity is maintained, especially in priority benthic habitats;
- EO 7. Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems;
- EO 8. The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved;

Outcomes

94. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 4.1. Sustainability of coastal and marine resources achieved through the synergetic implementation of planning and management approaches, including the adequate consideration of Land-Sea Interactions (LSI).

95. Action under this outcome will focus on the implementation of ICZM and MSP at national, regional and as appropriate sub-regional level, as the most effective approach to manage potential conflicts among various sectoral policies (such as conflicts for space, resources, infrastructures etc.), as well as between maritime and terrestrial policies. In line with the Common Regional Framework for ICZM adopted by COP 21, Contracting Parties will be supported in the development or update of national and as appropriate sub-regional strategies for ICZM, and the implementation of national and/or transboundary Coastal Area Management Plans (CAMPs) and other integrated coastal and marine plans. In this context, special emphasis will be placed on the application of MSP, particularly addressing Land-Sea Interaction and adaptation to climate change. Another important operational direction will go towards the main coastal and marine sectors in order to increase their ownership of sustainability and ecosystem-based management principles and objectives. The achievement of this outcome's objectives will be strengthened with targeted support provided to priority coastal areas for the development of water, food, energy and ecosystems nexus assessments and endorsement of relevant Strategies and Action Plans.

Outcome 4.2. Sustainable Blue and Green Economy tools and approaches in the context of Sustainable Development and MSSD implementation.

96. In order to adapt human activities to the carrying capacity of the Mediterranean ecosystems and to achieve their Good Environmental Status (GES), it is necessary to accelerate the dynamics embracing Circular and Green Economy approaches. A particular attention should be given to the sectors having a main impact in the coastal and marine ecosystems, including sectors of the Sustainable Blue Economy, as the population continues to grow in coastal and urban areas and as Mediterranean countries, communities (societies) and economies are dependent on natural coastal and maritime resources to create wealth, provide jobs, and continue local development (SoED). A regional strategy on sustainable tourism will be developed. The implementation of this Outcome will be framed within the context of the implementation of the Mediterranean Strategy for Sustainable Development and its flagship initiatives and the SCP Regional Action Plan; those regional strategic and forward-looking frameworks will be reviewed in 2024-2025, taking into account inter alia scenarios of the MED 2050 foresight study and regional measures supporting the development of green and circular businesses. Technical support will be provided to strengthen national policy frameworks, support the green and blue economy sectors in integrating circular economy measures, and develop

pilot actions, flagship initiatives and dissemination activities. Regional mechanisms for monitoring the implementation of the MSSD and SCP Regional Action Plans will be strengthened.

97. Measures to increase the efficiency and sustainability of Mediterranean ports, including marinas (Green ports initiative) will be envisaged as Blue economy concrete tools to respond, in particular, to the adverse effects of the maritime and tourism sectors in the Mediterranean, and with the view to contribute to the decarbonisation and reduction of air pollutant emissions in the Mediterranean. The Green ports initiative, which aims at adapting port infrastructures to environmental sustainability standards, will be explored and promoted in the Mediterranean.

Outcome 4.3. Innovative environmental management and economic instruments implemented for the protection and efficient use of coastal and marine resources.

98. Limiting environmental degradation largely relies on proper planning of the use of coastal and marine space and resources. Instruments such as land stewardship, environmental fiscal instruments, payment for ecosystem services, compensation schemes, etc., come to support policy- and decision-making processes; this calls for a detailed elaboration of these instruments, economic analysis for the assessment of various policy options and measures, and strengthening of the Mediterranean stakeholders' capacities to use them. Innovative solutions can be also linked to pilot activities in Mediterranean countries as identified through relevant initiatives, such as the BlueMed Initiative for Research and Innovation for Blue Jobs and Growth. Regarding "innovative services and products" could you, please, add a point to digitalization, too.

Outcome 4.4. Measures defined within the Mediterranean Offshore Action Plan applied at regional level and by each Contracting Party within their jurisdiction to ensure the safety of offshore activities and reduce their potential impact on the marine environment and its ecosystem.

99. The increase of offshore activities in the Mediterranean region, in particular in countries with little experience in the field could lead to long term adverse consequences on the fragile ecosystems and biodiversity of the Mediterranean Sea, and to negative consequences on the economies of the Mediterranean coastal States, especially in relation to tourism and fisheries, should these activities not be regulated and monitored adequately. Offshore renewable energy sources also present a great potential in terms of energy production and job creation. It is therefore important to have a long-term planning of these developments already today, so as to balance this opportunity with sustainability. The actions foreseen under this outcome pursue the effort of Contracting Parties to the Offshore Protocol through the implementation of the Mediterranean Offshore Action Plan by strengthening its governance framework leading to a sustainable and operational cooperation and partnership framework, with a view to delivering common guidelines and standards, and capacity building program, while also defining the way forward for the period after 2024, being the end date of the current Action Plan's implementation timeframe, which will include the formulation of a new/updated Action Plan to effectively implement the Offshore Protocol in coherence with relevant global commitments.

FOUNDATIONAL PROGRAMME 5: GOVERNANCE

General introduction

100. Programme 5 corresponds to the 6th MSSD objective and constitutes a prerequisite for the operation and effectiveness of the entire MTS. It also reflects commitments set through the Governance and Compliance Committee decisions adopted by the Contracting Parties - including COP 20 Decisions IG.23/2 and IG.23/3 and COP 21 Decisions IG.24/1 and IG.24/2 - as well as key decisions related to strengthening partnerships and multi-stakeholder engagement, including with the private sector and resource mobilization (including Decision IG.19/6 adopted at COP16 and Decision IG.24/2 adopted at COP21, related to MAP Partners, and Decisions IG.23/5 adopted at COP 20 and IG. 24/2 adopted at COP 21 regarding the updated Resource Mobilization Strategy and its refined appendix). Also relevant are decisions regarding the ecosystem approach (COP 17 Decision IG.20/4 and COP 18 Decision IG.21/3) and the Mediterranean Commission on Sustainable (MCSD - COP 19 Decision IG.22/17).

101. The MTS aims at creating the necessary conditions for the organs and bodies of the MAP system and its Secretariat to efficiently deliver their key mandates as stipulated in Articles 17 and 18 of the Barcelona Convention and the other relevant Articles of the Protocols, as well as to strengthen collaboration with major actors, programmes and initiatives working in and for the Mediterranean region. The MTS is compliant with the MAP legal system, i.e., the Barcelona Convention, Protocols that have entered or are about to enter into force, legally binding Regional Plans and Action Plans, as well as Ecosystem Approach related COP decisions. Ensuring enforcement and an integrated and efficiently coordinated support to the Contracting Parties for their implementation and for achieving compliance remains a high priority of the MTS.

Contribution to global and regional priorities and targets

102. Programme 5 contributes to several SDG targets including SDG 14 and SDG 17 “*partnerships for the goals*”, as well as overall with UNEA decisions and resolutions. It is also in line with the UNEP 2022-2025 MTS “*Environmental Governance*” programme.

103. UNEP/MAP has established partnerships at the global, regional and national level as previously described. As well as aligning priorities, UNEP/MAP is engaged in key decision-making meetings to ensure synergies in governance and planning, including with UNEP Regional Seas strategic directions and UNEA Resolutions, CBD and the development of the Post-2020 Global Biodiversity Framework, UfM, GFCM, IMO, BRS Conventions and EU’s Marine Strategy Framework Directive amongst others. Promoting synergies ensures greater impact in supporting Mediterranean countries integrate and streamline global and regional agreed objectives and targets at the national level. This is also of particular importance with regards to priorities with those of major donors (see, COP 21 Decision IG.23/5 Updated Resource Mobilization Strategy) such as the GEF 7 Strategy.

Programme 5 key relevant SDG targets:

Goal 14. Life below Water with its Targets

Goal 17. Partnerships for the Goals: Targets 17.3, 17.6, 17.9, 17.14, 17.16, 17.17

Noting that Programme 5 also contributes to the SDG targets mentioned under the other Programmes.

Objectives

104. Programme 5 includes the following strategic objectives:
1. To ensure and strengthen appropriate governance schemes, in particular cross-sectorial and multi-level institutional coordination, and enhance access to information, participation and engagement of all stakeholders in a transparent decision-making process;
 2. To strengthen the application of the ecosystem-based approach to the management of human activities with the view to achieving or maintaining good environmental status of the Mediterranean Sea and its coastal region;
 3. To strengthen the capacity of Contracting Parties for the implementation of and compliance with the Barcelona Convention, its Protocols, the adopted Strategies and Action Plans, as well as Ecosystem Approach related COP decisions;
 4. To strengthen synergies, complementarities, and collaboration among international and regional partners and organizations active in the Mediterranean region;
 5. To mobilize external resources for the efficient delivery of the MTS; and
 6. To promote effective science policy interface mechanisms at regional and national level.

Outcomes

105. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 5.1. Effective Implementation and Enforcement by the Contracting Parties of the Barcelona Convention, its Protocols, MAP Policies, including Ecosystem Approach related COP decisions, the MSSD and Programmes of Measures achieved at regional and national levels.

106. Strengthening environmental governance in the Mediterranean region by enhancing Contracting Parties' capacity for implementation and enforcement of the Barcelona Convention and its Protocols is instrumental in achieving Good Environmental Status (GES) in the context of sustainable development, including the ratification of its Protocols. Despite good progress in this area, implementation and enforcement of the Barcelona Convention and its Protocols remain a key challenge for all Contracting Parties. By supporting Contracting Parties to strengthen their legal frameworks and institutional capacity in implementing and enforcing the Barcelona Convention and its Protocols, ownership will be increased, and the environmental rule of law will be reinforced in the Mediterranean region enabling the achievement of GES in the overall context of Agenda 2030. Support to Contracting Parties in the form of country-driven and result-oriented activities will include capacity building action to enhance implementation and enforcement by inter alia sharing of knowledge, best practices and information through relevant platforms, providing technical assistance for updating or developing the legislative or policy measures implementing the Barcelona Convention, its Protocols, Ecosystem Approach related COP decisions and the Mediterranean Strategy on Sustainable Development, conducting regional trainings, and developing guidance tools such as technical guidelines or model legislation. This will be framed in the continued and sustained enhancement of the effectiveness of the Compliance Committee, inter alia by supporting and enhancing national reporting, as well as reporting on monitoring and by strengthening synergies with MAP components as well as with civil society.

Outcome 5.2. Systemic strengthening and effective functioning and delivery of MAP decision-making and advisory bodies ensured, and efficiency enhanced with new digital approaches.

107. The smooth functioning of a multi-level governance mechanism is fundamental for achieving complex and ambitious goals and for achieving the GES and the sustainable development of the region. Such a mechanism should be strengthened in a systemic manner to ensure effectiveness at all levels, from the regional cooperation at the governance bodies of the UNEP/MAP-Barcelona Convention system to cross-sectorally organised institutional coordination of the various administrative authorities at national level. The delivery of the work of the governance bodies of the UNEP/MAP-Barcelona Convention system should be done in a coherent manner, ensuring “delivery as one”, inter alia through smooth and effective organization of meetings and timely dissemination of high-quality documentation. To this aim, efforts should be made to better streamline and ensure effective and timely interaction between the MAP policy making bodies (i.e. COP, Bureau, MAP Focal Points, Ecosystem Approach Coordination Group, MCS, Compliance Committee) and the governance mechanisms established to support and promote the scientific and technical work in the MAP system (Components/Thematic Focal Points, CORMONs, ad hoc technical Working Groups, etc.). There is also a need to ensure appropriate governance schemes allowing adequate and timely participation and contribution in transparent decision-making of all actors and stakeholders concerned. At the same time, digital approaches and modern tools can help the system shift our traditional ways of work while maintaining or even enhancing the level of efficiency and reducing the environmental footprint of our operations. These methods, some of which were tested or used more widely during the Covid-19 pandemic, should be further explored and promoted, in line with the UNEP-led process of modernizing global environmental governance. Adequate resources should be ensured to the Secretariat and MAP Components to deliver the mandate set by the Barcelona Convention, its Protocols and the relevant COP Decisions. Also, independent performance reviews of the MAP components will be undertaken on a periodic basis, building on the lessons learned of the recent performance reviews conducted in the framework of the Regional Fisheries Management Organisations.

Outcome 5.3. Policy coherence and complementarity ensured among relevant work at global, regional and national levels and among MAP-Barcelona Convention system’s policy and regulatory instruments.

108. Outcome 5.3 aims to ensure coherence and synergies between the MAP-Barcelona Convention system’s policies and regulatory instruments and global processes on sustainable development and the protection of the environment, including the 2030 Agenda and SDGs, the Paris Agreement on Climate Change, and the forthcoming post-2020 global biodiversity framework under the CBD. Those synergies, including through the integration of innovative reporting mechanisms linking the global, regional and national levels, as well as through the advancement of peer learning mechanisms between Contracting Parties, will ensure coherence and complementarity between global and regional objectives and targets, while considering Mediterranean innovation and specificities. The promotion of multi-stakeholder governance schemes, of cross-sectorial and multi-level institutional coordination, and of participation and engagement of relevant stakeholders will strengthen the capacity of the Contracting Parties and partners to comply with and enforce the MAP policies towards the achievement of the GES of the Mediterranean Sea and its coastal region and the achievement of Agenda 2030. This will be supported by strengthening synergies with compliance mechanisms of other MEAs, in line also with outcome 5.1, as well as by the functioning of effective science-policy interface mechanisms at regional and national level, in line with outcome 5.4.

Outcome 5.4. Enhanced partnerships and multi-stakeholder engagement, including with the private sector and science policy interface.

109. Enhancing partnerships in the implementation of actions and supporting transfer of ocean knowledge for the science-based management of the Mediterranean Sea is a crucial process for the successful implementation of the mandate of the UNEP/MAP-Barcelona Convention system. The partnerships, aligned with the existing legal framework of the Barcelona Convention and its Protocols, will create a solid partnership to strengthen implementation of the Integrated Monitoring and Assessment Programme (IMAP), support to MEDECC as a voluntary science policy interface platform of Mediterranean climate scientists well as integration of policy and management responses of UNEP/MAP with the requirements of 2030 Agenda and its SDGs. By reaching out to science and establishing long-term collaborations with credible and reliable scientific institutions, with proven scientific knowledge and experience both at national and regional/sub-regional levels, the transfer and use of unprecedented achievements in science and technology will be ensured. In order to ensure an ambitious transformation towards optimal partnerships, it is necessary to (i) mobilize scientific assemblages to support the objectives of partnerships created to support effective science-policy interface; (ii) connect many existing initiatives, efforts, actors, resources and tools for marine science in the Mediterranean and beyond; (iii) strengthen synergies; (iv) support learning to work together; and (v) coordinate the resources for strengthened impact and avoid duplication and fragmentation.

Outcome 5.5. Coordinated approaches implemented to strengthen public institution capacities for the implementation of the Barcelona Convention and its Protocols.

110. Identifying, promoting and strengthening the synergies and mechanisms of cooperation at global and regional level is vital in strengthening public institutional capacities for the enforcement of the Barcelona Convention and its Protocols. Leveraging global and regional platforms and networks for sharing experience, knowledge and best practices in enforcement and management will increase the effective and coordinated implementation and enforcement of the Barcelona Convention and its Protocols, supporting in turn the adoption of harmonized enforcement strategies in the Mediterranean region. In so doing, within the framework of the 2022-2027 MTS, it would be a priority fostering synergies, mutual supportiveness, experience sharing and lesson-learning and efficient utilization of available resources and expertise through inter alia training, development of materials and platforms in partnership with relevant MEAs or other institutions. The strengthening of public institution capacities is crucial for increasing ownership, for supporting environmental rule of law and for ensuring effective implementation at the national and local level.

ENABLING PROGRAMME 6: TOWARDS MONITORING, ASSESSMENT, KNOWLEDGE AND VISION OF THE MEDITERRANEAN SEA AND COAST FOR INFORMED DECISION-MAKING

General introduction

111. Programme 6 reflects a core cross-cutting mandate of UNEP/MAP in line with Article 12 of the Barcelona Convention and relevant provisions from its Protocols, such as Articles 8 and 13 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities; Article 5 of the Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea; Articles 3, 15 and 20 of the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean; and Article 16 of the Protocol on Integrated Coastal Zone Management in the Mediterranean.

112. It also contributes to the implementation of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (COP 19 Decision IG.22/7). IMAP sets out all the required elements to cover in an integrated manner monitoring and assessment of biodiversity and fisheries, pollution and marine litter, and coast and hydrography. At the core of IMAP are the 23 regionally-agreed common indicators and the 4 candidate indicators (for which scientific knowledge and information is not yet fully developed to allow for regional monitoring and assessment) currently covering 9 out of 11 Ecological Objectives, namely the EO 1, EO 2, EO 3, EO 5, EO 7, EO 8, EO 9, EO 10, EO 11.

113. Programme 6 also includes UNEP/MAP's mandate to produce State of Environment and Development and Quality Status Reports, as well as other key thematic assessments as agreed by Contracting Parties. COP 21 Decision IG.24/4 endorsed the roadmaps for the 2023 QSR and MED 2050 foresight study. In terms of data management, which is also related to this Programme, Contracting Parties endorsed through COP 21 Decision IG.24/2 the main elements and Roadmap for the Preparation of a UNEP/MAP Data Management Policy.

Contribution to global and regional priorities and targets

114. Programme 6 contributes to several SDG targets towards enhanced information and science on the marine and coastal environment, as well as multiple UNEA resolutions, in particular UNEA 4 Resolution 4/23, *Keeping the world environment under review: enhancing the United Nations Environment Programme science-policy interface and endorsement of the Global Environment Outlook*. It also contributes to UNEP's Marine and Coastal Strategy 2020-2030 Strategic Objective 1, and is in line with the UNEP 2022-2025 MTS programmes and in particular those on Science-Policy and Digital transformations.

115. It also will contribute to relevant key global reports such as the Global Environment Outlook (GEO) assessments and the Regular Process for Global Reporting and Assessment of the State of the Marine Environment and World Ocean Assessment (WOA) reports as well as to the UN Decade of Ocean Science.

Programme 6 key relevant SDG targets:

Goal 14. Life below Water: Target 14a

Goal 9. Industry, Innovation and Infrastructure: Target 9.5

Goal 17. Partnerships for the Goals: Target 17.6

Noting that Programme 6 also contributes to all other SDG targets mentioned

Objectives

116. Programme 6 includes the following strategic objectives linked to the IMAP-related COP Decisions and the Assessment Studies Decision adopted by COP 21:

1. To strengthen and harmonize implementation of marine and coastal monitoring and assessments in line with Article 12 of the Barcelona Convention and relevant provisions of its Protocols and the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria, for the purpose of the establishment of common methodologies for the monitoring and assessments for all Contracting Parties;
2. To achieve and/or maintain Good Environmental Status (GES) of the Mediterranean Sea and coast through science-based IMAP,
3. To develop foresight and other assessment studies as per the MAP Phase II document, referring to the publication of the Report on the State and Evolution of the Mediterranean Environment at regular intervals, and the relevant COP decisions on assessment studies; and
4. To ensure a fully operational data management Info System based on consolidated and quality-control assured monitoring datasets to support integrated assessments.

Outcomes

117. The 2022-2027 MTS will achieve the following outcomes and associated Indicative targets/Indicators.

Outcome 6.1. Inclusive and participatory foresight activities conducted at regional and national and local levels, with associated capacity-building.

118. Foresight activities conducted in a participatory manner and on a voluntary basis will be essential through the setting-up of multi-stakeholder platforms towards compromises on evidence-based decisions and their shared ownership for a more effective implementation. At regional level, future regional strategic documents, including the reviewed Mediterranean Strategy for Sustainable Development (2026-2035), will be more powerful because they will build on the results of the participatory foresight activities initiated in the framework of MED 2050. Furthermore, replicating pilot foresight exercises at regional, national and local levels will allow to fine-tune the methodological approach as well as the definition of policies at territorial level. That will also strengthen the ability to conduct such exercises in the future and build capacity through a network of Mediterranean foresight institutes.

Outcome 6.2. Science-based IMAP, foresight and other assessments and assessment tools for strengthened science-policy interface and decision making.

119. To achieve this outcome, the Contracting Parties of the Barcelona Convention will increasingly focus on the implementation of the Integrated Monitoring and Assessment Programme (IMAP) in order to progress towards a regular holistic integrated monitoring and assessment of the state of marine and coastal environment based on IMAP Ecological Objectives/Common Indicators and Good Environmental Status (GES) targets. In that context, the main focus will be on the further development of IMAP, implementation of national IMAPs by the Contracting Parties and implementation of QSR Roadmap, following Decisions of the Contracting Parties: Decision IG.21/3 on the Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets (COP 18, 2013); Decision IG.23/6: Mediterranean Quality Status Report (COP 20, 2017); Decision IG.22/7:

Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (COP 19, 2016); Decision IG.23/04: Implementation and monitoring of the Mediterranean Strategy for Sustainable Development 2016–2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean and Decision IG.24/4: Assessment Studies (COP 21, 2019) as well as delivery of assessment products. Actions will be undertaken to strengthen links with global initiatives and assessments, including the UN Decade of Ocean Science, the UN Decade on Ecosystem Restoration. Finally, support will be provided to encourage national and regional exchange of good digital practices and mainstream digitalisation into different policies/actions in order to enable sustainable development.

Outcome 6.3. IMAP implementation and Environment and Development Observation provide updated and quality assured data in support of decision-making by Contracting Parties and assessment of GES.

120. Under this outcome, the Contracting Parties of the Barcelona Convention will undertake set of actions related to i) transfer of knowledge and hands-on experience related to reliable and cost-effective monitoring of marine environment; ii) use of standardized analytical procedures and equipment for sampling, analysis, processing and quality assurance of data; and iii) optimal data management. These actions must be coupled with effective use of unprecedented achievements in science and technology, including through i) strengthening of synergies with scientific networks to support science-policy interface; ii) upgrading of MAP Info System into a regional platform/node to facilitate sharing of data, information, marine scientific research outputs, marine and digital technologies and knowledge on Mediterranean coastal and marine environment in line with FAIR (Findable, Accessible, Interoperable and Re-usable) principles and best practices; and iii) application of advanced observing, modelling and forecasting techniques and tools to improve and extend a range of multidisciplinary predictive capabilities. Data visualization tools to integrate data in user-friendly formats such as maps, graphs or charts provide an accessible way to see and understand trends, outliers, and patterns, but also to download and use them and can be utilized for policy-making, advocacy, and awareness-raising. Activities will be dedicated to the interconnection and interoperability of the MAP observation and monitoring systems with the global and national ones, including the innovative World Environment Situation Room.

ENABLING PROGRAMME 7: FOR INFORMED AND CONSISTENT ADVOCACY, AWARENESS, EDUCATION AND COMMUNICATION

General introduction

121. Programme 7 contributes to the implementation of the MAP Communication Strategy (2018-2023) adopted in 2017 (COP 20, Decision IG.23/3) and the Operational Communication Strategy 2020-2021 adopted in 2019 (COP 21 Decision IG.24/2). This is achieved through integration and coordination of all advocacy, awareness, education and communication considerations through the UNEP/MAP-Barcelona Convention system, taking advantage of the significant advances with regards to digital technology. This will include enhancing “Ocean Literacy” and to engage communication, awareness raising and education on the coastal and marine environment.

122. Innovative communication should be a driving force for empowered environmental advocacy. It aims to be innovative, inclusive, using a growing foothold in digital spheres and social media spaces to reach and engage with a diverse and expanding range of audiences and stakeholders. It aims to empower individuals and groups for environmental action, placing emphasis on the voices from sectors and actors typically outside the environment space. It should increase awareness and engage the voices of youth, consumers, students, environmental entrepreneurs, activists, women, innovation leaders and faith-based actors and organizations, among others. Education, using new digital technologies, is key for increasing awareness and empowering the future generations.

Contribution to global and regional priorities and targets

123. Programme 7 contributes to several SDG targets in particular those under SDG 4 “*quality education*” and is in line with the UNEP 2022-2025 MTS and in particular its Science-Policy and Digital Transformation Programmes.

Programme 7 key relevant SDG targets:

Goal 4. Quality Education: Targets 4.4 and 4.7

Goal 5. Gender Equality: Targets 5.5 and 5b

Goal 12. Responsible Consumption and Production: Targets 12.8

Noting that Programme 7 also contributes to all other SDG targets mentioned

Objectives

124. Programme 7 includes the following strategic objectives linked to the MAP Communication Strategy (2018-2023) and the Operational Communication Strategy 2020-2021:

1. To enhance MAP’s status as an authoritative voice on the environment and sustainable development in the Mediterranean and Advocate the MTS vision to policymakers;
2. To encourage commitment and contribution of key stakeholders in support of MAP priorities and enhance public participation in MAP’s work;
3. To upgrade the MAP-Barcelona Convention system communication and dissemination capabilities;
4. To ensure Communicating as One and embark on digital transformation in the delivery of the Medium-Term Strategy; and

5. To enhance "Ocean literacy" and to engage communication, awareness raising and education on the coastal and marine environment towards different targets: elected officials, tourists, socio-professionals, etc. via the development of innovative tools (social marketing, etc.).

Outcomes

Outcome 7.1. Stakeholders and policy makers properly informed about the state of the Mediterranean Sea and coast and aware of the environmental priority issues.

125. A communication strategy implemented under this outcome will support the environmental objectives put forward in the Barcelona Convention and its Protocols through the identification of and meaningful engagement with target audience groups, as well as the amplification of MAP messages enhancing the concept of a Communicating as One. To policymakers and other groups of stakeholders (whose opinions and actions will directly impact the MTS outcomes), it is crucial to advocate policy and action conducive to the attainment of the MTS objectives and, more broadly, Good Environmental Status (GES). Advocacy for a green recovery in the Mediterranean, including through prioritizing sustainable options in the context of recovery from COVID-19, full compliance with the Barcelona Convention and its Protocols and renewed commitment to their objectives in high level meetings and fora, will constitute an overarching advocacy priority. Under this outcome, advocacy will be delivered as a deliberate process using a range of tools, including the strengthening of the science-policy interface, awareness raising, production and dissemination of flagship publications and other communication products, campaigning, negotiating, and media engagement, in order to persuade decision-makers, influencers, partners, institutions and communities to endorse and/or carry out PROGES policy and action. Information, communication and advocacy actions under this outcome will also support gender mainstreaming into the UNEP/MAP-Barcelona Convention system's mandate and operations. In order to strengthen the links with SDG 14, a peer review exercise that integrates the main uses of the ocean (fishing, maritime and coastal tourism, maritime transport, etc.) and in the framework of the Regional Marine Forum with other partners. Awareness and advocacy should also address the private sector and companies, in terms of social and environmental responsibility; to this end, the concept of Corporate Environmental Responsibility SDG14/"ocean approved" can be explored to be deployed in the Mediterranean through different modalities.

Outcome 7.2. Citizen and general public awareness and outreach raised through citizen science and digital campaigns.

126. Effective external communication increases visibility and general public support for MAP's objectives. It is crucial to raise and achieve an active awareness about the critical role that the MAP-Barcelona Convention system plays in the protection of the Mediterranean environment and the promotion of sustainable development. Different actions will be put in place to deliver this important outcome such as thematic digital campaigns, knowledge management tools, education packages on key topics of the Barcelona Convention and its Protocols and citizen science.

127. In this context, Barcelona Convention and its Protocols acquis will be promoted and introduced to Mediterranean countries' relevant universities through the elaboration of dedicated curricula and their delivery and disseminated to key private and public stakeholder. Key MAP achievements should be promoted for awareness-raising and education on key aspects of the mandate of the MAP-Barcelona Convention system, such as those highlighted in the thematic Programmes of this Strategy, in partnership with the civil society organizations (CSOs) and concerned public authorities and stakeholders. Awareness-raising activities and digital campaigns will be implemented, giving visibility to those change-makers and eco-innovators delivering environmental and social benefit to their

communities in the Mediterranean. The role of the Mediterranean entrepreneurs' community (with specific focus on women and youth), their needs, activities and products will also be promoted.

Outcome 7.3. Towards a digital transformation: use of digital technologies to improve networking and MAP visibility

128. The actions foreseen under this outcome will aim to ensure a transformational change in this domain within the MAP-Barcelona Convention system. This digital transformation should lead to an improved use of digital technologies, to a strengthening of networking and to enhancing MAP visibility. Digital capacity-building is substantial to achieve real and sustained progress in the various dimensions of digitalization and requires skills development and effective training, as well as capacity building in relation to digital skills and infrastructures. It will also significantly contribute in removing digital inclusion barriers - even more evident during the COVID-19 pandemic - unlocking the benefits of technology, including the more effective use of emerging technologies and ensuring that individuals stay safe, protected and productive online.

6. Implementation

6.1. IMPLEMENTATION MODALITIES AND PARTNERSHIPS

129. Implementation of the MTS will be operationalised through biennial Programmes of Work (PoW), prepared through consultative process within the MAP system, in accordance with relevant provisions stipulated in COP 15 Decision IG.17/5 "*Governance paper*", and adopted by the respective Conferences of the Parties (COP 22, COP 23 and COP 24). COP Decisions adopting the biennial PoW and Budget will mandate MAP Components to implement specific activities under the MTS Programmes and Outcomes, in line with each Component's scope of action and mandate, provided for in COP 16 Decision IG.19/5 "*Mandates of the Components of MAP*". PoW should also include SMART indicators and targets fully aligned with the MTS ones, in view of monitoring and measuring progress of implementation on a biennial basis.

130. PoW and Budget funds will be transferred to MAP Components, in accordance with the respective COP Decisions, through Project Documents and Legal Instruments signed with each Component. Funds allocated for the implementation of the PoW will be managed through the UN Umoja system. Financial administration of PoW budget is governed by the "*Financial Regulations and Rules and Procedures for the Contracting Parties, its subsidiary bodies and the Secretariat of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean*", adopted by COP 18 through Decision IG. 21/15.

131. The implementation of the MTS is a collective process. The MTS should be used as a common platform for joint actions not only by Contracting Parties and the UNEP/MAP-Barcelona Convention system, but also for fostering cooperation with other International and Regional Organisations and programmes active in the Mediterranean as well as with the civil society (especially MAP Partners and MCSD members). The MTS needs to be backed by strong political support and promote responsibility, accountability and transparency from all actors involved in its implementation, including who will be responsible for each action. Individual commitments and subsequent actions by Contracting Parties need to contribute to global and regional targets in order to bridge the current implementation gap. In order for the MTS to be flexible enough to respond to emerging challenges, it should be developed and implemented with an adaptive management approach. In a number of cases, the MTS will integrate new concerns by increasing its cooperation with others leading or specialised organisations. Enhanced cooperation is key to improving integrated ocean management and ensuring that all key issues are properly addressed. This will include cooperating with MAP partners to ensure comparative advantage in implementation and the use of existing tools and best-practices. Efforts to enhance the political will in the implementation of the MTS is also essential. Civil society has always been an important group of stakeholders in the MAP system. In the implementation of the MTS, its role remains critical. "*Synergies*" and "*complementarity*" are once more the key words when seeking effectiveness, positive impacts and sustainability. To this end, the private sector could become an important ally and contributor to the implementation of the MTS, given in particular its key role in the transition to the green economy.

132. The MAP system cooperates closely with the EU institutions (in particular the European Commission and EEA), especially since the EU is a Contracting Party. Furthermore, UNEP/MAP has signed individual Memoranda of Understanding with IUCN, the UfM Secretariat, the General Fisheries Commission for the Mediterranean (FAO/GFCM), ACCOBAMS and Black Sea Commission. Among the International and Regional Organisations, with which UNEP/MAP has long-lasting cooperation, the following – playing already a role in the Mediterranean – are potential important players expected to

contribute to the implementation of MTS 2022-2027: EU, FAO, UNCTAD, CIESM, CEDARE, GWP Med, Birdlife, WWF Med, MedPAN, the Mediterranean Energy Observatory and international financial agents like the FFEM, EBRD, EIB, IFC, IUCN and WB. Memoranda of Understanding have been also signed in the past with individual Contracting Parties (i.e. Bilateral Cooperation Agreement with the Italian Ministry for Environment, Land and Sea Protection) to support implementation of the MAP mandate and common objectives in priority areas.

133. The role of advocacy will also be key to persuade decision-makers, influencers, partners, institutions and communities to support and carry out actions that contribute to achieving the MTS objectives and outcomes, contributing to the 2030 Agenda and other global priorities and the promotion of a post-COVID “*green recovery*” in the Mediterranean. As noted in the UNEP Ecosystems Division Advocacy Toolkit, “*Advocacy is defined as a process that seeks to influence or change a decision, a policy, a law, a practice, an attitude, or a process.*”

6.2. FUNDING AND RESOURCE MOBILIZATION

134. The MTS, having a strategic nature, does not enter into budgetary details. Such details, as well as the actors and components in charge of implementation by activity, are to be found in the PoW of the relevant biennia of the period 2022-2027. The main source of funding for the implementation of the MTS remains the Mediterranean Trust Fund and its components, as established by the Contracting Parties to the Barcelona Convention and its protocols. Due to its complexity and high level of ambition there is a need for additional resources.

135. The main challenge to the objectives of Strategy is in the availability of financial resources, in particular taking into consideration the global and regional circumstances. The good practice of the last years, of mobilizing additional funding for specific projects, in line with the PoW and in consultation with the Contracting Parties, is to continue and be further extended to include other donors too. Bilateral cooperation with individual Contracting Parties to support implementation of specific PoW activities in line with the MTS objectives and outcomes should be continued and strengthened, building on successful practices of the previous MTS cycle. The Updated Resource Mobilization Strategy adopted at COP 20 and its revised Appendix adopted at COP 21 will be the guide to this end.

136. It is expected that a large number of projects will be implemented during the MTS that will significantly contribute to its objectives. These include:

- i. The GEF-UNEP “*Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security*” (2020-2025);
- ii. The EU IMAP-MPA project “*Towards achieving the Good Environmental Status of the Mediterranean Sea and Coast through an Ecologically Representative and Efficiently Managed and Monitored Network of Marine Protected Areas*” (2019-2023);
- iii. The EU EcAp-MED III “*Support to Efficient Implementation of the Ecosystem Approach-based Integrated Monitoring and Assessment of the Mediterranean Sea and Coasts and to delivery of data-based 2023 Quality Status Report in synergy with the EU MSFD*” (2020-2023);
- iv. The EU Marine Litter MED II, which will strengthen and support the Contracting Parties to The Barcelona Convention to prevent and effectively manage marine litter through the implementation of the Regional Plan on Marine Litter Management in the Mediterranean (2020-2023);
- v. The EU Second Phase of the SwitchMed Project “*supporting the transition of Mediterranean Countries to Sustainable Consumption and Production*” (2019-2023).

Overview of the MedProgramme

The GEF-UNEP “Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security” (2020-2025) will contribute to all seven programs articulated in the UNEP/MAP Medium-term Strategy 2022-2027 through priority actions to reduce major transboundary environmental stresses in coastal areas, to strengthen climate resilience and water security and to improve the health and livelihoods of coastal populations. It will do so through a robust portfolio of eight Child Projects valued at more than \$905 million (\$43,376,147 in grants and \$861,666,654 in co-financing, including \$610 million in hard loans). More specifically, the MedProgramme will address the root causes of the region’s most pressing environmental challenges by targeted actions in priority areas to reduce pollution, promote the integrated management of land, water and living resources and implement tools to build climate resilient coastal communities. It will furthermore function as a laboratory for the testing of innovative approaches that enhance achievement of environmental objectives through effective use of knowledge assets, monitoring and reporting on results, and mainstreaming gender equality and women’s empowerment across the MedProgramme portfolio. The following text provides a short narrative of the key contributions of the MedProgramme to the seven programs of the MTS, additional contributions from the MedProgramme in terms of knowledge management, gender mainstreaming and reporting on results, as well as a mapping of the MedProgramme outputs against the MTS programs.

6.3. MONITORING AND EVALUATION

137. Under the leadership of the Contracting Parties and the subsidiary bodies of the UNEP/MAP-Barcelona Convention system, the UNEP/MAP Secretariat (Coordinating Unit including MEDPOL) and the Regional Activity Centres, will work with Contracting Parties for implementing the Strategy and will ensure coordination of its monitoring and evaluation processes.

138. Monitoring will take place in a combined way for MTS and PoW, under the coordination of the MAP Coordinating Unit and the ECP. The Bureau, the Focal Points and the MCSD will be informed and consulted accordingly. The results of the monitoring exercise will be presented every two years to the COP for information and possible adaptations of the planning, while the evaluation of the MTS will be carried out and presented to the COP at the end of the six-year period.

139. Being able to measure performance is a key step. It is needed to manage performance and provide assurance to Contracting Parties and donors that their investment is contributing to substantial impact. To do this, MAP uses a performance framework as agreed with the Contracting Parties. Central to the performance framework are the strategic outcomes to be achieved. Performance indicators and respective targets enable MAP to measure progress against these expected accomplishments.

140. Implementation of the data-sharing principles on the indicators and data related to the monitoring system for the MTS is needed. As also foreseen in the MSSD, that process will be promoted and facilitated by a consistent platform for the exchange of information, experience and synergies, also considering the European Union’s Shared Environment Information Systems (SEIS) principles on data sharing.

141. Evaluation of progress of the biennial PoW will act as an early warning calling for adaptations whenever necessary to achieve the MTS objectives and outputs. At the same time, the MSSD – having a longer perspective – will present a more effective time horizon to plan for regional impact. The entire MTS exercise will be evaluated at the end of the 6 years period with an independent indicator-based evaluation conducted in 2027.

Annex I. UNEP/MAP MTS 2022-2027 Targets and Indicators per Programme

Programme: 1. Towards a pollution and litter free Mediterranean Sea and Coast embracing circular economy

Indicators	Proposed targets
1. Number of regional regulatory and policy instruments developed/updated and implemented addressing pollution and marine litter prevention and reduction.	3
2. Number of technical guidelines and tools on marine pollution and marine litter prevention/reduction and circular business development developed and implemented.	11
3. Number of countries that integrate common approaches to mainstreaming marine pollution and marine litter prevention/reduction into development and sectoral plans, policies and processes.	At least 6 CPs
4. Number of measures and actions developed and/or implemented to reduce pollution to air, water, soil and the ocean.	16 measures and actions
5. Number of new/updated national policies, strategies, legislation or action plans on pollution and marine litter prevention/reduction adopted in line with MAP legal and policy instruments.	At least 8
6. A) Quantity of priority pollutants removed; B) Reduced trends of pollutants/marine litter discharges at sea; C) Progress towards GES achievement/maintenance on pollution and marine litter at commonly agreed assessment scales.	A) 1,250 tons of POPs reduction/ prevention 50 tons of mercury

Programme 2: Towards Healthy Mediterranean Ecosystems and Enhanced Biodiversity

Indicators	Proposed targets
1. Number of regional regulatory and policy instruments on biodiversity and ecosystems conservation developed/updated and implemented.	9
2. Number of new/updated national policies, strategies, legislation or action plans for the implementation of regional instruments, including restoration actions.	23
3. Number of countries that integrate common approaches to mainstreaming biodiversity into development and sectoral plans, policies and processes.	At least 8
4. A) Number of protected areas (MPA, SPAMI and other effective area-based conservation measures) designated; management plans developed and implemented; MPA monitoring data reported;	A) At least 2,000 area-based conservation measures (baseline 1,137); At least 1 set of data on EO1/EO2 CIs by CPs in selected MPAs

B) % of Mediterranean Sea under protection measures.	B) 20% (baseline 9.3%)
5. Progress towards GES achievement/maintenance on biodiversity and NIS cluster at commonly agreed assessment scales.	At least 6 assessments related to EO1, EO2 and EO3 at national level At least 3 countries with national bycatch data and its impact on biodiversity assessed
6. Number of measures and actions developed and/or implemented on biodiversity conservation, restoration, and monitoring implemented, including on MPA/SPAMI management and monitoring.	At least 21
7. Number of measures and actions developed and/or implemented to prevent, manage and control NIS and in particular invasive non-indigenous species and their introduction pathways.	At least 1 measure and 1 action are developed and implemented every biennium (3 actions and 3 measures in the 6 year time period of the MTS)

Programme 3: Towards a Climate Resilient Mediterranean

Indicators	Proposed targets
1. Number of regional regulatory and policy instruments to address climate change-related challenges developed/updated and implemented.	2
2. Number of national climate change mitigation and/or adaptation and Disaster Risk Reduction strategies and policies developed or mainstreamed into national ICZM and MSP strategies and coastal plans and under implementation.	7
3. Number of national and local actions and targeted measures to support climate change mitigation and adaptation, including nature-based solution actions, developed and implemented.	35
4. Number of thematic publications, targeted assessment products and the sharing of best-practices including on nature-based solutions, climate finance, circular economy business ventures support etc.	5

Programme 4: Towards the sustainable use of coastal and marine resources including circular and blue economy

Indicators	Proposed targets
1. Number of regional regulatory and policy instruments to support sustainable use of coastal and marine resources developed/updated and implemented.	1

2. Number of regional guidance documents and tools, including recommendations and standards, to support sustainable use of coastal and marine resources developed and implemented.	9
3. A) Number of ICZM strategies, plans and programmes, mainstreaming MSP and climate action prepared and implemented;	A) 4
B) Number of national policies and legal frameworks for green and circular businesses support adopted and implemented.	B) 2
4. Progress towards GES achievement/maintenance on coast and hydrography cluster at the commonly agreed assessment scale.	
5. Number of national and transboundary CAMP and other demonstration projects focusing on the implementation of the ICZM Protocol provisions negotiated, prepared and implemented.	5
6. Number of actions and targeted measures providing innovative services and products and strengthen technical capacities of businesses, entrepreneurs, financing agents, and civil society organisations.	4 actions; 100 entrepreneurs supported

Foundational Programme 5: Governance

Indicators	Proposed targets
1. Number of new ratifications of the Barcelona Convention Protocols.	At least 6
2. Number of Contracting Parties complete implementation reports timely submitted to the Secretariat through the Barcelona Convention Reporting System (BCRS).	22
3. A) Number of actions to support the implementation and enforcement of the Barcelona Convention and its Protocols, including public institution capacities;	A) 11
B) Number of compliance mechanisms and procedures upgraded, maximizing synergies with the work under relevant MEAs.	B) 3
4. Ecosystem approach regulatory and governance framework reviewed and upgraded to boost the actions for achieving and/or maintaining GES.	
5. Number of sectoral and intersectoral governance mechanisms and bodies established and operational at national level.	At least 10
6. A) Number of partnerships established and/or updated including with relevant scientific networks/ institutions, and the private sector;	A) 30
B) Number of joint actions designed and implemented	B) 25

Enabling Programme 6: Towards Monitoring, Assessment, Knowledge and Vision of the Mediterranean Sea and Coast for Informed Decision-Making

Indicators	Proposed targets
1. Number of assessment products, analyses, scenarios and reports on the status of the Mediterranean marine and coastal environment, including socioeconomic aspects, prepared and published.	6 regional; 9 national
2. Network of Mediterranean scientific experts strengthened through:	

<p>A) number of established/updated partnerships with scientific institutions;</p> <p>B) Number of strategic, knowledge sharing and SPI meetings.</p>	<p>A) At least 5</p> <p>B) At least 3</p>
<p>3. A) Number of IMAP Indicators fully developed with assessment criteria, with operational scales of monitoring and assessment in place;</p> <p>B) Number of NAP/H2020 Indicators populated and assessed</p> <p>C) Number of upgraded MSSD Dashboard indicators updated and assessed and aligned with SDGs.</p>	<p>A) At least 13</p> <p>B) At least 10</p> <p>C) Increasing trends</p>
<p>4. A) IMAP InfoSystem fully operational for the submission of quality assured data for all IMAP Common Indicators;</p> <p>B) Number of Contracting Parties timely submitting IMAP monitoring data through the IMAP InfoSystem.</p>	<p>A) IMAP Info System hosting quality assured data for all IMAP Common Indicators</p> <p>B) 21</p>
<p>5. Number of thematic data/information collection and sharing platforms established and operational.</p>	<p>12</p>

Enabling Programme 7: For informed and consistent advocacy, awareness, education and communication

Indicators	Proposed targets
<p>1. A) Number of events organised raising MAP visibility and supporting renewal of commitment to the Barcelona Convention;</p> <p>B) Number of international and regional fora where the role and visibility of the BC and UNEP/MAP is promoted.</p>	<p>A) At least 22</p> <p>B) At least 24</p>
<p>2. Number of actions implemented regarding the Advocacy programme including through the use of new communication and digital tools ensuring a consistent One-MAP system communication.</p>	<p>30</p>
<p>3. Number of educational and awareness raising programmes and actions, with a particular focus on civil society engagement, developed and implemented.</p>	<p>70</p>
<p>4. Number of actions to support gender mainstreaming into MAP-Barcelona Convention system in line with SDG 5 developed and implemented.</p>	<p>At least 20</p>
<p>5. Number of tools and products to enhance knowledge management and internal communication delivered.</p>	<p>50</p>
<p>6. A) Positive shift in public opinion, attitudes, and actions, in support of the MTS Programmes;</p> <p>B) Positive change in private sector in support of the MTS Programmes.</p>	

Draft Decision IG.25/2

Compliance Committee

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the Environment Assembly resolution UNEP/EA.4/Res.20, of 15 March 2019, entitled “Fifth Programme for the Development and Periodic Review of Environmental Law (Montevideo Programme V): delivering for people and the planet”,

Having regard to the Barcelona Convention, in particular Articles 26 and 27 thereof, about reports and compliance control, respectively, and the relevant articles of its Protocols,

Recalling Decision IG.17/2 of the 15th Meeting of the Contracting Parties (COP 15) (Almeria, Spain, 15-18 January 2008) on Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocols, as amended by Decision IG.20/1 of the 17th Meeting of the Contracting Parties (COP 17) (Paris, France, 8-10 February 2012) and Decision IG.21/1 of the 18th Meeting of the Contracting Parties (COP 18) (Istanbul, Turkey, 3-6 December 2013),

Recalling also Decision IG.19/1 of the 16th Meeting of the Contracting Parties (COP 16) (Marrakesh, Morocco, 3-5 November 2009) on the Rules of Procedure of the Compliance Committee, as amended by Decision IG.21/1 of the 18th Meeting of the Contracting Parties (COP 18) (Istanbul, Turkey, 3-6 December 2013),

Emphasizing the objective of the Compliance Committee in facilitating and promoting compliance with the obligations under the Barcelona Convention and its Protocols as well as its role in considering specific situations of actual or potential non-compliance by individual Contracting Parties and, at the request of the Meeting of the Contracting Parties, general compliance issues and any other issues,

Stressing the importance of the submission of national implementation reports by Contracting Parties, for the Compliance Committee to perform its role effectively and for the meeting of the Contracting Parties to keep under review the implementation of the Barcelona Convention and its Protocols,

Welcoming the submission of the national implementation reports for the biennium 2018-2019, using the online Barcelona Convention Reporting System (BCRS), and the progress made by Contracting Parties in implementing the Barcelona Convention and its Protocols,

Noting with appreciation the work carried out by the Compliance Committee during the biennium 2020-2021 to improve the timeliness and completeness of national implementation reports and the need to continue in that direction to enhance compliance with the obligation to submit national implementation reports under Article 26 of the Barcelona Convention and the relevant articles of its Protocols,

Aware of the challenges faced by the Contracting Parties in implementation, and the need to ensure that, in coordination with MAP components, where appropriate, adequate action is taken to facilitate and promote compliance through capacity building activities, as resources allow,

Bearing in mind the importance of enhancing the effectiveness of the compliance mechanisms and procedures by further strengthening the capacity of the Compliance Committee in meeting its role in facilitating and promoting compliance with the Barcelona Convention and its Protocols,

Having considered the Compliance Committee meeting reports of the biennium 2020–2021,

1. *[Take note]* of the Activity Report of the Compliance Committee for the Biennium 2020-2021, set out in Annex I to the present Decision, that contains proposed amendments to the

Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocols and the Rules of Procedure of the Compliance Committee;

2. *[Request the Secretariat, the Contracting Parties and the Compliance Committee to work on a revised version of the Compliance Procedures and Mechanisms with a view to strengthening its effective functioning in addressing and facilitating full compliance with the Barcelona Convention and its Protocols, taking into account the draft presented by the Compliance Committee for the work already undertaken during 2020-2021 biennium, for consideration by CoP 23];*

3. *Adopt* the Programme of Work of the Compliance Committee for the Biennium 2022-2023, set out in Annex II to the present Decision;

4. *Urge* those Contracting Parties who have not yet submitted their national implementation reports for the biennium 2018-2019 to do so, as soon as possible;

5. *Invite* the Contracting Parties to submit their national implementation reports for the biennium 2020-2021 using the online Barcelona Convention Reporting System by December 2022;

6. *[Elect and/or renew*, in accordance with the Procedures and Mechanisms on Compliance, the membership of the Compliance Committee, set out in Annex IV to the present Decision;]

7. *Request* the Compliance Committee to report to the Contracting Parties at COP 23 on the work it has carried out to fulfil its functions in accordance with paragraph 31 of the Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocols.

[Annex I

Activity Report of the Compliance Committee for the Biennium 2020-2021

[To be added for the 22nd Meeting of the Contracting Parties (COP 22, Antalya, Turkey, December 2021)]

*Appendix I to the Activity Report of the Compliance Committee for the Biennium 2020-2021***Proposed amendments to the Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocols****Decision IG.17/2: Procedures and mechanisms on compliance under the Barcelona Convention and its Protocols**
(Consolidated text)¹Amended by:

Decision IG.20/1, Annex I. (Source: UNEP (DEPI)/MED IG.20/8, Annex II)

Decision IG.21/1, Annex IV. (Source: UNEP (DEPI)/MED IG.21/9, Annex II)

I Objective, Nature and Principles

1. The objective of the compliance mechanism is to facilitate and promote compliance with the obligations under the Barcelona Convention and its Protocols, taking into account the specific situation of each Contracting Party. ~~in particular those, which are developing countries.~~

1.bis. The compliance procedure shall be facilitative, non-adversarial, dispute-preventing and cooperative in nature and its operation be guided by the principles of transparency, fairness, expedition as well as by equitable principles.

1ter. The compliance procedure shall be conducted by the principles of “due process” and “due diligence” in order to ensure fairness and transparency.

II Compliance Committee

2. A compliance committee, hereinafter referred to as “the Committee”, is hereby established.

3. The Committee shall consist of ~~[seven]~~ [nine] ~~[fourteen]~~ members elected by the Meeting of the Contracting Parties before the end of each Ordinary Meeting of the Contracting Parties from a list of candidates nominated by the Contracting Parties. ~~For each member of the Committee, the Meeting of the Contracting Parties shall also elect an alternate member from the above-mentioned list.~~

4. A full term of office commences at the end of an Ordinary Meeting of the Contracting Parties and runs until the end of the second Ordinary Meeting of the Contracting Parties thereafter. For the principle of continuity of functions, the term of office of the Chair and two Vice-Chairs of the Compliance Committee is extended as appropriate until their successors are elected at an Ordinary Meeting of the Compliance Committee.

5. At the Meeting of the Contracting Parties at which the decision establishing the mechanism is adopted, the Meeting shall elect three members and their alternates for half a term and four members and their alternates for a full term. At each ordinary meeting thereafter, the Contracting Parties shall elect for a full-term new members ~~and alternates~~ to replace those whose period of office is about to expire.

6. Members ~~and alternates members~~ shall not serve on the Committee for more than two consecutive terms.

7. The members of the Committee shall be nationals of Parties to the Barcelona Convention. The Committee shall not include more than one national of the same State.

¹ The consolidated text integrates the text of the Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocols as contained in the Annex to Decision IG 17/2 adopted by the 15th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (COP 15), with the subsequent amendments adopted by COP 17 Decision IG.20/1 and COP 18 Decision IG. 21/1 for ease of reference only.

8. Nominated candidates shall be persons of **high moral character and** recognized competence in the matters dealt with by the Barcelona Convention and its Protocols ~~and~~ in relevant **legal, scientific, and technical, socioeconomic, legal or other** fields. Each nomination shall be accompanied by the curriculum vitae of the candidate. Contracting Parties ~~may consider the nominations of candidates from civil society and academia are encouraged to avoid any conflict of interest by nominating government officials operating in the framework of the Barcelona Convention.~~

9. In electing members of the Committee ~~and their alternates~~, the Meeting of the Contracting Parties shall take into consideration equitable geographical representation, shall ensure rotation in order to secure the participation of nominated individuals from all Contracting Parties as members of the Committee within a reasonable period of time. To the extent possible, they shall also take into consideration a balance of scientific, legal and technical expertise.

10. The Committee shall elect its officers – a Chairperson and two Vice-Chairpersons – on the basis of equitable geographic representation and rotation **to the extent possible and approve its Rules of Procedure.**

11. Members of the Committee ~~and their alternates~~ shall serve in their ~~individual personal~~ capacities and shall act **with independence and objectively impartially** in the interests of the Barcelona Convention and its Protocols for the protection of the Mediterranean Sea and its coastal area **avoiding any conflict of interest.**

III Meetings of the Committee

12. The Committee shall meet at least once a year. The Committee may decide to hold additional meetings, in particular in conjunction with those of other Convention bodies.

13. The Secretariat shall inform all Contracting Parties of the date and venue of the meetings of the Committee. Unless the Committee or the Party whose compliance is in question (hereinafter “the Party concerned”) decides otherwise, the meetings of the Committee will be open to:

(a) Parties to the Convention, which shall be treated as observers in accordance with the Rules of Procedure for meetings and conferences of the Contracting Parties for the purpose of their participation in the Committee; ~~and~~

(b) observers, in accordance with Article 20 of the Convention and the Rules of Procedure for the meetings and conferences of the Contracting Parties; ~~and~~

(c) **on a case-by-case basis, the Committee may grant observer status to members of the civil society.**

14. ~~In the absence of a member from a meeting, the respective alternate shall serve as the member~~

15. For each meeting, a quorum of **[five]** ~~[seven]~~ **[ten]** members is required.

16. The Committee shall make every effort to reach agreement by consensus on its findings, measures and recommendations. If all efforts to reach consensus have been exhausted, the Committee shall as a last resort adopt its findings, measures and recommendations by at least a three-fourths majority of the members present and voting. “Members present and voting” means members present and casting an affirmative or a negative vote.

IV Role of the Compliance Committee

17. The role of the Committee shall be to consider:

(a) specific situations of actual or potential non-compliance by individual Parties with the provisions of the Convention and its Protocols;

(b) ~~at the request of the Meeting of the Contracting Parties,~~ general compliance issues, such as recurrent non-compliance problems, including in relation to reporting, taking into account the reports referred to in Article 26 of the Convention and any other report submitted by the Parties; and

(c) any other issues as requested by the Meeting of the Contracting Parties or a Contracting Party or the Secretariat if related to the Compliance Committee mandate and its Programme of Work as adopted by the Ordinary Meeting of the Contracting Parties.

17.bis In assessing and verifying information provided and the actual situation on the ground, the Committee is assisted by the MAP components responsible for the Barcelona Convention and its Protocols.

V Procedure

1. Submissions by Parties

18. The Committee shall consider submissions by:

(a) a Party in respect of its own actual or potential situation of non-compliance, despite its best endeavours; and

(b) a Party in respect of another Party's situation of non-compliance, after it has undertaken consultations through the Secretariat with the Party concerned and the matter has not been resolved within three months at the latest, or a longer period as the circumstances of a particular case may require, but not later than six months.

19. Submissions as referred to in paragraph 18 concerning the alleged non-compliance of a Party shall be addressed in writing to the Committee through the Secretariat, supported by substantiating information setting out the matter of concern and the relevant provisions of the Barcelona Convention and its Protocols.

20. The Secretariat shall, within two weeks of receiving a submission in accordance with paragraph 18 (b), send a copy of that submission to the Party concerned.

21. The Committee may decide not to proceed with a submission that it considers to be

- anonymous,
- de minimis or
- manifestly ill founded.

22. The Secretariat shall inform both the Party concerned and the Party indicated in paragraph 18(b) about the Committee's findings under paragraph 21 within two weeks of the date of the findings.

2. Referrals by the Secretariat

23. If the Secretariat becomes aware ~~from the periodic reports referred to in Article 26 of the Convention and any other reports submitted by the Parties~~ that a Party is facing difficulties in complying with its obligations under the Convention and its Protocols, the Secretariat shall notify the Party concerned and discuss with it ways of overcoming the difficulties. If the difficulties cannot be overcome within a maximum period of three months, the Party concerned shall make a submission on the matter to the Compliance Committee in accordance with paragraph 18 (a). In the absence of such a submission within six months of the date of the above-mentioned notification, the Secretariat shall refer the matter to the Committee.

2.bis Referral to the Committee on its own initiative

23.bis The Committee may examine, on the basis of the biennial activity reports or in the light of any other relevant information, any difficulties encountered by a Contracting Party in the implementation of the Convention and its Protocols. The Committee may ask the Party concerned through the Secretariat to provide all additional information. The Party concerned shall have a period of two months to respond.

Paragraphs 24 to 30 and 32 to 34 shall apply, *mutatis mutandis*, in the case of referral to the Committees on its own initiative.

2. Proceedings

24. The Party concerned may present information on the issue in question and present responses and/or comments at every stage of the proceedings. At the invitation of the Party concerned, the Committee may undertake on-site appraisals at the Party's own cost.

25. The Committee may:

- (a) ask the Party concerned to provide further information, including an assessment of the reasons
- (b) why the Party may be unable to fulfil its obligations; and with the consent of the Party concerned, gather information in the territory of that Party, including on-site appraisals.

26. In its deliberations, the Committee shall take into account all the available information concerning the issue in question, which shall also be made equally available to the Party concerned.

27. The Party concerned shall be entitled to participate in the discussions of the Committee and present its observations. The Committee may, if it considers it necessary in a particular case of non-compliance, ask the Party concerned to participate in the preparation of its findings, measures and recommendations.

28. ~~The Committee shall be guided by the principles of "due process" and "due diligence" in order to ensure fairness and transparency.~~

29. The Committee shall, through the Secretariat, notify the Party concerned of its draft findings, measures and recommendations in writing within two weeks from the date of their completion. The Party concerned may comment in writing on the draft findings, measures and recommendations of the Committee within a period of time determined by the Committee.

30. The Committee, any Party or others involved in its deliberations shall protect the confidentiality of information transmitted in confidence by the Party concerned.

VI Committee reports to the Meetings of the Contracting Parties

31. The Committee shall prepare a report on its activities.

- (a) The report shall be adopted in accordance with paragraph 16. Where it is not possible to reach agreement on findings, measures and recommendations by consensus, the report shall reflect the views of all Committee members and provide the reasoning for its findings, measures and recommendations.
- (b) As soon as it is adopted, the Committee shall submit the report through the Secretariat, including such recommendations on individual and general issues of non-compliance as it considers appropriate to the Parties for consideration at their next meeting to the Meeting of the Contracting Parties.

VII Measures

32. The Committee may take one or more of the following measures with a view to promoting compliance and addressing cases of non-compliance, taking into account the capacity of the Party concerned, in particular if it is a developing country, and also factors such as the cause, type, degree and frequency of non-compliance:

- (a) provide advice and, as appropriate, facilitate assistance;
- (b) request or assist, as appropriate, the Party concerned to develop an action plan to achieve compliance within a time frame to be agreed upon between the Committee and the Party concerned;
- (c) invite the Party concerned to submit progress reports to the Committee within the time frame referred to in subparagraph (b) above on the efforts it is making to comply with its obligations under the Barcelona Convention and its Protocols; and

- (d) make recommendations to the Meeting of the Contracting Parties on cases of non-compliance, if it finds that such cases should be handled by the Meeting of the Contracting Parties.

33. The Meeting of the Contracting Parties may decide, upon consideration of the report and any recommendations of the Committee, taking into account the capacity of the Party concerned, ~~in particular if it is a developing country~~, and also factors such as the cause, type and degree of non-compliance, appropriate measures to bring about full compliance with the Convention and its Protocols, such as:

- (a) facilitate implementation of the advice from the Committee and facilitate assistance, including, where appropriate, capacity-building measures, to an individual Party;
- (b) make recommendations to the Party concerned;
- (c) request the Party concerned to submit progress reports on achievement of compliance with the obligations under the Convention and its Protocols; and
- (d) publish cases of non-compliance.

34. In the event of a serious, ongoing or repeated situation of non-compliance by a Party, the Meeting of the Contracting Parties, where appropriate, may:

- (a) issue a caution;
- (b) issue a report of non-compliance regarding that Party; or
- (c) consider and undertake any additional action that may be required for achievement of the purposes of the Convention and the Protocols.

VIII Review of procedures and mechanisms

35. The Meeting of the Contracting Parties shall regularly review the implementation and effectiveness of the compliance mechanism and take appropriate action.

IX Relationship with Article 28 of the Convention (Settlement of Disputes)

36. These procedures and mechanisms shall operate without prejudice to the settlement of disputes provisions of Article 28 of the Convention.

X ~~Sharing of information with other relevant multilateral environmental agreements~~ Enhancement of synergies

~~37. Where relevant, the Committee may solicit specific information, upon request by the Meeting of the Contracting Parties, or directly, from compliance committees dealing with comparable matters, and shall report on its consultations to the Meeting of the Contracting Parties.~~

37. In order to enhance synergies with mechanisms of compliance under other agreements, the Compliance Committee may consult with those mechanisms and invite them to attend its meetings, and report back to the Meeting of the Contracting Parties, including with recommendations as appropriate.

37.bis In order to ensure further improved coordination and cooperation between the Compliance Committee and the governing bodies of the Barcelona Convention and MAP components, a representative of the Compliance Committee shall participate in the meetings of the Bureau, the MAP Focal Points and MAP Components as appropriate, and report back to the Meeting of the Contracting Parties, including with recommendations as appropriate.

XI Secretariat

38. The Coordinating Unit shall serve as the Secretariat of the Committee. It shall, inter alia, arrange and service the meetings of the Committee.

*Appendix II to the Activity Report of the Compliance Committee for the Biennium 2020-2021***Proposed amendments to the Rules of Procedure of the Compliance Committee****Rules of Procedure of the Compliance Committee****(COP 18, Decision IG.21/1)****Purposes****Rule 1**

Within the framework of the implementation of the procedures and mechanisms on compliance under the Barcelona Convention and its Protocols, hereinafter called "compliance procedures and mechanisms", contained in the annex to decision IG 17/2 on compliance procedures and mechanisms, hereinafter called decision IG 17/2, as adopted by the 15th Meeting of the Contracting Parties, these rules of procedure shall apply to any meeting of the Compliance Committee, hereinafter called "the Committee", under the Convention and its related Protocols.

Rule 2

The Rules of Procedure for Meetings and Conferences of the Contracting Parties to the Barcelona Convention and its related Protocols shall apply mutatis mutandis to any meeting of the Committee unless otherwise stipulated in the rules set out herein and in decision IG 17/2, and provided that rules 18 and 19 on representation and credentials of the Rules of Procedure for Meetings and Conferences of the Contracting Parties do not apply.

Definitions**Rule 3**

For the purposes of these rules:

1. "Convention and its related Protocols" means the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) adopted in 1976 and amended in 1995 and its related Protocols: Protocol Concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency (Emergency Protocol), Barcelona, 1976; Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (Prevention and Emergency Protocol), Malta, 2002; Protocol for the Prevention of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft (Dumping Protocol), Barcelona, 1976; amendments to the Dumping Protocol, recorded as Protocol for the Prevention and Elimination of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea, Barcelona, 1995; Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources (LBS Protocol), Athens, 1980; amendments to the LBS Protocol, recorded as Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities, Syracuse, 1996; Protocol concerning Mediterranean Specially Protected Areas (SPA Protocol), Geneva, 1982; Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA and Biodiversity Protocol), Barcelona, 1995; Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol), Madrid, 1994; Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (Hazardous Wastes Protocol), Izmir, 1996;

Protocol on Integrated Coastal Zone Management in the Mediterranean (ICZM Protocol), Madrid, 2008.

2. “Compliance procedures and mechanisms” means the procedures and mechanisms on compliance under the Barcelona Convention and its related Protocols adopted by the 15th Meeting of the Contracting Parties and set out in the annex to decision IG 17/2.

3. “Contracting Parties” means Contracting Parties to the Convention and its related Protocols, including the amended versions, if any, for which the Convention and the related Protocols and their respective amendments are in force.

4. “Party concerned” means a Party in respect of which a question of compliance is raised as set out in section V of the compliance procedures and mechanisms.

5. “Committee” means the Compliance Committee established by section II, paragraph 2, of the compliance procedures and mechanisms and by decision IG 17/2 of the 15th Meeting of the Contracting Parties.

6. “Member” means a member of the Committee elected under section II, paragraph 3, of the compliance procedures and mechanisms.

7. ~~“Alternate member” means an alternate member elected under section II, paragraph 3, of the compliance procedures and mechanisms.~~

8. “Chairperson” means the Chairperson of the Committee elected in accordance with rule 6 of the present rules of procedure.

9. “Vice-Chairpersons” means the Vice-Chairpersons of the Committee elected in accordance with rule 6 of the present rules of procedure.

10. “Secretariat” means the Coordinating Unit that is designated by the Executive Director of the United Nations Environment Programme (UNEP) as responsible *for* the administration of the Mediterranean Action Plan (MAP), referred to in paragraph 38 of the compliance procedures and mechanisms.

11. “Representative” means a person designated by the Party concerned to represent it during the consideration of a question of non-compliance.

12. “The public” means one or more natural or legal persons and, in accordance with national legislation or practice, their associations, organizations or groups.

13. “Bureau” means the Bureau of the Contracting Parties referred to in article 19 of the Convention.

14. “Observers” means the organizations referred to in article 20 of the Convention, ~~and~~ those included in the list of MAP partners as approved by the Meeting of the Contracting Parties and members of the civil society which have been granted the status of observers by the Compliance Committee on a case-by-case basis as per the compliance procedures and mechanisms.

Membership of the Committee

Rule 3bis

1. Each member of the Committee shall serve in his or her personal capacity and act in an independent and impartial manner in the interest of the Barcelona Convention and its Protocols

for the Protection of the Mediterranean Sea and its coastal area and avoid any conflicts of interest.

2. The term of office of a member shall commence at the end of an ordinary Meeting of the Contracting Parties immediately following his or her election and run until the end of the Meeting of the Contracting Parties two or four years thereafter, as applicable.²

3. Every member serving the Committee shall, before taking up his or her duties, make a solemn declaration in a meeting of the Committee that he or she will perform his or her functions objectively, independently, impartially and conscientiously as provided in Rule 13.

4. Since the Committee members are elected in a strictly personal capacity, an absent Committee member is not entitled to designate a substitute

5. When a member of the Committee resigns or is otherwise unable to complete the assigned term of office, the Committee shall immediately request the Secretariat to start the replacement procedures. Therefore, the Bureau of the Meeting of the Parties shall appoint a new member from the list of candidates nominated by the Contracting Parties or, subsidiarily, shall request the Party which nominated that member to nominate a replacement to serve for the remainder of the term.³

6. Any other participant in the Committee's meetings shall attend as observer in accordance with paragraph 13 of the Procedures and Mechanisms.⁴

Place, dates and notice of meetings

Rule 4

1. The committee shall normally meet twice per biennium preferably once a year. It may recommend the Secretariat to hold additional meetings subject to workload requirements arising from submissions by concerned Contracting Parties, ~~and~~ referrals by the Secretariat and referrals by the Committee on its own initiative, subject to availability of funds.

2. Unless it decides otherwise, the Committee shall meet at the seat of the Secretariat. Any additional costs that may rise by changing of the place of the meeting shall be met by the host country.

3. At each meeting, the Committee shall decide in consultation with the Secretariat on the place, dates and duration of its next meeting.

Rule 5

Notice of Committee meetings shall be sent by the Secretariat to the members and alternate members and any representative, as the case may be, with a copy to the MAP Focal Points of all Contracting Parties, at least three months before the opening of the meeting.

Officers

² Note by the Secretariat: proposed Rule 3bis.2 reproduces Rule 10.1 of the Rules of Procedure and amends it by deleting the reference to "alternate members"

³ Note by the Secretariat: proposed Rule 3bis.5 replaces Rules 10.2 and 10.3 of the Rules of Procedure

⁴ Note by the Secretariat: proposed Rule 3bis.6 reproduces Rule 11.5 of the Rules of Procedure and amends it by adding the text "in accordance with paragraph 13 of the Procedures and Mechanisms".

Rule 6

The Committee shall elect a Chairperson and two Vice-Chairpersons for a term of two years. No officers shall serve for more than two consecutive terms.

Rule 7

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules, the Chairperson shall:

- (a) Preside over the meeting;
- (b) Declare the opening and closure of the meeting;
- (c) Ensure the observance of these rules;
- (d) Accord the right to speak;
- (e) Put questions to the vote and announce decisions;
- (f) Rule on any points of order;
- (g) Subject to these rules, have complete control over the proceedings and maintain order.

2. The Chairperson may also propose:

- (a) The closure of the list of speakers;
- (b) A limitation on the time to be allowed to speakers and on the number of interventions on an issue;
- (c) The adjournment or closure of debate on an issue;
- (d) The suspension or adjournment of the meeting.

Agenda**Rule 8**

1. In agreement with the Chairperson, the Secretariat shall draft the provisional agenda for each meeting of the Committee. The agenda of the Committee shall include items arising from its functions as specified in section IV of the compliance procedures and mechanisms and other matters related thereto.

2. The Committee, when adopting its agenda, may decide to add urgent and important items and to delete, defer or amend items.

Rule 9

The provisional agenda and the annotated agenda for each meeting, the draft report of the previous meeting and other working and supporting documents shall be circulated by the Secretariat to members ~~and alternate members~~ at least six weeks before the opening of the Committee's meeting.

Rule 10

~~1. The term of office of a member or alternate member shall commence at the end of an ordinary Meeting of the Contracting Parties immediately following his or her election and run until the end of the Meeting of the Contracting Parties two or four years thereafter, as applicable.⁵~~

⁵ Note by the Secretariat: Rule 10.1 has been moved up as Rule 3bis.2 and amended by deleting the reference to "alternate member".

~~2. If a member or alternate member of the Committee resigns or is otherwise unable to complete his or her term of office, the Party which nominated that member or alternate member shall nominate a replacement to serve for the remainder of that member's or alternate member's mandate, subject to endorsement by the Bureau of the Contracting Parties.~~

~~3. When a member or alternate member resigns or is otherwise unable to complete the assigned term, the Committee shall request the Secretariat to start the replacement procedures in order to ensure, in accordance with paragraph 2 above, the election of a new member or alternate member for the remainder of the term⁶.~~

Rule 11

~~1. In accordance with these rules of procedure, members and alternate members shall be invited to attend Committee meetings.~~

~~2. Alternate members are entitled to take part in the proceedings of the Committee without the right to vote. An alternate member may cast a vote only if serving as a member.~~

~~3. During the absence of a member from all or part of a meeting, his or her alternate shall serve as the member.~~

~~4. When a member resigns or is otherwise unable to complete the assigned term or the functions of a member, his or her alternate shall serve as a member ad interim.~~

~~5. Any other participant in the Committee's meetings shall attend as an observer.⁷~~

When a member is absent for two consecutive meetings without providing any reasonable grounds, the term of office of the member concerned expires and new election proceeds, according to the provisions of Rule 3bis.5

Rule 12

1. Each member of the Committee shall, with respect to any matter that is under consideration by the Committee, avoid direct or indirect conflicts of interest. Any matter that may constitute a conflict of interest shall be brought as soon as possible to the attention of the Secretariat, which shall forthwith notify the members of the Committee. The concerned member shall not participate in the elaboration and adoption of findings, measures and recommendations of the Committee in relation to such a matter.

2. If the Committee considers that a material violation of the requirements of independence and impartiality expected of a member ~~or alternate member~~ of the Committee has occurred, it may decide to recommend, through the Secretariat to the Bureau of the Meeting of the Contracting Parties, to revoke the membership of any member ~~or alternate member~~ concerned, after having given the member ~~or alternate member~~ the opportunity to be heard.

3. All decisions of the Committee taken under this rule shall be noted in the annual report of the Committee to the Meeting of the Contracting Parties.

Rule 13

⁶ Note by the Secretariat: Rules 10.2 and 10.3 have been replaced with Rule 3bis.5.

⁷ Note by the Secretariat: Rule 11.5 has been moved up as Rule 3bis. 6 and amended by adding the text "in accordance with paragraph 13 of the Procedures and Mechanisms".

Each member ~~and alternate member~~ of the Committee shall take the following written oath:

“I solemnly declare that I shall perform my duties as member of the Committee objectively, independently and impartially, acting in the interest of the Barcelona Convention, and shall not disclose any confidential information coming to my knowledge by reason of my duties in the Committee, and I shall disclose to the Committee any personal interest in any matter submitted to the Committee for consideration which may constitute a conflict of interest.”

Distribution and consideration of information

Rule 14

1. The information received in accordance with paragraphs 18-19 of section V on Procedure shall be distributed by the Secretariat to the members ~~and alternate members~~ of the Committee.
2. Any submission received in accordance with paragraph 18(a) of section V of the compliance procedures and mechanisms shall be transmitted by the Secretariat to the members of the Committee ~~and their alternates~~ as soon as possible but no later than thirty days of receipt of the submission.
3. A submission received in accordance with paragraph 18(b) of the compliance procedures and mechanisms and any issues raised by the Secretariat as provided for in paragraph 23 of the compliance procedures and mechanisms shall be transmitted by the Secretariat to the members of the Committee ~~and their alternates~~ as soon as possible but no later than 30 days after the six-month time frames provided for in the above-mentioned paragraphs have expired.
4. Any information to be considered by the Committee shall, as soon as possible but no later than two weeks after receipt, be made available to the Party concerned.

Public access to documents and information

Rule 15

The provisional agenda, reports of meetings, official documents and, subject to rule 14 above and paragraph 30 of section V of the compliance procedures and mechanisms, any other non-confidential information documents shall be made available to the public.

Participation in proceedings of the Committee

Rule 16

1. Unless the Committee or the Party whose compliance is in question decides otherwise, the meetings of the Committee will be open to other Contracting Parties and to observers as provided for under paragraph 13 of the compliance procedures and mechanisms. The Committee may grant the observer status on a case-by-case basis to members of the civil society. Observers shall be entitled to receive copies of publicly distributed documents, submit written comments and make oral statements at meetings. The Committee reserves the right to give the floor to the attending public, upon request, if it deems useful.
2. In accordance with the provisions of paragraphs 18, 27 and 29 of the compliance procedures and mechanisms, the Party concerned is entitled to participate in the Committee's proceedings and

make comments thereon. It may furthermore, in accordance with the criteria adopted by the Committee and at the request of the latter, take part in the preparation of its findings, measures and recommendations. The Party concerned shall be given an opportunity to comment in writing on the findings, measures and recommendations of the Committee. Any such comments shall be forwarded with the report of the Committee -to the Meeting of the Contracting Parties.

3. The Committee may invite experts to provide expert advice through the Secretariat. In that case it shall:

- (a) Define the question on which expert opinion is sought;
- (b) Identify the expert(s) to be consulted, on the basis of a roster of experts prepared and regularly updated by the Secretariat;
- (c) Lay down the procedures to be followed.

4. Experts may also be invited by the Committee to be present during the formulation of its findings, measures or recommendations.

5. Secretariat officials may be also invited by the Committee to attend the Committee's deliberations in order to assist in the drafting of its findings, measures or recommendations.

Conduct of business

Rule 17

In conformity with rule 11, ~~[five] [seven] [ten]~~-members of the Committee shall constitute a quorum. ~~For the purpose of the quorum, the replacement of members by alternates shall take into consideration equitable geographical representation, consistently with the composition of the Committee as set out in the third paragraph of decision IG 17/2.~~

Rule 18

1. With respect to a notification or document sent by the Secretariat to a Contracting Party, the date of receipt shall be deemed to be the date indicated in a written confirmation from the Party or the date indicated in a written confirmation of receipt by the expedited delivery courier, whichever comes first.

2. With respect to a submission, request or other document intended for the Committee, the date of receipt by the Committee shall be deemed to be the first business day after receipt by the Secretariat.

Rule 19

1. Electronic means of communication may be used by the members of the Committee for the purpose of conducting informal consultations on issues under consideration and decision-making on matters of procedure. Electronic means of communication shall not be used for making decisions on matters of substance related in particular to the preparation of findings, measures and recommendations by the Committee.

2. The Committee may use electronic means of communication for the transmission, dissemination and storage of documentation, without prejudice to normal means of circulation of the documentation, as the case may be.

Voting

Rule 20

Each member of the Committee shall have one vote.

Rule 21

1. The Committee shall make every effort to reach agreement by consensus on its findings, measures and recommendations. If all efforts to reach consensus have been exhausted, the Committee shall as a last resort adopt its findings, measures and recommendations by at least six members present and voting.
2. For the purpose of these rules, “members present and voting” means members present at the session at which voting takes place and casting an affirmative or negative vote. Members who abstain from voting shall be considered as not voting.

Secretariat

Rule 22

1. The Secretariat shall make all necessary arrangements for meetings of the Committee and provide it with services as required.
2. In addition, and subject to availability of technical and financial means, the Secretariat shall perform any other function assigned to it by the Committee with respect to the work of the Committee.

Languages

Rule 23

English and French shall be the working languages of the Committee. ~~shall be the official languages of the meetings or conferences of the Contracting Parties.~~ However, the Committee will accept communications or submissions, as well as corroborating information in any of the four official languages of the meetings and conferences of the Contracting Parties.

Rule 24

1. The submissions from the Party concerned, the response and the information -referred to in section V of the compliance procedures and mechanisms shall be provided in one of the four official languages of the Meetings of the Conference of the Contracting Parties to the Convention and its related Protocols. The Secretariat shall make arrangements to translate them into English and/or French if they are submitted in the other official languages of the Meeting of the Contracting Parties to the Convention and its related Protocols.
2. Any representative taking part in the Committee proceedings and/or meetings may speak in a language other than the working languages of the Committee if the Party provides for interpretation.
3. Final findings, measures and recommendations shall be made available in all official languages of the Meetings of the Contracting Parties to the Convention and its related Protocols.\

General procedures for submissions

Rule 25

The time frame for submissions is as follows:

1. For cases concerning a submission by a Contracting Party in respect of its own actual or potential situation of non-compliance: at the latest six (6) weeks before the opening of the ordinary meeting of the Committee.
2. For cases concerning a submission by a Contracting Party in respect of another Party's situation of non-compliance: at the latest four (4) months before the opening of the ordinary meeting of the Committee allowing the Contracting Party whose compliance is in question at least three months to consider and prepare its response.
3. The time frames for cases concerning a submission by a Contracting Party in respect of another Contracting Party's situation of non-compliance also apply to issues raised by the Secretariat.
4. All the above time frames are indicative and may be extended according to the necessities warranted by the circumstances of the matter at hand and in accordance with the Committee's rules of procedure and due process. In this respect, Contracting Parties may submit additional documentation, comments and written observations to be considered by the Committee.

Rule 26

1. A submission by any Contracting Party raising a question of non-compliance with respect to itself shall set out:
 - (a) The name of the Contracting Party making the submission;
 - (b) A statement identifying the question of non-compliance, supported by substantiating information setting out the matter of concern relating to the question of non-compliance;
 - (c) Its legal basis and the relevant provisions of the Barcelona Convention and its related Protocols and decision IG 17/2 that form the basis for raising the question of non-compliance;
 - (d) Any provisions of the decisions of the Meeting of the Contracting Parties and the reports of the Secretariat that are applicable to the question of non-compliance.
2. The submission shall also include the list of all documents annexed to the submission.

Rule 27

1. A submission by any Contracting Party raising a question of non-compliance with respect to another Party shall set out:
 - (a) The name of the Contracting Party making the submission;
 - (b) A statement identifying the question of non-compliance, supported by substantiating information setting out the matter of concern relating to the question of non-compliance;
 - (c) The name of the Party concerned;
 - (d) Its legal basis and the relevant provisions of the Barcelona Convention and its related Protocols and decision IG 17/2 that form the basis for raising the question of non-compliance;
 - (e) Any provisions of the decisions of the meetings of the Contracting Parties and the reports of the Secretariat that are applicable to the question of non-compliance.
2. The submission should also include the list of all documents annexed to the submission.

Rule 28

The Secretariat shall make the submission and any supporting information, submitted under rule 15 above, including any expertise reports, available to the representative designated by the concerned Party.

Rule 29

Within the framework of general procedures for submissions as provided for under rule 26 above, comments and written observations by the Party concerned in accordance with the provisions of section V of the compliance procedures and mechanisms on the Committee's preliminary and final findings, measures and recommendations shall include:

- (a) A statement of the position of the Party concerned on the information, findings, measures and recommendations or question of non-compliance under consideration;
- (b) An identification of any information provided by the Party that it requests should not be made available to the public in accordance with paragraph 30 of section V of the compliance procedures and mechanisms;
- (c) A list of all documents annexed to the submission or comment.

Rule 30

1. Any submission, comment and/or written observations under rules 13 and 29 above shall be signed by the MAP Focal Point or the representative of the Contracting Party and be delivered to the Secretariat in hard copy and by electronic means of communication.

2. Any relevant documents in support of the submission, comment or written observations shall be annexed to it.

Rule 31

1. Findings, measures or recommendations shall contain, *mutatis mutandis*:

- (a) The name of the Party concerned;
- (b) A statement identifying the question of non-compliance addressed;
- (c) The legal basis and the relevant provisions of the Barcelona Convention and its related Protocols and decision IG 17/2 and other relevant decisions of the Meetings of the Contracting Parties that form the basis of the preliminary findings, measures and recommendations and their final versions;
- (d) A description of the information considered in the deliberations and confirmation that gives the Party concerned an opportunity to comment in writing on all information considered;
- (e) A summary of the proceedings, including an indication of whether its preliminary finding or any part of it as specified is confirmed;
- (f) The substantive decision on the question of non-compliance, including the consequences applied, if any;
- (g) The background, conclusions and reasons for the findings, measures and recommendations;
- (h) The place and date of the findings, measures and recommendations;
- (i) The names of the members who participated in the consideration of the question of non-compliance and in the elaboration and adoption of the findings, measures and recommendations.

2. Written comments on the findings, measures and recommendations submitted within 45 days of their receipt by the Party concerned shall be circulated by the Secretariat to the members and alternate members of Committee and shall be included in the Committee's biennial report to the

Meeting of the Contracting Parties.

Rule 31 bis: Procedures for handling communications⁸

A. Admissibility criteria under paragraph 23 bis of the Procedures and Mechanisms

- 1. Communications addressed to the Committee under paragraph 23 bis of the Procedures and Mechanisms shall be in writing or electronic form through the Secretariat. The communications shall be supported by substantiating documentation.**
- 2. When determining admissibility the Compliance Committee shall consider whether the communication is:**
 - (a) anonymous;**
 - (b) de minimis;**
 - (c) manifestly ill founded;**
 - (d) incompatible with the provisions of this compliance procedure or with the Barcelona Convention and its Protocols**
- 3. The Committee should, at all relevant stages, take into account any available domestic remedy unless the application of the remedy is unreasonable prolonged or obviously does not provide an effective and sufficient means of redress.**
- 4. With respect to communications by any member of the public and observers submitted to the Compliance in the context of paragraph 23.bis of the Procedures and Mechanisms on Compliance, the following procedures shall apply:**

B. Handling and Circulation of Communications

- 1. Communications shall be in writing or in electronic form through the Secretariat and as concise and concrete as possible. It is preferable that the communication shall not be more than twelve pages in total. Visual means are also welcomed.**
- 2. The minimum requirements to be included in any such communication are:**
 - (a) name and contact details of the communicant, whether this is a natural or legal person, the communication should be signed and be accompanied by a brief statement of the purpose of the communication. The Compliance Committee will not consider anonymous submission, but it will however respect any request of confidentiality by the communicant;**
 - (b) clear identification of the Party or Parties concerned;**
 - (c) one to two-page summary with the main facts of the case;**
 - (d) a document presenting the facts of the alleged non-compliance, and clearly stating how the facts presented constitute a case of non-compliance with the Barcelona Convention and/or its Protocols;**
 - (e) indication of whether steps have been taken to use the remedies available at national and/or international level.**
- 3. Communications shall be addressed to the Compliance Committee through the UNEP/MAP Coordinating Unit. Upon receipt of a communication the Secretariat shall register it, send an acknowledgement of the receipt and transmit the communication to the Party concerned and to the Compliance Committee within two weeks from the receipt clarifying that, at the present stage, it has not been deemed admissible by the Compliance Committee. Communications forwarded by the Secretariat will be considered by the Committee at its next**

⁸ Note by the Secretariat: Proposed Rule 31 bis integrates the Admissibility Criteria (COP17 Decision IG. 23/2) into the Rules of Procedure and proposes a set of amendments to the Admissibility Criteria as highlighted in grey.

meeting for the Committee to take a decision whether to enter into their preliminary admissibility.

C. Preliminary Determination of Admissibility

4. Upon circulation of a communication, the Compliance Committee shall consider the preliminary admissibility of communications addressed to it. To that end the Chair of the Compliance Committee in consultation with the Compliance Committee shall appoint from among its members a Rapporteur for each communication. The Rapporteur shall not be a citizen of the Party concerned.

5. If translation of substantiating material is required, the Committee shall decide on the extent to which more material, other than that which is already available in English, should be translated, taking into account both the costs of translation and the delay involved. The Committee may also request the communicant to provide an English translation of certain materials

6. If the Compliance Committee determines that the communication is inadmissible, it shall inform the Party concerned and the communicant accordingly, through the Secretariat and close the file. Such determination shall be final.

7. If the Compliance Committee determines that the communication is admissible on a preliminary basis, it opens a file, and shall notify the Party concerned and the communicant accordingly, through the Secretariat. The Committee should in principle consider preliminary determination of a communication not later than at its second meeting following the receipt of the communication.

8. The Compliance Committee may after making a positive decision on admissibility present the questions raised with the Party concerned, if any, when forwarding the communication. Such questions will be transmitted to the Party concerned by letter from the Secretariat, together with the confirmation of preliminary admissibility.

9. The Compliance Committee may also address any questions to the communicant it might find necessary to clarify the facts of the communication. Such questions will be transmitted to the communicant by letter from the Secretariat, together with the confirmation of preliminary admissibility.

10. The Party concerned should, as soon as possible but no later than two months from the date of the Secretariat's letter, submit written explanations or statements on the matter.

11. When forwarding a communication to the Party concerned on behalf of the Committee, the Secretariat will prepare a cover letter with: (a) a request to the Party concerned to acknowledge receipt of the communication; (b) a reminder of its obligation under paragraph 12 to submit as soon as possible, but not later than two months after the communication has been brought to its attention, written explanations or statements clarifying the matter and describing any response that it may have made; (c) a reference to the determination of preliminary admissibility with the request to inform the Committee as soon as possible if it intends to comment on admissibility issues; (d) specific points of discussion and questions to be addressed in the response, as identified by the Committee.

12. If the Party concerned contests the admissibility of the communication, the Compliance Committee will consider this and the communicant will be given an opportunity to comment and/or provide additional information.

13. If the Compliance Committee confirms the admissibility of the communication, it will proceed to the examination of the substance of it. Otherwise, the Compliance Committee will reverse its preliminary decision. The non-admissibility of the communication by the Committee is final. The Compliance Committee will inform the Party concerned and the communicant through the Secretariat.

14. The Compliance Committee should start the formal discussion on all particular communications at the first meeting that takes place following either the receipt of a response to the communication from the Party concerned or within the deadline of two months if no response has been received by then.

15. When the Compliance Committee discuss the substance of any communication at a particular meeting, the Secretariat will notify the Party concerned and the communicant that the communication will be discussed following mutatis mutandis the proceedings established in paragraphs 24 to 30 of the Procedures and Mechanisms on Compliance.

Amendments to the rules of procedure

Rule 32

Any amendment to these rules of procedure is adopted by consensus by the Committee and submitted for consideration and adoption by the Bureau, subject to endorsement by the Meeting of the Contracting Parties.

Overriding authority of the Convention and its related protocols and decision IG 17/2

Rule 33

In the event of a conflict between any provision in these rules and any provision in the Convention and its related Protocols or decision IG 17/2, the provisions of the Convention and its Protocols or, as the case may be, decision IG 17/2 shall prevail.

Annex II

Programme of Work of the Compliance Committee for the Biennium 2022-2023

Programme of Work of the Compliance Committee for the Biennium 2022-2023		
Activity	Lead/Who	Timetable/When
Specific submissions under Section V of the Procedures and Mechanisms on Compliance under the Barcelona Convention and its Protocol		
1. To consider any submissions and/or referrals in accordance with Section V of the Procedures and Mechanisms on Compliance	Compliance Committee	18 th and 19 th Compliance Committee Meetings
General issues of compliance under the Barcelona Convention and its Protocols		
2. To consider specific situations of actual or potential non-compliance by individual Parties in accordance with Section IV of the Procedures and Mechanisms on Compliance	Compliance Committee	18 th and 19 th Compliance Committee Meetings
3. At the request of the Meeting of the Contracting Parties, to consider general compliance issues in accordance with Section IV of the Procedures and Mechanisms on Compliance	Compliance Committee	18 th and 19 th Compliance Committee Meetings
4. To consider any other issues as requested by the Meeting of the Contracting Parties in accordance with Section IV of the Procedures and Mechanisms on Compliance	Compliance Committee	18 th and 19 th Compliance Committee Meetings
Enhanced effectiveness of the compliance mechanism		
5. To facilitate assistance, in coordination with MAP components, to address reported implementation difficulties and/or potential non-compliance situations	CU, MAP Components, Compliance Committee	18 th and 19 th Compliance Committee Meetings
6. [Following the possible COP 22 Decision on the presented Procedures and Mechanisms on Compliance and the related procedures on the Compliance Committee, further work to consider aspects related to public participation and enforcement, for their consideration by COP 23]	[Compliance Committee]	[18 th and 19 th Compliance Committee Meetings]
7. To continue to build and strengthen synergies, with other Compliance Committee's Multilateral Environmental Agreements (MEAs), including holding joint sessions	Compliance Committee	18 th and 19 th Compliance Committee Meetings

Annex III

Renewal or Election of the Membership of the Compliance Committee

(To be completed for the 22nd Meeting of the Contracting Parties (COP 22) (Antalya, Turkey, December 2021)

**Members and Alternate Members of the Compliance Committee renewed or elected by the
22nd Meeting of the Contracting Parties**

Group I: Algeria, Egypt, Lebanon, Libya, Morocco, Syria and Tunisia

[XXX] as a Member of the Compliance Committee for a term of four years, until COP 24

[XXX] as an Alternate Member of the Compliance Committee for a term of four years, until COP 24

Group II: Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain and the European Union

Mr. José Juste Ruiz, a national of Spain, as a Member of the Compliance Committee for a term of four years, until COP 24

[XXX] as an Alternate Member of the Compliance Committee for a term of four years, until COP 24

Group III: Albania, Bosnia and Herzegovina, Israel, Monaco, Montenegro and Turkey

[XXX] as a Member of the Compliance Committee for a term of four years, until COP 24

[XXX] as an Alternate Member of the Compliance Committee for a term of four years, until COP 24

Draft Decision IG.25/3

Governance

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”,

Recalling also General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Considering Decision IG.17/5 on the governance of the Mediterranean Action Plan Barcelona Convention system, adopted by the Contracting Parties at their 15th Meeting (COP 15) (Almeria, Spain, 15-18 January 2008), and Decision IG.19/6 on the Mediterranean Action Plan Civil Society Cooperation and Partnership, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009),

Considering also Decisions IG.20/13, IG.21/13, IG.23/3 and IG.24/2 on governance, adopted by the Contracting Parties at their 17th (COP 17) (Paris, France, 8-10 February 2012), 18th (COP 18) (Istanbul, Turkey, 3-6 December 2013), 20th (COP 20) (Tirana, Albania, 17-20 December 2017), and 21st (COP 21) (Naples, Italy, 2-5 December 2019) Meetings respectively,

Considering further Decision IG.22/17 on the Reform of the Mediterranean Commission on Sustainable Development (MCSDD) and Updated MCSDD Constitutive Documents, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016),

Stressing the effective and substantial progress made in the strengthening of regional cooperation and enhanced coordination in supporting the implementation of the Barcelona Convention and its Protocols and the need to continue work in that direction by inter alia enhancing regional synergies and complementarities, with the view to maximizing the effective and efficient use of resources and enhancing impacts on the ground,

Recalling Decisions IG.17/6 and IG.20/4 on the ecosystem approach, adopted by the Contracting Parties at COP 15 and COP 17 respectively, and *acknowledging with satisfaction* the progress achieved and work carried out in the Mediterranean with respect to the implementation of the ecosystem approach roadmap by the Ecosystem Approach Coordination Group,

Appreciating the guidance and advice provided to the Secretariat by the Bureau of the Contracting Parties to the Barcelona Convention on all policy and administrative matters related to the implementation of the Barcelona Convention and its Protocols during the 2020–2021 biennium, and having considered the reports of their 89th, 90th and 91st Meetings held in June 2020, November 2020 and July 2021 respectively,

1. *Renew* their commitment to the implementation of the Ecosystem Approach and *endorse* the Governance Mechanism for the Implementation of the Ecosystem Approach policy in the Mediterranean, set out in Annex I to this Decision.
2. *Approve* the draft Memoranda of Understanding (MoUs) between UNEP/MAP and the Circle of Mediterranean Parliamentarians for Sustainable Development (COMPSUD) and between UNEP/MAP and the Parliamentary of the Mediterranean (PAM), set out in Annex II to this Decision, and *request* the Secretariat to proceed towards their signature;
3. *Also approve* the update of the Appendix of the Memorandum of Understanding (MoU) between UNEP/MAP and the Food and Agriculture Organization of the United Nations / General

Fisheries Commission for the Mediterranean (FAO/GFCM), set out in Annex III to this Decision;

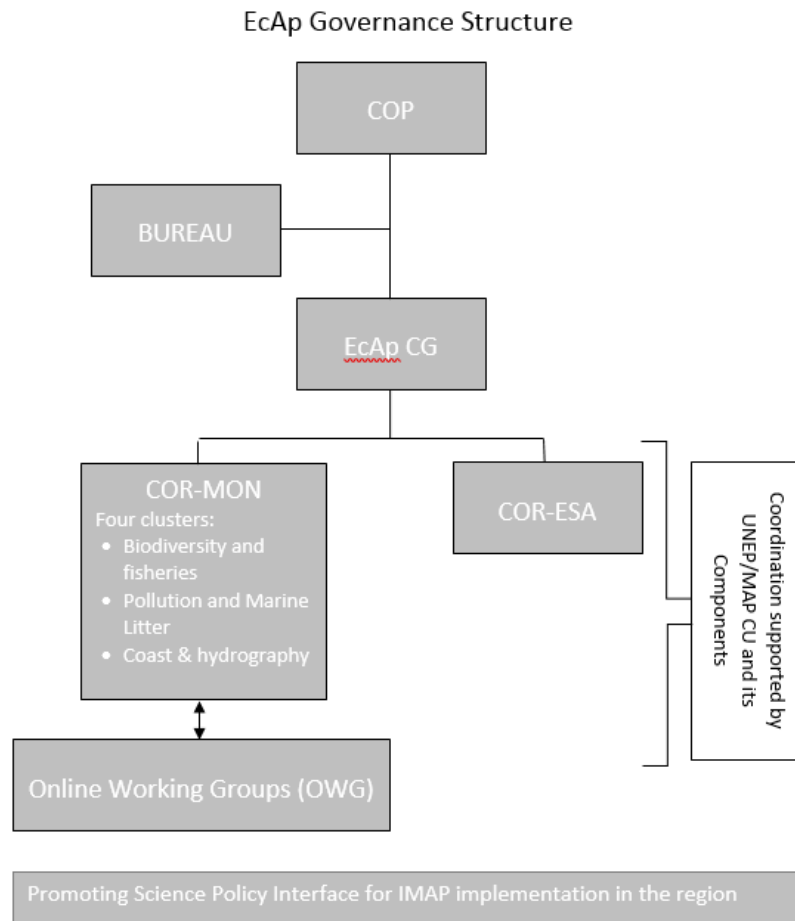
4. *Endorse* the list of new and renewed MAP Partners, set out in Annex IV to this Decision;
5. *Note with appreciation* the contribution of all partners to the work of the UNEP/MAP-Barcelona Convention system, including in the difficult period of the Covid-19 pandemic, as an attestation of increased commitment and enhanced collaboration in the Mediterranean region for achieving the UNEP/MAP-Barcelona Convention objectives and vision;
6. *Encourage* the Secretariat to continue reaching out and working closely with partners to further strengthen and enhance collaboration and governance for the protection of the marine environment and coastal region of and promoting sustainable development in the Mediterranean;
7. *Approve* the membership of the Mediterranean Commission on Sustainable Development (MCSD) for the biennium 2022-2023, set out in Annex V to this Decision;
8. *Endorse* the MCSD's recommendation to adjust paragraph 9.II. of the MCSD Composition in the MCSD Constitutive Documents (Decision IG.22/17), so that the mandate of the MCSD Members under the group of parliamentarians may be renewable for more than one additional term taking into consideration the need for rotation and for geographical balance to the extent possible, and *request* the Secretariat to reflect this amendment in the MCSD Constitutive Documents (Decision IG.22/17);
9. *Adopt* the "Common Operational Principles for MAP Components", set out in Annex VI to this Decision, and *request* the governments of MAP Components' Host Countries to take the necessary measures to implement them;

Annex I

**Governance Mechanism for the Implementation of the Ecosystem Approach in the
Mediterranean**

Governance Mechanism for the Implementation of the Ecosystem Approach in the Mediterranean

EcAp governance structure



The EcAp Coordination Group (EcAp CG) consisting of MAP Focal Points integrates and gives guidance to the work under the Barcelona Convention:

a) On the delivery of the ecosystem approach, making sure that all elements for its implementation are taken into account, weighting of priorities and resource implications; and

b) Coordinating Barcelona Convention/UNEP-MAP's facilitation role, in support of Contracting Parties in their implementation of EcAp.

Two Correspondence Groups are formed in the process of application of EcAp in the Mediterranean and to support EcAp Coordination Group:

*1. The Correspondence Group on Monitoring (**COR MON**) composed of national experts designated by the Contracting Parties, and coordinated by Barcelona Convention/UNEP-MAP Coordinating Unit and MED POL, working to ensure efficient coverage and in-depth discussions and analysis regarding integrated monitoring and assessment.*

2. The Correspondence Group on Economic and Social Analysis (COR ESA) is composed of national experts designated by the Contracting Parties and invited experts, and coordinated by Barcelona Convention/UNEP-MAP Coordinating Unit and PB/RAC. It develops a socioeconomic analysis of marine ecosystems uses, focusing on priority sectors such as fisheries, aquaculture, maritime transport, recreational activities, and oil industry and offshore and address as appropriate the socioeconomic aspects related to the formulation and implementation of programmes of measures to achieve/maintain good environmental status (GES)

3. Informal Online Working Groups (OWG) composed of experts and scientists nominated by the Contracting Parties and experts mobilised by the Secretariat and MAP Components. The composition should be restricted in number, with well-balanced geographical representation. The agenda of the Informal OWG and the timeline for their operationality is defined by the respective CORMONs. The Informal OWG report to CORMON and do not replace CORMONs.

4. Every effort to be made by the Secretariat to streamline and ensure the technical documents are cleared by the respective CORMON and MAP Component/Thematic Focal Points in line with their mandates, as appropriate, before they are submitted to the decision-making bodies. To this aim, the EcAp Coordination Group may decide on terms of references including potential list/type of documents for the technical bodies addressing also the need for the effective interaction among different bodies.

5. Science-Policy Interface (SPI). Every effort should be made to promote SPI for IMAP implementation in the Mediterranean.

Annex II

Memoranda of Understanding (MoU) between UNEP/MAP and parliamentarians' regional bodies, namely the Parliamentary of the Mediterranean (PAM) and the Circle of Mediterranean Parliamentarians for Sustainable Development (COMPSUD)

MEMORANDUM OF UNDERSTANDING

BETWEEN

**THE UNITED NATIONS ENVIRONMENT PROGRAMME IN ITS CAPACITY AS
SECRETARIAT OF THE MEDITERRANEAN ACTION PLAN (UNEP/MAP)**

AND

THE PARLIAMENTARY ASSEMBLY OF THE MEDITERRANEAN (PAM)

**MEMORANDUM OF UNDERSTANDING
BETWEEN**

**THE UNITED NATIONS ENVIRONMENT PROGRAMME IN ITS CAPACITY AS SECRETARIAT OF THE
MEDITERRANEAN ACTION PLAN (UNEP/MAP)
AND
THE PARLIAMENTARY ASSEMBLY OF THE MEDITERRANEAN (PAM)**

WHEREAS the United Nations Environment Programme (hereinafter referred to as UNEP) was endorsed by the General Assembly in 1997 as the leading global environment authority that sets the global environment agenda, promotes the coherent implementation of the environment within the UN system and that serves as an authority advocate for the global environment and which has as a major area of focus of its global mandate to ensure capacity building and technical assistance in particular with respect to institutional strengthening in developing countries, and is committed to support the implementation the Agenda 2030 and its Sustainable Development Goals (SDGs), to promote environmental sustainability as a crucial enabling factor in implementing the SDGs and ensuring the health of our planet;

WHEREAS the UNEP has the mandate to provide Secretariat's functions for the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols;

WHEREAS the UNEP/MAP develops plans, programmes, and measures including the coordination of projects and the provision of information, advice, training and guidance to the Parties to the Barcelona Convention to assist them in meeting their obligations to take all appropriate measures in accordance with the Convention and its Protocols to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area, and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development;

WHEREAS within the framework of the Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) it is foreseen to strengthen synergies, complementarities and collaboration among all active stakeholders and partners in the Mediterranean region to translate the 2030 Agenda and its Sustainable Development Goals (SDGs) at the regional, sub-regional and national levels;

WHEREAS the Parliamentary Assembly of the Mediterranean (hereinafter referred to as PAM), established in 2005, is an Inter-Governmental Organization with its own international legal personality and capacity, holding the status of observer to the United Nations and being the recognized platform of excellence for the inter-parliamentary dialogue and cooperation in the Euro-Mediterranean region;

WHEREAS PAM has the mandate to forge political, economic and social cooperation among the Member States to find common solutions to the challenges facing the Euro-Mediterranean region, and provides, through the instrument of parliamentary diplomacy, a distinct contribution to the global and regional efforts in the field of sustainable development and environmental protection, in compliance with the Agenda 2030, the Sustainable Development Goals (SDGs), and the Barcelona Convention and its protocols, and its own Resolutions;

WHEREAS UNEP/MAP and PAM (hereinafter collectively referred to as "Parties") share common

objectives with regard to the protection of the marine environment and the conservation and sustainable use of biological diversity in the Mediterranean, as well as mitigation and adaption to climate change at regional level, and wish to collaborate to further these common goals and objectives within their respective mandates and governing rules and regulations;

WHEREAS the Parties intend to conclude this Memorandum of Understanding (hereinafter referred to as “MOU”) with the aim of consolidating, developing and detailing their cooperation and effectiveness to achieve the common objectives in the field of environmental protection as a contribution to sustainable, resilient and inclusive development in the Euro-Mediterranean region;

NOW, THEREFORE, UNEP/MAP AND PAM HAVE AGREED TO COOPERATE UNDER THIS MEMORANDUM OF UNDERSTANDING AS FOLLOWS:

Article 1 Interpretation

1. References to this MOU shall be construed as including any Annexes, as varied or amended in accordance with the terms of this MOU. Any Annexes shall be subject to the provisions of this MOU, and in case of any inconsistency between an Annex and this MOU, the latter shall prevail.
2. Implementation of any subsequent activities, projects and programmes pursuant to this MOU, including those involving the transfer of funds between the Parties, shall necessitate the execution of appropriate legal instruments between the Parties. The terms of such legal instruments shall be subject to the provisions of this MOU.
3. This MOU represents the complete understanding between the Parties and supersedes all prior MOUs, communications and representations, whether oral or written, concerning the subject matter of this MOU.
4. Any Party's failure to request implementation of a provision of this MOU shall not constitute a waiver of that or any other provision of this MOU.

Article 2 Duration

This MOU shall be effective upon the last date of signature of the approving officials and remain in force until 1st of January 2030, unless terminated in accordance with Article 15 below. Beyond this date, the duration of this MOU may be extended through prior written approval by all the Parties pursuant to Article 14 below. Its content shall be reviewed every four (4) years, as appropriate.

Article 3 Purpose

1. The purpose of this MOU is to provide a framework of cooperation and understanding, and to facilitate collaboration between the Parties to further their shared goals and objectives in order to achieve and maintain the Good Environmental Status of the Mediterranean contributing then to its sustainable development.
2. The objectives of this MOU shall be achieved through:
 - a. Regular dialogue and meetings between UNEP/MAP and PAM;
 - b. Execution of a separate legal instrument between the Parties to define and implement any subsequent activities, projects and programmes pursuant to Article 1.2.

Article 4 **Areas of Cooperation**

1. Areas of Cooperation are agreed jointly through the cooperation mechanism in the MOU. Policies and priorities under this MOU may also be jointly reviewed annually by the Parties pursuant to Article 5 to allow the Parties to respond to newly emerging issues in the realm of environment and sustainable development.
2. The Parties have agreed to the following indicative areas of cooperation under this MOU:
 - a. Advance the implementation of the Barcelona Convention and its Protocols, promote their universal ratification and their enforcement through national legislation, enhance policymakers' awareness and accountability, and encourage the full involvement of citizens and stakeholders for the protection of the Mediterranean Sea and coast;
 - b. Promote and implement common initiatives to advance the delivery of the SDGs in the Mediterranean, in particular those relevant to the mandate of the UNEP/MAP – Barcelona Convention system and to the mandate and Resolutions of PAM, and enable an effective response to the triple planetary crisis of pollution, biodiversity loss and climate change;
 - c. Mobilize parliamentary diplomacy in support of regional multilateralism and solidarity for environment and sustainable development, including through capacity building and technology development and transfer;
 - d. Cooperate closely and consult with each other on a regular basis, in order to identify opportunities to promote the active engagement of parliamentarians and national parliaments in addressing climate and environmental changes across the Mediterranean Basin;
 - e. Promote and strengthen the science-policy interface in the Mediterranean region and foster multi-stakeholder dialogue to enable evidence-based, inclusive environmental policy measures in the context of sustainable development;
 - f. Launch joint advocacy and action-oriented initiatives, involving other stakeholders as appropriate, on common priority themes such as climate change, marine litter, biodiversity conservation and marine protected areas, and sustainable blue economy, taking into account relevant global processes and the commitments under the Barcelona Convention and its Protocols, and relevant PAM Resolutions.
3. The above list is not exhaustive and should not be taken to exclude or replace other forms of cooperation between the Parties on other issues of common interest.

Article 5 **Organization of the Cooperation**

1. The Parties shall hold regular bilateral meetings on matters of common interest, in accordance with an agenda agreed to in advance by the Parties, for the purpose of developing and monitoring collaborative projects. Such meetings shall take place at least once every year to:
 - a. Discuss technical and operational issues related to furthering the objectives of this MOU; and
 - b. Review progress of work undertaken by UNEP/MAP and PAM pursuant to a separate legal instrument in the priority areas of cooperation mentioned in Article 4 above.
2. Within the context defined above, further bilateral meetings at desk-to-desk and at expert level shall be encouraged and set up on an ad hoc basis as deemed necessary by UNEP/MAP and PAM to address matters of common interest for the implementation of activities in specific areas in the Mediterranean region.
3. In implementing activities, projects and programmes in the agreed priority areas, the Parties shall execute a separate legal instrument appropriate for the implementation of such initiatives in accordance with Article 1.2 above. In identifying the areas of cooperation under this MOU, due regard shall be given to PAM's geographic coverage; capacity for implementation and experience in the related field.
4. Where one of the Party is organizing a meeting with external participation at which policy matters related to the aims of this MOU shall be discussed, the Party shall, as appropriate, either invite the other to participate in the meeting or update it on relevant policy matters discussed at the meeting. Each Party undertakes to share knowledge and information in its area of operations and expertise relevant to the MOU with the other Party.

Article 6

Status of the Parties and their Personnel

1. The Parties acknowledge and agree that PAM is an entity separate and distinct from the United Nations, including UNEP, and that UNEP/MAP is an entity separate and distinct from PAM. The employees, personnel, representatives, agents, contractors or affiliates of PAM and UNEP/MAP, including the personnel engaged by them for carrying out any of the project activities pursuant to this MOU, shall not be considered in any respect or for any purposes whatsoever as being employees, personnel, representatives, agents, contractors or affiliates of the other party.
2. Neither Party shall be entitled to act or make legally binding declarations on behalf of the other Party. Nothing in this MOU shall be deemed to constitute a joint venture, agency, interest grouping or any other kind of formal business grouping or entity between the Parties.

Article 7

Fundraising

1. To the extent permitted by the Parties' respective regulations, rules and policies, and subject to sub-article 2, the Parties may engage in fundraising from the public and private sectors to support the activities, projects and programmes to be developed or carried out pursuant to this

MOU.

2. Neither Party shall engage in fundraising with third parties in the name of or on behalf of the other, without the prior express written approval of the other Party in each case.

Article 8 Intellectual Property Rights

1. Nothing in the MOU shall be construed as granting or implying rights to, or interest in, intellectual property of the Parties, except as otherwise provided in Article 8.2.
2. In the event that the Parties foresee that intellectual property that can be protected shall be created in relation to a particular activity, project or programme to be carried out under this MOU, one Party to be agreed on by both shall own the intellectual property, and give the other Party a non-exclusive, non-assignable worldwide license to use the intellectual property or any portion thereof for its official purposes. Intellectual property ownership can alternate between the Parties for different activities, projects or programmes to be carried out under this MOU.

Article 9 Use of Name and Emblem

1. Neither Party shall use the name, emblem or trademarks of the other Party, its subsidiaries and/or affiliates, or any abbreviation thereof, in connection with its business or for public dissemination without the prior expressly written approval of the other Party in each case. In no event shall authorization to use the UN or UNEP/MAP or PAM name or emblem be granted for commercial purposes.
2. PAM acknowledges that it is familiar with the independent, international and impartial status of the UN and UNEP/MAP, and recognizes that their names and emblems may not be associated with any political or sectarian cause or otherwise used in a manner inconsistent with the status of the UN and UNEP/MAP.
3. UNEP/MAP recognizes PAM as an Inter-Governmental Organization with its own international legal personality and capacity, holding the status of observer to the United Nations, and recognizes that its names and emblems may not be associated with any political or sectarian cause or otherwise used in a manner inconsistent with the Statutes of PAM.
4. The Parties agree to recognize and acknowledge this partnership, as appropriate. To this end, the Parties shall consult with each other concerning the manner and form of such recognition and acknowledgement.

Article 10 Privileges and Immunities

1. Nothing in or relating to this MOU shall be deemed a waiver, express or implied, of any of the respective privileges, immunities, exemptions and facilities enjoyed or which may be enjoyed by the Parties, including their subsidiary organs and staff, according to their own regulatory

framework.

Article 11 Confidentiality

1. The handling of information shall be subject to each Party's corporate confidentiality policies.
2. Before disclosing internal documents, or documents that by virtue of their content or the circumstances of their creation or communication must be deemed confidential, of another Party to third parties, each Party shall obtain the express, written consent of concerned Parties. However, a Party's disclosure of another Party's internal and/or confidential documents to an entity the disclosing Party controls or with which it is under common control, or to an entity with which it has a confidentiality agreement, shall not be considered a disclosure to a third party, and shall not require prior authorization.
3. For UNEP, a principal or subsidiary organ of the United Nations established in accordance with the Charter of the United Nations shall be deemed to be a legal entity under common control.
4. For PAM, an inter-governmental organization with its own international legal personality and capacity shall be deemed to be a legal entity under common control.

Article 12 Responsibility

1. Each Party will be responsible for dealing with any claims or demands arising out of its actions or omissions, and those of its respective personnel, in relation to this MOU.
2. PAM shall indemnify, hold and save harmless and defend at its own expense, the United Nations and UNEP, their officials, personnel and representatives, from and against all suits, claims, demands and liability of any nature or kind which may arise in relation to this MOU due to any actions or omissions attributable to PAM.

Article 13 Dispute Settlement

1. The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of this MOU. Where the Parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the UNCITRAL Conciliation Rules then prevailing, or according to such other procedure as may be agreed between the Parties.
2. Any dispute, controversy or claim between the Parties arising out of this MOU which is not settled amicably in accordance with the foregoing sub-article may be referred by either Party to arbitration under the UNCITRAL Arbitration Rules then in force. The arbitral tribunal shall have no authority to award punitive damages. The Parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy, claim or dispute.

**Article 14
Notification and Amendments**

1. Each Party shall promptly notify the other in writing of any anticipated or actual material changes that will affect the execution of this MOU.

2. The Parties may amend this MOU by mutual written agreement, which shall be appended to this MOU and become an integral part of it.

**Article 15
Termination**

1. Either Party may terminate this MOU by giving three (3) months' prior written notice to the other Party.

2. Upon termination of this MOU, the rights and obligations of the Parties defined under any other legal instrument executed pursuant to this MOU shall cease to be effective, except as otherwise provided in this MOU.

3. Any termination of the MOU shall be without prejudice to (a) the orderly completion of any ongoing collaborative activity and (b) any other rights and obligations of the Parties accrued prior to the date of termination under this MOU or legal instrument executed pursuant to this MOU.

4. The obligations under Articles 8-13 do not lapse upon expiry, termination of or withdrawal from this MOU.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

For United Nations Environment Programme

**For the Parliamentary Assembly of the
Mediterranean**

.....
Name:

.....
Name:

Title: UNEP Ecosystems Division Director

Title: PAM Secretary General

Date:

Date:

MEMORANDUM OF UNDERSTANDING

BETWEEN

**THE UNITED NATIONS ENVIRONMENT PROGRAMME IN ITS CAPACITY AS
SECRETARIAT OF THE MEDITERRANEAN ACTION PLAN (UNEP/MAP)**

AND

**THE CIRCLE OF MEDITERRANEAN PARLIAMENTARIANS FOR SUSTAINABLE
DEVELOPMENT (COMPSUD)**

**MEMORANDUM OF UNDERSTANDING
BETWEEN**

**THE UNITED NATIONS ENVIRONMENT PROGRAMME IN ITS CAPACITY AS SECRETARIAT OF THE
MEDITERRANEAN ACTION PLAN (UNEP/MAP)**

AND

**THE CIRCLE OF MEDITERRANEAN PARLIAMENTARIANS FOR SUSTAINABLE DEVELOPMENT
(COMPSUD)**

WHEREAS the United Nations Environment Programme (hereinafter referred to as UNEP) was endorsed by the General Assembly in 1997 as the leading global environment authority that sets the global environment agenda, promotes the coherent implementation of the environment within the UN system and that serves as an authority advocate for the global environment and which has as a major area of focus of its global mandate to ensure capacity building and technical assistance in particular with respect to institutional strengthening in developing countries, and is committed to support the implementation the Agenda 2030 and its Sustainable Development Goals (SDGs), to promote environmental sustainability as a crucial enabling factor in implementing the SDGs and ensuring the health of our planet;

WHEREAS the UNEP has the mandate to provide Secretariat's functions for the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols;

WHEREAS the UNEP/MAP develops plans, programmes, and measures including the coordination of projects and the provision of information, advice, training and guidance to the Parties to the Barcelona Convention to assist them in meeting their obligations to take all appropriate measures in accordance with the Convention and its Protocols to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area, and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development;

WHEREAS within the framework of the Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) it is foreseen to strengthen synergies, complementarities and collaboration among all active stakeholders and partners in the Mediterranean region to translate the 2030 Agenda and its Sustainable Development Goals (SDGs) at the regional, sub-regional and national levels;

WHEREAS the Circle of Mediterranean Parliamentarians for Sustainable Development, (hereinafter referred to as COMPSUD) is a [SHORT TEXT TO BE ADDED ON THE STATUS OF COMPSUD AND ITS MANDATE];

WHEREAS UNEP/MAP and COMPSUD (hereinafter collectively referred to as "Parties") share common objectives with regard to the protection of the marine environment and the conservation and sustainable use of biological diversity in the Mediterranean, as well as mitigation and adaption to climate change at regional level, and wish to collaborate to further these common goals and objectives within their respective mandates and governing rules and regulations;

WHEREAS the Parties intend to conclude this Memorandum of Understanding (hereinafter referred to as "MOU") with the aim of consolidating, developing and detailing their cooperation and effectiveness to achieve the common objectives in the field of environmental protection as a contribution to sustainable, resilient and inclusive development in the Mediterranean region;

**NOW, THEREFORE, UNEP/MAP AND COMPSUD HAVE AGREED TO COOPERATE UNDER THIS
MEMORANDUM OF UNDERSTANDING AS FOLLOWS:**

Article 1 Interpretation

1. References to this MOU shall be construed as including any Annexes, as varied or amended in accordance with the terms of this MOU. Any Annexes shall be subject to the provisions of this MOU, and in case of any inconsistency between an Annex and this MOU, the latter shall prevail.
2. Implementation of any subsequent activities, projects and programmes pursuant to this MOU, including those involving the transfer of funds between the Parties, shall necessitate the execution of appropriate legal instruments between the Parties. The terms of such legal instruments shall be subject to the provisions of this MOU.
3. This MOU represents the complete understanding between the Parties and supersedes all prior MOUs, communications and representations, whether oral or written, concerning the subject matter of this MOU.
4. Any Party's failure to request implementation of a provision of this MOU shall not constitute a waiver of that or any other provision of this MOU.

Article 2 Duration

1. This MOU shall be effective upon the last date of signature of the approving officials and remain in force until 31st December 2029, unless terminated in accordance with Article 15 below. Beyond this date, the duration of this MOU may be extended through prior written approval by all the Parties pursuant to Article 14 below. Its content shall be reviewed every four (4) years, as appropriate.

Article 3 Purpose

1. The purpose of this MOU is to provide a framework of cooperation and understanding, and to facilitate collaboration between the Parties to further their shared goals and objectives in order to achieve and maintain the Good Environmental Status of the Mediterranean contributing then to its sustainable development.
2. The objectives of this MOU shall be achieved through:
 - a. Regular dialogue and meetings between UNEP/MAP and COMPSUD;
 - b. Execution of a separate legal instrument between the Parties to define and implement any subsequent activities, projects and programmes pursuant to Article 1.2.

Article 4 Areas of Cooperation

4. Areas of Cooperation are agreed jointly through the cooperation mechanism in the MOU. Policies and priorities under this MOU may also be jointly reviewed annually by the

Parties pursuant to Article 5 to allow the Parties to respond to newly emerging issues in the realm of environment and sustainable development.

The Parties have agreed to the following indicative areas of cooperation under this MOU:

- a. Support the implementation of the Barcelona Convention and its Protocols, promote their universal ratification and their enforcement through national legislation and measures, enhance policymakers' awareness and accountability, and encourage the full involvement of citizens and stakeholders for the protection of the Mediterranean Sea and coast;
- b. Promote and implement common initiatives to advance the delivery of the SDGs in the Mediterranean, in particular those relevant to the mandate of the UNEP/MAP – Barcelona Convention system, and enable an effective response to the triple planetary crisis of pollution, biodiversity loss and climate change;
- c. Mobilize parliamentary diplomacy in support of regional multilateralism and solidarity for environment and sustainable development, including through capacity building and technology development and transfer;
- d. Cooperate closely and consult with each other on a regular basis, in order to identify opportunities to promote the active engagement of parliamentarians and national parliaments in addressing climate and environmental changes across the Mediterranean Basin, in line with the provisions of all relevant conventions and major strategies, fulfilling the vision of a healthy Mediterranean Sea and Coast that underpin sustainable development in the region;
- e. Promote and strengthen the science-policy interface in the Mediterranean region and foster multi-stakeholder dialogue to enable evidence-based, inclusive environmental policy measures in the context of sustainable development;
- f. Launch joint advocacy and action-oriented initiatives, involving other stakeholders as appropriate, on common priority themes such as climate change, marine litter, biodiversity conservation and marine protected areas, sustainable blue economy, access to environmental information and justice, and education on sustainable development, taking into account relevant global processes, the Barcelona Convention and its Protocols, including the Mediterranean Strategy for Sustainable Development (MSSD) and its Flagship Initiatives.

5. The above list is not exhaustive and should not be taken to exclude or replace other forms of cooperation between the Parties on other issues of common interest.

Article 5 Organization of the Cooperation

1. The Parties shall hold regular bilateral meetings on matters of common interest, in accordance with an agenda agreed to in advance by the Parties, for the purpose of developing and monitoring collaborative projects. Such meetings shall take place at least once every year to:

- a. discuss technical and operational issues related to furthering the objectives of this

MOU; and

b. review progress of work undertaken by COMPSUD pursuant to a separate legal instrument in the priority areas of cooperation mentioned in Article 4 above.

2. Within the context defined above, further bilateral meetings at desk-to-desk and at expert level shall be encouraged and set up on an ad hoc basis as deemed necessary by UNEP/MAP and COMPSUD to address matters of common interest for the implementation of activities in specific areas in the Mediterranean region.

3. In implementing activities, projects and programmes in the agreed priority areas, the Parties shall execute a separate legal instrument appropriate for the implementation of such initiatives in accordance with Article 1.2 above. In identifying the areas of cooperation under this MOU, due regard shall be given to COMPSUD's geographic coverage; capacity for implementation and experience in the related field.

4. Where COMPSUD is organizing a meeting with external participation at which policy matters related to the aims of this MOU shall be discussed, COMPSUD shall, as appropriate, either invite UNEP/MAP to participate in the meeting or update UNEP/MAP on relevant policy matters discussed at the meeting. Each Party undertakes to share knowledge and information in its area of operations and expertise relevant to the MOU with the other Party.

Article 6

Status of the Parties and their Personnel

1. The Parties acknowledge and agree that COMPSUD is an entity separate and distinct from the United Nations, including UNEP. The employees, personnel, representatives, agents, contractors or affiliates of COMPSUD, including the personnel engaged by COMPSUD for carrying out any of the project activities pursuant to this MOU, shall not be considered in any respect or for any purposes whatsoever as being employees, personnel, representatives, agents, contractors or affiliates of the United Nations, including UNEP/MAP, nor shall any employees, personnel, representatives, agents, contractors or affiliates of UNEP/MAP be considered, in any respect or for any purposes whatsoever, as being employees, personnel, representatives, agents, contractors or affiliates of COMPSUD.

2. Neither Party shall be entitled to act or make legally binding declarations on behalf of the other Party. Nothing in this MOU shall be deemed to constitute a joint venture, agency, interest grouping or any other kind of formal business grouping or entity between the Parties.

Article 7

Fundraising

1. To the extent permitted by the Parties' respective regulations, rules and policies, and subject to sub-article 2, the Parties may engage in fundraising from the public and private sectors to support the activities, projects and programmes to be developed or carried out pursuant to this MOU.

2. Neither Party shall engage in fundraising with third parties in the name of or on behalf of the other, without the prior express written approval of the other Party in each case.

Article 8

Intellectual Property Rights

1. Nothing in the MOU shall be construed as granting or implying rights to, or interest in, intellectual

property of the Parties, except as otherwise provided in Article 8.2.

2. In the event that the Parties foresee that intellectual property that can be protected shall be created in relation to a particular activity, project or programme to be carried out under this MOU, one Party to be agreed on by both shall own the intellectual property, and give the other Party a non-exclusive, non-assignable worldwide license to use the intellectual property or any portion thereof for its official purposes. Intellectual property ownership can alternate between the Parties for different activities, projects or programmes to be carried out under this MOU.

Article 9 Use of Name and Emblem

1. Neither Party shall use the name, emblem or trademarks of the other Party, its subsidiaries and/or affiliates, or any abbreviation thereof, in connection with its business or for public dissemination without the prior expressly written approval of the other Party in each case. In no event shall authorization of the UN or UNEP/MAP name or emblem be granted for commercial purposes.

2. COMPSUD acknowledges that it is familiar with the independent, international and impartial status of the UN and UNEP/MAP, and recognizes that their names and emblems may not be associated with any political or sectarian cause or otherwise used in a manner inconsistent with the status of the UN and UNEP/MAP.

3. The Parties agree to recognize and acknowledge this partnership, as appropriate. To this end, the Parties shall consult with each other concerning the manner and form of such recognition and acknowledgement.

Article 10 United Nations Privileges and Immunities

1. Nothing in or relating to this MOU shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including its subsidiary organs.

Article 11 Confidentiality

1. The handling of information shall be subject to each Party's corporate confidentiality policies.

2. Before disclosing internal documents, or documents that by virtue of their content or the circumstances of their creation or communication must be deemed confidential, of another Party to third parties, each Party shall obtain the express, written consent of concerned Parties. However, a Party's disclosure of another Party's internal and/or confidential documents to an entity the disclosing Party controls or with which it is under common control, or to an entity with which it has a confidentiality agreement, shall not be considered a disclosure to a third party, and shall not require prior authorization.

3. For UNEP, a principal or subsidiary organ of the United Nations established in accordance with the Charter of the United Nations shall be deemed to be a legal entity under common control.

Article 12 Responsibility

1. Each Party will be responsible for dealing with any claims or demands arising out of its actions or omissions, and those of its respective personnel, in relation to this MOU.
2. COMPSUD shall indemnify, hold and save harmless and defend at its own expense, the United Nations and UNEP, their officials, personnel and representatives, from and against all suits, claims, demands and liability of any nature or kind which may arise in relation to this MOU due to any actions or omissions attributable to COMPSUD.

Article 13 Dispute Settlement

1. The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of this MOU. Where the Parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the UNCITRAL Conciliation Rules then prevailing, or according to such other procedure as may be agreed between the Parties.
2. Any dispute, controversy or claim between the Parties arising out of this MOU which is not settled amicably in accordance with the foregoing sub-article may be referred by either Party to arbitration under the UNCITRAL Arbitration Rules then in force. The arbitral tribunal shall have no authority to award punitive damages. The Parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy, claim or dispute.

Article 14 Notification and Amendments

1. Each Party shall promptly notify the other in writing of any anticipated or actual material changes that will affect the execution of this MOU.
2. The Parties may amend this MOU by mutual written agreement, which shall be appended to this MOU and become an integral part of it.

Article 15 Termination

1. Either Party may terminate this MOU by giving three (3) months' prior written notice to the other Party.
2. Upon termination of this MOU, the rights and obligations of the Parties defined under any other legal instrument executed pursuant to this MOU shall cease to be effective, except as otherwise provided in this MOU.
3. Any termination of the MOU shall be without prejudice to (a) the orderly completion of any ongoing collaborative activity and (b) any other rights and obligations of the Parties accrued prior to the date of termination under this MOU or legal instrument executed pursuant to this MOU.
4. The obligations under Articles 8-13 do not lapse upon expiry, termination of or withdrawal from this MOU.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

For United Nations Environment Programme

For COMPSUD

.....
Name:

Title: UNEP Ecosystems Division Director

Date:

.....
Name:

Title:

Date:

Annex III

**Updated Appendix of the Memorandum of Understanding (MoU) between UNEP/MAP
and the Food and Agriculture Organization of the United Nations / General Fisheries
Commission for the Mediterranean (FAO/GFCM)**

UPDATED ANNEX OF THE MEMORANDUM OF UNDERSTANDING

BETWEEN

**THE UNITED NATIONS ENVIRONMENT PROGRAMME IN ITS CAPACITY AS
SECRETARIAT OF THE MEDITERRANEAN ACTION PLAN (UNEP/MAP)**

AND

**FOOD AND AGRICULTURE ORGANIZATION (FAO)/GENERAL FISHERIES
COMMISSION FOR THE MEDITERRANEAN (GFCM)**

ACTIVITIES RELATING TO THE AREAS OF COOPERATION OF THIS MoU

1. Promoting ecosystem-based approaches for the conservation of the marine and coastal environment and ecosystems and the sustainable use of its living and natural resources

- Cooperate to ensure the interconnection and complementarity of both the Post-2020 SAP BIO governance tool content and the GFCM 2030 Strategy, particularly regarding the interaction between fisheries and marine and biodiversity and ecosystems as bycatch, fishing gears and ocean noise pollution impacts based on the ecosystem approach;
- Cooperate in undertaking assessments of the status of the marine environment, ecosystems and marine living resources including on the impact of their use for fishery and aquaculture purposes including socio economic aspects;
- Contribute to evaluate, the positive impact of the establishment of marine protected areas on marine living resources;
- Contribute to the implementation and further development of the Integrated Monitoring and Assessment Programme (IMAP), based on agreed indicators and reference points (ecological, biological, etc.) to monitor the status of the marine environment and coastal ecosystems and that of marine living natural resources;
- Work together to integrate the respective protocols for incidental bycatch monitoring and data collection on vulnerable species consistent with the methodology to be used by the Contracting Parties to the Barcelona Convention and the GFCM to monitor and collect bycatch data. Furthermore, expand this collaboration to bycatch data reporting by the Contracting Parties by ensuring interlinkages between IMAP and GFCM reporting information systems;
- Collaborate in order to identify, promote and strengthen synergies in spatial-based protection and management measures for marine biodiversity;
- Promote the establishment and sound management of fishery reserves and no-take-zones as effective management tools to restore marine ecosystems, fish biomass and community structure in areas depleted by overfishing and other marine areas;
- Collaborate in the formulation/development and implementation of key regional strategies to integrate the environment in social and economic development, especially in relation to fisheries and aquaculture in light of respective instruments in place.

2. Mitigating the impact of fisheries, aquaculture activities and NIS on the marine habitats and species

- Collaborate in the elaboration and implementation, including extra-budgetary fundraising, of joint regional and sub-regional projects on the evaluation and mitigation of by-catch of endangered and non-target species and of the impact of fishing gears on marine habitats;
- Consider initiatives to develop and implement marine spatial planning in a manner that takes into account fisheries and aquaculture activities, activities for the preservation of marine habitats and associated species (including tools such as MPAs and FRAs), and possible conflicts as well as positive interactions between these activities and other uses of the sea (e.g. shipping, marine renewable energies, mining, oil rigs, etc.);
- Exchange data and information on NIS and their impact on biodiversity and living resources, and on deep sea habitats in order to further enhance knowledge of these habitats, their biodiversity and their living resources for better management purposes;
- Collaborate in initiatives that raise awareness and mitigate major impacts such as those related to reduce the amount of ghost fishing gear as marine litter;
- Exchange information on additional species to be included within the Annexes II and III of the SPA/BD Protocol and GFCM decisions and recommendations relative to their vulnerability to bycatch;
- Collaborate, as requested by Contracting Parties, towards the effective implementation of the Mediterranean Strategy on Ships' Ballast Water Management, including its Action Plan and Timetable, and the 2011 Guidelines for the control and management of ships' biofouling to

minimize the transfer of invasive aquatic species (Biofouling Guidelines) (resolution MEPC.207(62)) in the Mediterranean region;

3. Identification, protection and management of ecologically or biologically significant marine areas (EBSAs), other marine areas of particular importance (i.e. SPAMIs, hot spots of biodiversity, areas with sensitive habitats, essential fish habitats, areas of importance for fisheries and/or for the conservation of endangered species, coastal wetlands)

- Enhance collaboration with other relevant organizations to maintain and update regional databases of sites of particular importance for biodiversity conservation and for fisheries management, including in a way which is complementary and coherent with the existing relevant UNEP/MAP databases;
- With regard to the Specially Protected Areas of Mediterranean Importance (SPAMIs) and the Fisheries Restricted Areas (FRAs), in particular those located partially or wholly in the Areas Beyond National Jurisdiction (ABNJ), collaborate to harmonize existing respective criteria to identify those areas, for the cases where their location may be coincident and the selection of mechanisms needed for their establishment;
- Consult and coordinate with each other, and involve to the maximum extent possible the IMO, on the possible identification and designation of Particular Sensitive Sea Areas (PSSAs) in relation to Specially Protected Areas of Mediterranean Importance (SPAMIs) and Fisheries Restricted Areas (FRAs), also exploring the use of PSSA mechanisms to provide protection to fisheries which have significant social and economic attributes;
- Monitor the status of the species listed in Annexes II and III to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean and ensure that exploitation of all species included in Annex III is regulated to the maximum extent possible, consistent with Article 12, paragraph 4 of the SPA/BD Protocol;
- Exchange views on scientific and technical advice in the context of each other's scientific and technical bodies and working groups, such as the GFCM Scientific Advisory Committee on Fisheries, the SAP BIO Advisory Committee and Ad hoc Group of Experts on Marine Protected Areas in the Mediterranean (AGEM) and other, as relevant;
- Cooperate in undertaking assessments of the state of coastal lagoons and other relevant coastal wetlands to be used for the formulation and dissemination of sustainable management measures and sustainable use of its living resources.

4. Promoting a Blue Transformation, including through climate change resilience

- Collaborate to study and assess the impacts of climate change on the marine environment and ecosystems and their marine living resources;
- Contribute to the formulation and adoption of appropriate fisheries and aquaculture adaptation and mitigation strategies to the impacts of climate change thereby enhancing knowledge and communication;
- Strengthening the formulation of scientific advice to Contracting Parties on emerging issues of common interest, such as ocean noise pollution;
- Collaborate in initiatives related to the implementation and monitoring of the Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning (MSP) as processes based on cross-sectoral coordination and decision-making to support the use of ecosystem services and resources in a sustainable way;
- Collaborate in preparing and implementing projects that promote efficient use of marine resources and reduction of conflicts among the different uses of the oceans with the twofold objective of reaching/maintaining good environmental status and securing the long-term future of these industries.

5. Cooperation in relation to Marine Litter

- Collaborate for the implementation of the Marine Litter Management Regional Plan in the

Mediterranean, with a particular focus on:

- supporting the implementation of fishing for litter schemes aiming at raising fishermen awareness about the negative impacts of inappropriate disposal and encourage them to take waste to port, including marine litter collected as by-catch;
- undertaking sub-regional pilots to test the implementation of the FAO Voluntary Guidelines on the Marking of Fishing Gear (e.g. joint scheme with the FfL Pilots); and
- updating the 2016 UNEP/MAP Fishing-for-litter Guidelines and to distribute and disseminate them to all fisheries/fishermen associations;
- setting up a system to track lost gear and encourage fishermen to report their loss.
- Collaborate and contribute, where appropriate, to global processes addressing marine litter.
- Foster synergies with a view to enhancing cooperation and coordination in implementing relevant projects and initiatives that could contribute to the reduction of marine plastic litter including, but not limited to:
 - the implementation of the IMO Action Plan to address marine plastic litter from ships (resolution MEPC.310(73)) in the Mediterranean region; and
 - the application of relevant outcomes of the IMO-FAO-Norway GloLitter Partnerships Project in the Mediterranean region.
- Encourage the preparation of a GIS-based assessment on the types of fisheries being active in the Mediterranean Sea (e.g. small-scale fisheries, trawlers, purse seiners, longlines, nets, traps, etc.).

6. Legal, institutional and policy related cooperation

- Consult regularly on policy issues of common interest to identify institutional synergies in the context of relevant global and regional fora.
- Collaborate on issues related to information and data management and exchange, including through:
 - improving respective capacities for managing and sharing environmental data and information related to fisheries;
 - promoting exchanges of information and data, as appropriate;
 - facilitating interoperability, through definition and use of common standards and improving interconnections between the respective IT systems.
- Exchange views regarding the governance of the Mediterranean Sea and take part, where possible, to ongoing initiatives aimed at improving the said governance;
- Organize joint side events, where necessary and including together with other organizations, while being in attendance of meetings held in other international fora that could be relevant to further the promotion of the goals and objectives of this MoU;
- Promote cooperation and exchange of information at the level of their compliance committees, as set up under UNEP/MAP and the GFCM frameworks, to address issues of common concern.
- Be involved, as appropriate, in those projects implemented by the other Party;
- Collaborate on public information, awareness-raising, communication and advocacy on themes related to the scope and aims of the two organizations, and on disseminating results achieved and lessons learned, including via the updating of information in the respective websites related to themes and activities of common interest;
- Coordinate positions within international fora which involve both Parties.

Annex IV

List of Renewed and New MAP Partners

LIST OF RENEWED MAP PARTNERS

The following institutions accredited as MAP Partners are renewed for a six year-period:

- Mediterranean Association to Save the Sea Turtles (MEDASSET)
- The Association of Continuity of Generations” (ACG)
- Morigenos – Slovenian Marine Mammal Society (Morigenos)
- Arab Network for Environment and Development (RAED)
- Arab Office for Youth & Environment (AOYE)
- Egyptian Sustainable Development Forum (ESDF)
- Turkish Marine Environment Protection Association (TURMEPA)
- Global Balance Association
- Association for Nature, Environment and Sustainable Development (SUNCE)

LIST OF NEW MAP PARTNERS

The following institutions are accredited as new MAP Partners:

- Association Sawa for Development
- Blue World Institute of Marine Research and Conservation (BWI)
- Association de Recherche Environnement et Bio Innovation” (AREBI)
- Mediterranean Conservation Society
- European Topic Centre – University of Malaga (ETC-UMA)
- Cittadini per l’aria onlus
- Cercle Mallorquí de Negocis (CMN)
- SUBMON
- Marevivo
- All For Blue
- World Ocean Council (WOC)
- Hellenic Ornithological Society (BirdLife Greece)

Annex V

**Composition of the Mediterranean Commission on Sustainable Development for 2022-2023 –
Non-Contracting Party Members**

Composition of the Mediterranean Commission on Sustainable Development for 2022-2023 – Non-Contracting Party Members

Non-Contracting Party membership of the Mediterranean Commission on Sustainable Development (MCSD), as approved by the 19th Meeting of the MCSD (Teleconference, 7-9 June 2021) for submission to COP 22's consideration and decision.

New members are indicated in bold below:

- The Local Authorities Group: the *Agence des Villes et Territoires méditerranéens durables* (AVITEM – 2nd mandate), the Forum of Adriatic and Ionian cities (FAIC – 2nd mandate), and the **Mediterranean Cities Network (Med Cities)**
- The Socio-Economic Stakeholders Group: the Association of the Mediterranean Chambers of Commerce and Industry (ASCAME – 2nd mandate), and the Economic and Social Council of Greece (ESCG – 2nd mandate), and the *Fondation Mohammed VI pour la protection de l'environnement*
- The Non-Governmental Organizations Group: ECO UNION (2nd mandate), the Egyptian Sustainable Development Forum (ESDF – 2nd mandate), and the Network of Marine Protected Areas managers in the Mediterranean (MedPAN – 2nd mandate)
- The Scientific Community Group: the **Mediterranean Experts on Climate and environmental Change (MedECC)**, the *Centre International de Droit Comparé de l'Environnement (CIDCE)*, and **Dr. Fatima Driouech (Vice-Chair of the International Panel on Climate Change (IPCC) Working Group I, University Polytechnic Mohammed VI, Morocco)**
- The Intergovernmental Organizations Group: the Arab Forum for the Environment and Development (AFED – 2nd mandate), the Global Water Partnership – Mediterranean (GWP-Med – 2nd mandate), and the **Centre for Mediterranean Cooperation of the International Union for Conservation of Nature (IUCN-Med)**
- Parliamentarians: the Circle of Mediterranean Parliamentarians on Sustainable Development (COMPSUD), the Parliamentary Assembly of the Mediterranean (PAM), and the **Parliamentary Assembly of the Organization for Security and Co-Operation in Europe (PA OSCE)**.

Annex VI

Common Operational Principles for MAP Components

Common Operational Principles for MAP Components

Common Operational Principles covering common provisions 1, 2 and 3¹

Regional Activity Centres (RACs) RACs will deliver their regional mandate as per COP16 Decision IG. 19/5 “*Mandates of the Components of MAP*” pursuant to the Barcelona Convention and its Protocols and related decisions of the Meeting of the Contracting Parties to the Barcelona Convention and its Protocols.

RACs can be hosted by Contracting Parties in the form of different entities, including international, governmental and non-governmental entities at national, regional or global level. Their legal status can vary from RAC to RAC, including having the status of public entities, depending on their constitutive instrument. RACs should have the necessary functional and financial autonomy in meeting their regional mandate as defined in COP16 Decision IG. 19/5 “*Mandates of the Components of MAP*”.

Common Operational Principles covering common provisions 4 and 5²

RACs are expected to have appropriate and differentiated financial management mechanisms in place to manage their different sources of funding, including contributions from the Host Country Governments, transfers from the Mediterranean Trust Fund (MTF) as agreed by the Meetings of the Contracting Parties to the Barcelona Convention and its Protocols, voluntary contributions from Contracting Parties to the Barcelona Convention and project funding from donors. RACs will submit financial and progress reports to UNEP/MAP following the UNEP/MAP formats for this purpose under the relevant legal instruments signed between UNEP and the RACs for the transfer of financial resources. RACs may report to UNEP/MAP of the contributions received from the Host Country Governments. RACs are responsible for reporting to donors with whom projects are in place under the relevant legal agreements and for informing UNEP/MAP accordingly.

Host Country Governments should make appropriate provisions for operating and recurrent costs of the RACs (financial and in-kind). The responsibility of the Host Country Governments in providing

¹ Common provisions 1, 2 and 3 as agreed by COP 21 in Decision IG. 24/2, Annex IX, are:

- (1) **Identification of the Parties entering into the Host Country Agreement (HCA):** The potential HCA text would identify the parties entering into the HCA, which are the United Nations Environment Programme (UNEP) and the designated representative of the Host Country Government.
- (2) **Purpose for entering into the HCA:** The potential HCA text would set out the terms and conditions under which RACs will deliver their regional mandate pursuant to the Barcelona Convention and its Protocols and related decisions of the Meeting of the Contracting Parties to the Barcelona Convention and its Protocols.
- (3) **Regional Role of RACs:** The potential HCA text would set out the regional role for the relevant RAC as per COP 16 Decision IG.19/5 on the Mandates of the Components of MAP.

² Common provisions 4 and 5 as agreed by COP 21 in Decision IG. 24/2, Annex IX, are:

- (4) **Financial Resources:**
 - The potential HCA text would make provisions establishing the separate management and accounting of Mediterranean Trust Fund (MTF) transfers and would refer to the requested reporting and audit requirements in line with Project Cooperation Agreements or any other legal instruments signed between UNEP and RACs for the transfer of financial resources.
 - The potential HCA text would describe the source of funding including the contribution of the Host Country Government.
 - The share of MTF transfers to RACs is a decision which rests with the COP.
- (5) **Contribution of the Host Country Government:** The potential HCA text would address the contribution of the Host Country Government (financial and in-kind), including specification whether the RAC premises are provided at no cost.

RAC premises at no cost to the MAP system, with the exception as necessary of a nominal fee, should be spelled out.

Property, funds and assets transferred to the RACs via the relevant legal instruments signed between UNEP and RACs will be subject to the requirements established by these legal instruments.

Common Operational Principles covering common provision 6³

RACs should have an organizational structure appropriate for the fulfilment of their regional mandate under COP16 Decision IG. 19/5 “*Mandates of the Components of MAP*”. RAC personnel, including the Director, has a category different from UN Officials as defined by the General Assembly, in Resolution 76(I) of 7 December 1946, exception made of REMPEC personnel, where applicable. RAC personnel will be selected and hired by the RAC Director/entity hosting the RAC in accordance with the applicable national rules and procedures and based on approved Terms of Reference (ToRs) elaborated nationally with the involvement of the Coordinating Unit, as appropriate. The RAC Director will be appointed by the Host Country Government or any other competent authority, with the UNEP/MAP Secretariat being involved in this process, as appropriate.

Common Operational Principles covering common provision 7⁴

Meetings and Conferences convened by RACs should be in accordance with the relevant national rules and procedures of the RACs/entities hosting the RACs, with the exception of the MAP Components/Thematic Focal Points Meetings which will be organized in line with applicable UNEP/MAP practices, procedures and working methods.

Common Operational Principles covering common provision 8⁵

RACs are expected to develop and maintain collaboration with other institutions and entities, within the Mediterranean region and beyond. Development of legal instruments such as MOUs on such collaboration should be done, in line with existing UNEP/MAP rules and policies, and/or with the existing rules and policies of the Host Country Government and in a transparent and collaborative manner.

Common Operational Principles covering common provision 9⁶

³ Common provision 6 as agreed by COP 21 in Decision IG. 24/2, Annex IX, reads as follows:

(6) **Personnel of RACs, including the Director:** Establishing a special regime taking elements of the General Convention for the personnel of RACs, including the Director does not seem to be an option, unless, as in the view of a Host Country Government, RACs are accorded the status of international or intergovernmental entities and to the extent permissible under national laws.

⁴ Common provision 7 as agreed by COP 21 in Decision IG. 24/2, Annex IX, reads as follows:

(7) **Meetings and Conferences convened by RACs:** Rendering equivalent privileges and immunities to representatives of the Contracting Parties to the Barcelona Convention participating in meetings convened by RACs is not a viable option unless, as in the view of a Host Country Government, RACs are accorded the status of international or intergovernmental entities and to the extent permissible under national laws.

⁵ Common provision 8 as agreed by COP 21 in Decision IG. 24/2, Annex IX, reads as follows:

(8) **Memoranda of Understanding (MOUs):** It seems that including standard procedures and criteria dealing with the conclusion of MOUs in the potential HCAs is not advisable.

⁶ Common provision 9 as agreed by COP 21 in Decision IG. 24/2, Annex IX, reads as follows:

(9) **Final Standard Clauses:** The potential HCA text would address the Settlement of Disputes/Entry into Force/Duration/Amendment provisions

The potential HCA text would address the Settlement of Disputes/Entry into Force/Duration/Amendment provisions in line with the relevant UNEP template.

Draft Decision IG.15/4
Assessment Studies

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”,

Recalling also General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling further the United Nations Environment Assembly resolution of 15 March 2019, UNEP/EA.4/Res.23 entitled “Keeping the world environment under review: enhancing the United Nations Environment Programme science-policy interface and endorsement of the Global Environment Outlook”,

Having regard to the Barcelona Convention and its Protocols, and in particular Article 4 thereof on general obligations,

Recalling Decision IG.23/4 on the Implementation and Monitoring of the Mediterranean Strategy for Sustainable Development (MSSD) 2016-2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean, adopted by the Contracting Parties at their 20th Meeting (COP 20) (Tirana, Albania, 17-20 December 2017),

Recalling also Decision IG.24/4 on Assessment Studies adopted at the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Deeply concerned with the increasing pressures on the Mediterranean marine and coastal environment, as highlighted in the 2020 State of the Environment and Development in the Mediterranean Report (SoED), and with the continuing unsustainable consumption and production patterns in the region,

Recognizing that there are gaps in the knowledge, including projections, of climate and environmental change and that there is an urgent need to continue to strengthen efforts to bridge those gaps through building and reinforcing existing mechanisms,

Noting with appreciation the participative process, involving Contracting Parties, decision-makers and stakeholders, leading to the successful elaboration and communication of SoED and the First Mediterranean Assessment Report (MAR1) on the Current Situation and Risks for the Future of Climate and Environmental Change in the Mediterranean Basin,

Noting with satisfaction the key role played by the Network of Mediterranean Experts on Climate and environmental Change in the Mediterranean (MedECC) in further reinforcing the science-policy-society interface through the preparation of MAR 1,

Recalling the mandates of the Mediterranean Action Plan (MAP) Components, as laid down in Decision IG. 19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November), and their relevance to the implementation of this Decision,

Having considered the conclusions of the plenary consultation on the draft Summary for Policy-Makers (SPM) of MAR1 (Videoconference, 22 September 2020), and the reports of the Meeting of the Plan Bleu Focal Points (Videoconference, 19-20 May 2021), and of the 19th Meeting of

the Mediterranean Commission on Sustainable Development (MCSD) (Videoconference, 7-9 June 2021),

1. *Endorse* the Summary for Policy-Makers (SPM) of the first Mediterranean Assessment Report (MAR1) on the current situation and risks for the future of climate and environmental change in the Mediterranean basin, set out in Annex I to this Decision;
2. *Urge* the Contracting Parties to take concrete steps to address the issues raised in Annex I to this Decision in their environmental and sectoral policies;
3. *Urge* the Contracting Parties and the Secretariat to make all possible efforts to overcome the knowledge gaps identified in MAR 1;
4. *Invite* the Contracting Parties to provide adequate and sustained support, to MedECC, and its science-policy-society interface within the UNEP/MAP – Barcelona Convention system, and encourage larger participation from all the Mediterranean and women scientists;
5. *Request* the Secretariat (Plan Bleu) to continue its institutional support to MedECC hosting its secretariat and make efforts in collaboration with MAP Partner Institutions and Organizations and Contracting Parties to provide the necessary financial support to MedECC work and operation;
6. *Request* the Secretariat to further mainstream the results of MAR1 and other results stemming from MedECC into relevant UNEP/MAP work, in particular the MED 2050 Foresight exercise, the Mediterranean Observatory on the Environment and Development managed by Plan Bleu in collaboration with UNEP-GRID, and to continue the dissemination and communication of MAR1 and its SPM;
7. *Request* the Secretariat and *invite* the Contracting Parties to properly disseminate the results of the MAR1 and its Summary for Policy makers in all relevant national and international fora beyond Barcelona Convention.

Annex I
MAR 1: Summary for Policymakers



CLIMATE AND ENVIRONMENTAL CHANGE IN THE MEDITERRANEAN BASIN

Current situation and risks for the future

First Mediterranean Assessment Report
Summary for policymakers

by **MedECC** (Mediterranean Experts on Climate and environmental Change)

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Mediterranean
Action Plan
Barcelona
Convention



Union for the Mediterranean
Union pour la Méditerranée
الإتحاد من أجل المتوسط



Sweden
Sverige



SUMMARY FOR POLICYMAKERS

Text as approved during Plenary Session of MedECC Stakeholders on September 22, 2020

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Executive Summary: Climate and environmental change in the Mediterranean Basin

Virtually all sub-regions of the Mediterranean Basin, on land and in the sea, are impacted by recent anthropogenic changes in the environment. The main drivers of change include climate (temperature, precipitation, atmospheric circulation, extreme events, sea-level rise, sea water temperature, salinity and acidification), population increase, pollution, unsustainable land and sea use practices and non-indigenous species. In most areas, both natural ecosystems and human livelihoods are affected. Due to global and regional trends in the drivers, impacts will be exacerbated in the coming decades, especially if global warming exceeds 1.5 to 2°C above the pre-industrial level. Significantly enhanced efforts are needed in order to adapt to inevitable changes, mitigate change drivers and increase resilience.

Due to anthropogenic emissions of greenhouse gases, climate is changing in the Mediterranean Basin, historically and projected by climate models, faster than global trends. Annual mean temperatures on land and sea across the Mediterranean Basin are 1.5°C higher than during pre-industrial times and they are projected to rise until 2100 by an additional 3.8 to 6.5°C for a high greenhouse gas concentration scenario (RCP8.5) and 0.5 to 2.0°C for a scenario compatible with the long-term goal of the UNFCCC Paris Agreement to keep the global temperature well below +2°C above the pre-industrial level (RCP2.6). On land and in the sea, heat waves will intensify in duration and peak temperatures. Despite strong regional variations, summer rainfall will likely be reduced by 10 to 30% in some regions, increasing existing water shortages, desertification and decreasing agricultural productivity.

It is virtually certain that sea surface warming will continue during the 21st century by 1 to 4°C depending on the scenario (low or high greenhouse gas emissions) and likely that deep waters will warm more in the Mediterranean than in other oceans in the world. Rising carbon dioxide (CO₂) concentrations lead to seawater acidification, and this trend will continue. The Mediterranean mean sea level has risen by 6 cm over the past 20 years. This trend is likely to accelerate (with regional differences) by the global rate of 43 to 84 cm until 2100, but possibly more than 1 m in the case of further ice-sheet destabilization in Antarctica.

Most impacts of climate change are exacerbated by other environmental challenges such as changing land use, increasing urbanization and tourism, agricultural intensification, overfishing, land degradation, desertification, and pollution (air, land, rivers and ocean). Sulphur dioxide (SO₂) and nitrogen oxide (NO_x) have recently increased drastically, mainly because of shipping activity. Tropospheric ozone (O₃) concentrations increase due to pollution and warming, and high-level episodes will be more frequent in the future. Saharan dust transport is likely to also increase. The Mediterranean Sea is heavily polluted by multiple substances including plastic, emerging contaminants, heavy metals, fecal bacteria and viruses, all with expected increase in the future.

The Mediterranean Sea is invaded by many non-indigenous species, particularly from the Red Sea but also through the Strait of Gibraltar, maritime transport and aquaculture. On land, non-indigenous species are particularly present in regions with high infrastructure and commerce development, including accidentally introduced phytophagous pests which cause damage to crops and forests. These trends are expected to continue in the future.

Agriculture is the largest user of water in the Mediterranean region. Climate change impacts water resources in combination with demographic and socio-economic drivers, reducing runoff and groundwater recharge, water quality, increasing conflicts among users, ecosystem degradation and groundwater salinization in coastal aquifers. Demand for irrigation is expected to increase by 4 to 18% by 2100. Demographic change, including the growth of large urban centers, could enhance this demand by 22 to 74%. There is adaptive potential in the improvement of water use efficiency and reuse. Other important adaptations are changing agriculture practices and promoting the traditional Mediterranean diet, local production and reduction of food waste.

Land and seafood production activities are strongly impacted by climate change, more frequent and intense extreme events, together with higher soil salinization, ocean acidification and land degradation. Crop yield reductions are projected for the next decades in most current areas of production and for most crops. This will potentially be worsened by emerging pests and pathogens. There is large

adaptation potential in changing farming practices and management to agroecological methods, also providing important potential for climate change mitigation by increased carbon storage in soils. Marine food production is threatened by unsustainable fishing practices, non-indigenous species, warming, acidification and water pollution, which together may affect species distribution and trigger local extinction of more than 20% of exploited fish and marine invertebrates by 2050. Adaptation will require more rigorous management of fisheries in the Mediterranean. The sustainability of the Mediterranean food sector (from the land and the ocean) also depends on population growth, regional consumer behavior (diet) and the global food markets (which may be affected by environmental crisis elsewhere).

Marine ecosystems and their biodiversity are also impacted by overfishing, warming, acidification and the spread of non-indigenous species from tropical waters. Expected consequences include increased jellyfish outbreaks, mucilage and algal bloom outbreaks, reduced commercial fish stocks, and general biodiversity loss due to altered physiology and ecology of most marine organisms. There is potential for mitigating these impacts through improved conservation within and beyond marine protected areas, more sustainable fishing practices and by reducing pollution from agriculture, urban areas and industry. In coastal systems, sea level rise will impact most infrastructure, aquifers, coastal crops, world heritage and other protected sites, notably in river deltas and estuaries. Increasing nutrient flows towards the sea increase the number and frequency of plankton blooms and jellyfish outbreaks, with negative impacts on fisheries, aquaculture and human health. The multiple levels of land-sea interactions could benefit from the implementation of new approaches of ecosystem-based Integrated Coastal Zone Management and conservation planning.

Land biodiversity changes in multiple ways. In countries of the northern rim, forest area is increasing at the expense of extensive agriculture and grazing, while ecosystems in southern countries are still at risk of fragmentation or disappearance due to clearing and cultivation, overexploitation of firewood and overgrazing. Over the past 40 years, biodiversity changes and species loss have led to homogenization and a general simplification of biotic interactions. Half of wetland area has been lost or degraded, and this trend is expected to continue. Dryland extension and an increase in areas burnt during more frequent wildfires are expected. Adaptation options for land biodiversity

include preservation of natural flow variability in Mediterranean rivers and the protection of riparian zones, reduction of water abstraction, modified silvicultural practices, and the promotion of climate-wise landscape connectivity.

Human health is already impacted by high temperatures as well as air and water pollution in the Mediterranean Basin. The combined impacts of expected environmental changes (notably air pollution and climate) increase risks to human health from heat waves, food and water shortages, vector-borne, respiratory and cardio-vascular diseases. These health risks particularly impact disadvantaged or vulnerable populations, including the elderly, children, pregnant women and people with low income. Human security faces new risks from extreme events, particularly along coastal areas. Conflicts caused by scarce resources and human migration are likely to increase due to drought and degrading agricultural and fisheries resources, although socio-economic and political factors are likely to still play a major role.

Mediterranean cities are growing due to increasing population and socio-economic change, notably on the coasts of southern countries. Due to increasing heat stress, the planning and management of cities around to Mediterranean will need to focus more on human health and resilience to environmental change. Impacts of climate change on urban areas are expected to be disproportionately high due to a concentration of population and assets – especially in high-risk prone areas – in combination with hazard-amplifying conditions (e.g., increased runoff resulting from soil sealing, or urban heat island effects). Tourism will likely be affected by climate change through reduced thermal comfort, degradation of natural resources, including freshwater availability, and coastal erosion due to sea level rise and urban development. The net economic effect on tourism will depend on the country and the season.

All Mediterranean countries have significant potential to mitigate climate change through an accelerated energy transition. This will involve phasing down fossil fuel and accelerated development of renewable energies. This ambitious energy transition, reaching beyond the plans and targets announced by governments and policymakers in line with contributions made for the UNFCCC Paris Agreement, requires a significant transformation of energy policies and economic models in Mediterranean countries. While northern rim countries advance towards this transition by gradually diversifying their energy mix, improving energy efficiency

cy and increasing the share of renewable energies, despite investments, some eastern and southern rim countries need support, funding, technology transfer and capacity-building in the framework of the UNFCCC Paris Agreement. Around 2040, the share of renewable energies could triple to reach 13 to 27% under current transition scenarios. Enhanced regional energy market integration and cooperation are crucial to unleashing cost-effective climate change mitigation.

More effective policy responses to climate and environmental changes will require both strengthened mitigation of the drivers of environmental change, such as greenhouse gas emissions, as well as enhanced adaptation to impacts. Poverty, inequalities and gender imbalances presently

hamper the achievement of sustainable development and climate resilience in Mediterranean countries. Culture is a key factor to the success of adaptation policies in the highly diverse multicultural setting of the Mediterranean Basin. Aimed at supporting local and vulnerable communities, policies for climate adaptation and environmental resilience need take into account concerns such as justice, equity, poverty alleviation, social inclusion, and redistribution. To support policies for sustainable development with scientific evidence about climate and environmental change, a synthesis of current scientific knowledge, covering most relevant disciplines, sectors and sub-regions is presented by the First Mediterranean Assessment Report (MAR1).

BACKGROUND AND KEY FINDINGS OF THE FIRST MEDITERRANEAN ASSESSMENT REPORT

1 - Background for the assessment

1.1 Global environmental change exacerbates existing challenges for the population living around the Mediterranean Sea, through climate change, land use changes, increasing urbanization and tourism, agricultural intensification, pollution, declining biodiversity, resource competition, and socio-economic trends. Environmental, socio-economic and cultural conditions are highly heterogeneous across the Mediterranean Region (*Section 1.1.1*), resulting in different manifestations of regional environmental change that require specific adaptation measures as well as enhanced capacity-building. To account for these specificities, a comprehensive risk assessment approach encompassing the entire Mediterranean Basin is needed to provide adequate and timely information as well as data needed for decision makers to design effective mitigation and adaptation strategies. (*Section 1.1.1*).

1.2 Despite major research efforts across many disciplines and regions, to date, there has been no comprehensive assessment of risks posed by climate and environmental changes in the Mediterranean Basin. Most countries of the Middle East and North Africa (MENA) are likely to face potentially greater risks from climate and environmental changes than other parts of the Mediterranean Basin, but they have limited capacity to monitor important environmental parameters

or carry out adequate risk analyses. Effective mitigation and adaptation require integrative studies that go beyond the current knowledge. The main challenges for the Mediterranean are to fill data and knowledge gaps across countries, and to foster the development of high-level climate services, including early warning systems. More research is needed for short- and medium-term projections, as well as large scale programs at the Mediterranean scale to address pressing challenges. (*Section 1.1.2*).

1.3 The 1st Mediterranean Assessment Report (MAR1) has been developed and drafted in order to provide science-based guidance to multiple actors involved in coming up with a response to climate and environmental changes and to reduce associated risks to communities and natural ecosystems in the Mediterranean region (*Section 1.3.1.4*). The report was developed by the scientific community, based on publications in scientific journals, for policymakers and other stakeholders through the conclusions in its Summary for Policymakers (SPM), as well as for a broader audience of experts through its detailed technical chapters supporting the SPM. The report is also intended to be communicated more broadly to the public through additional efforts of communication and participatory actions. (*Section 1.3.2*).

1.4 The report assesses risks for the entire Mediterranean Basin (land and sea), associated with four main drivers of environmental change: climate, pollution, land and sea use and non-indigenous species. Throughout the report,

scientific confidence in its findings is indicated based on the consistency of evidence and the degree of agreement of the scientific community, using the terms “high”, “medium” and “low”. (Section 1.3.3).

2 - Drivers of environmental change in the Mediterranean Basin

2.1 Climate change

Anthropogenic climate change has been observed for many variables in the Mediterranean Basin during recent decades. For the future, the region is expected to remain among the regions most affected by climate change, particularly when it comes to precipitation and the hydrological cycle.

2.1.1 There is robust evidence that the Mediterranean region has significantly warmed. Basin-wide, annual mean temperatures are now 1.54°C above the 1860-1890 level for land and sea areas, i.e. 0.4°C more than the global average change (high confidence). (Fig. SPM.1) (Section 2.2.4.1; Box 2.1).

2.1.2 Multi-model sets of climate simulations show that widespread warming will continue in the Mediterranean during the 21st century (high confidence). (Section 2.2.4.2, Table 2.1).

2.1.2.1 Over land, warming will likely be in the range of 0.9 to 1.5°C or 3.7 to 5.6°C during the 21st century, for low (RCP2.6) or high greenhouse gas emissions (RCP8.5), respectively (high confidence). Future regional average warming will exceed the global mean value by 20% on an annual basis and 50% in summer (high confidence). (Fig. SPM.2) (Section 2.2.4.2).

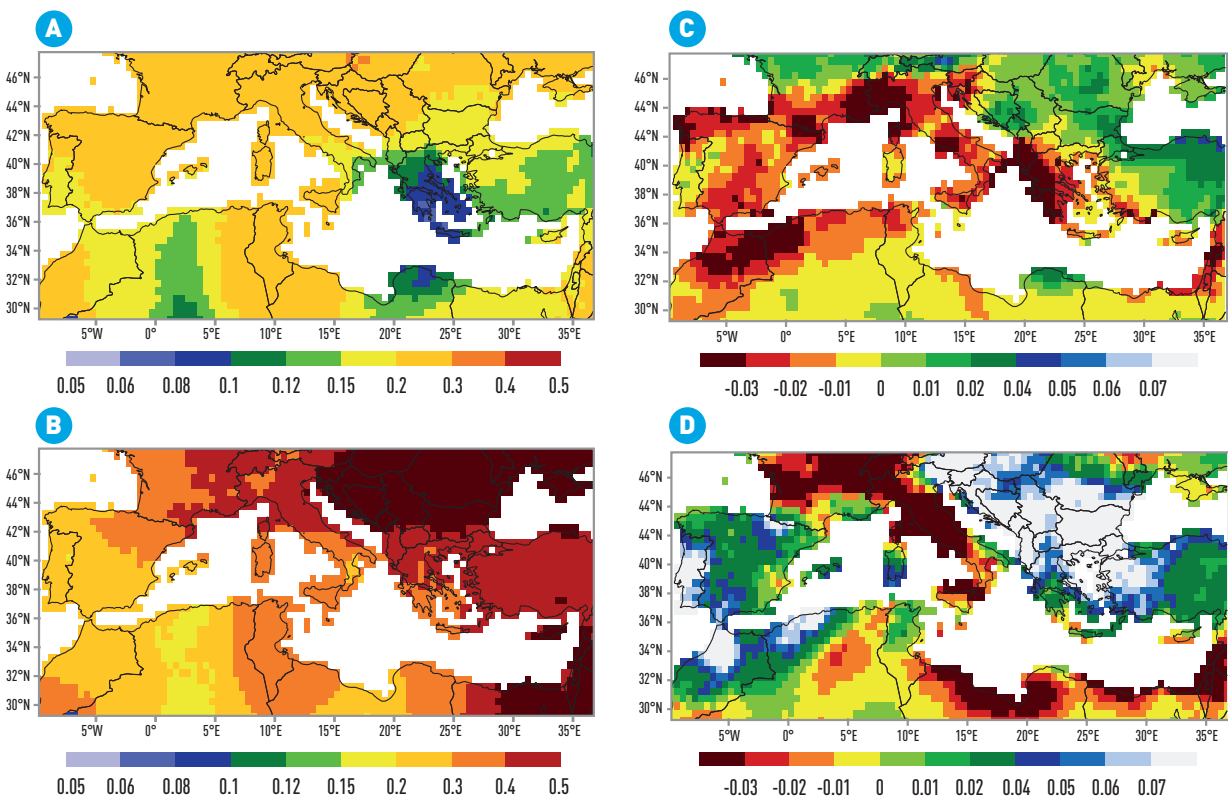


Figure SPM.1 | Observed changes in temperature and rainfall. Recent trends in temperature [A and B, °C decade⁻¹] and rainfall [C and D, mm day⁻¹ decade⁻¹] in the Mediterranean Basin over land. Panels A & C average for the period 1950-2018, panels B & D for 1980-2018 (Fig. 2.5 and 2.8).

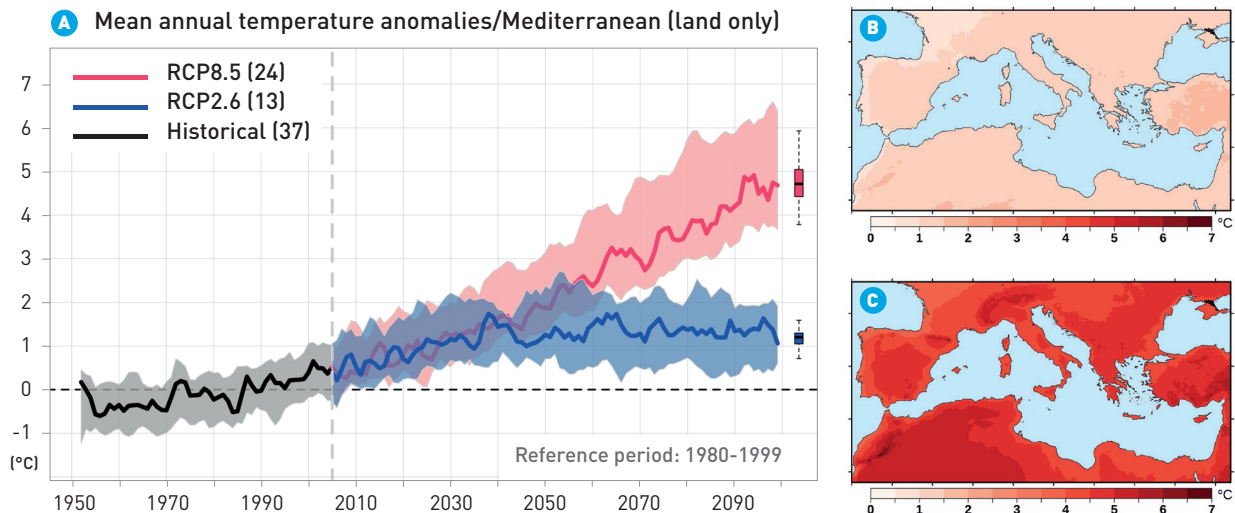


Figure SPM.2 | Projected warming in the Mediterranean Basin over land. Projected changes in annual temperature relative to the recent past reference period (1980-1999), based on the EURO-CORDEX 0.11° ensemble mean, A: simulations for pathways RCP2.6 and RCP8.5, B: warming at the end of the 21st century (2080-2099) for RCP2.6, C: idem for RCP8.5.

2.1.2.2 In the future, warm temperature extremes will increase and heat waves will intensify in duration and peak temperatures. For 2°C of global warming above the pre-industrial value, maximum daytime temperatures in the Mediterranean will likely increase by 3.3°C. With 4°C global warming, nearly all nights will be tropical (nighttime temperature for at least five days above a location-dependent threshold) and there will be almost no cold days (below a location-dependent threshold) (*high confidence*). (Section 2.2.4.2).

2.1.3 The sign and magnitude of observed land precipitation trends show pronounced spatial variability, depending on the time period and season considered (*medium confidence*) (Section 2.2.5.1), so that the confidence in the detection of anthropogenic trends in rainfall for the historical past is low.

2.1.3.1 The most evident observed trend is a decrease in winter precipitation over the central and southern portions of the basin since the second half of the 20th century (*medium confidence*). (Section 2.2.5.1).

2.1.4 Models project a consistent decrease in precipitation during the 21st century, for the entire Mediterranean Basin during the warm season (April through September, with the highest magnitude in summer) and in winter for most of Mediterranean, except for the northernmost regions (e.g., the Alps),

where wetter conditions are projected (*medium confidence*). (Fig. SPM.3) (Section 2.2.5.2).

2.1.4.1 The mean rate of land precipitation decrease among models is 4% per each degree of global warming, which would determine a reduction in the range of 4 to 22% depending on scenario at the end of the 21st century (*medium confidence*) (Section 2.2.5.2). The magnitude of this decrease varies across models, rendering sub-regional projections uncertain.

2.1.4.2 Future climate projections indicate a predominant shift towards a precipitation regime of higher interannual variability, higher intensity and greater extremes (especially in winter, spring and fall, but not in the southern areas, *low confidence*), decreased precipitation frequency and longer dry spells (especially in summer and in the southern countries) (*medium confidence*). (Section 2.2.5.2).

2.1.5 There are no significant trends in the number of observed cyclones in recent decades (*low/medium confidence*) (Section 2.2.2.3). Most future climate projections indicate a decrease in cyclones, especially in winter (*medium confidence*). (Section 2.2.2.3).

2.1.5.1 There is insufficient information for assessing past trends of “medicane” (Mediterranean hurricanes), but projections indicate decreasing frequency and increasing intensity (*medium confidence*). (Section 2.2.2.3).

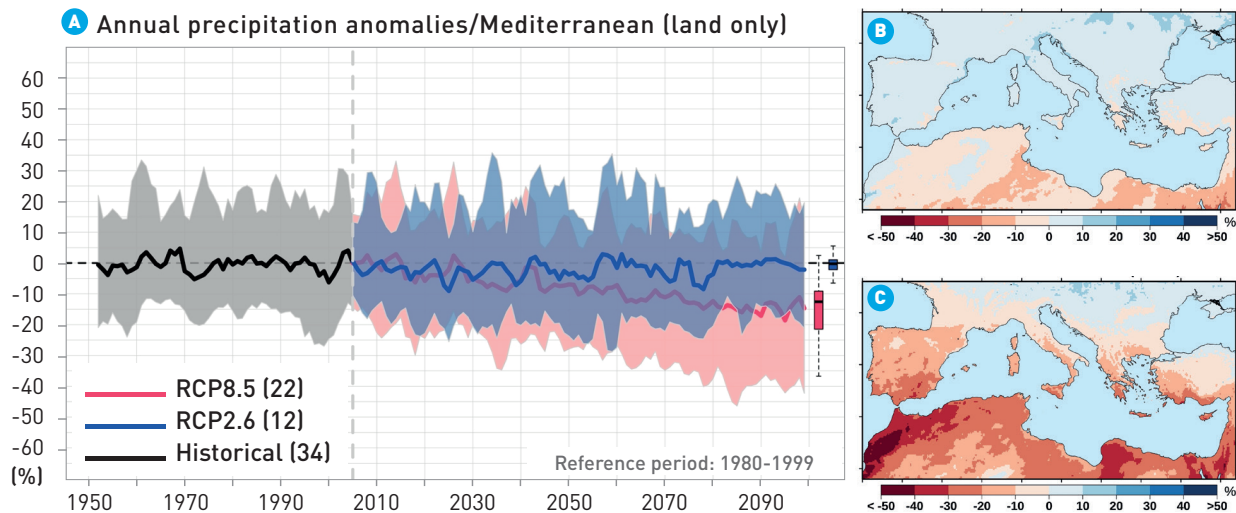


Figure SPM.3 | Projected rainfall change in the Mediterranean Basin. Projected changes in annual rainfall relative to the recent past reference period (1980-1999), based on the EURO-CORDEX 0.11° ensemble mean, A: simulations for pathways RCP2.6 and RCP8.5, B: rainfall anomalies at the end of the 21st century (2080-2099) for RCP2.6, C: idem for RCP8.5.

2.1.5.2 Projections of future wind speeds converge on a limited wind speed reduction over most of the Mediterranean Sea, with the exception of an increase over the Aegean Sea and northeastern land areas (*medium confidence*). (Section 2.2.2.4).

2.1.5.3 Projections suggest a general decrease in mean significant wave height, as well as in the number and intensity of wave extremes, over a large part of the Mediterranean Sea, especially in winter, and storm surges along the coasts (*medium confidence*), but with no consensus on the most extreme events. (Section 2.2.8.2).

2.1.6 Surface solar radiation in the Mediterranean Basin decreased from the 1950s to the 1980s (between -3.5 and -5.2 $W\ m^{-2}\ decade^{-1}$) and recovered thereafter (between $+0.9$ and $+4.6$ $W\ m^{-2}\ decade^{-1}$), consistent with global trends (*very high confidence*). (Section 2.2.3.1). In future climate projections, anthropogenic aerosol loads over the Mediterranean are expected to continue to decrease (*high confidence*), leading to an increase in surface solar radiation (*medium confidence*). (Section 2.2.3.2).

2.1.7 Observations and most model projections indicate a trend towards drier conditions over the Mediterranean Basin, especially in the warm season and over the southern areas (*medium/high confidence*). (Section 2.2.5.3).

2.1.7.1 Across the Mediterranean Sea, net fresh water loss (evaporation minus precipitation and river runoff) has increased since the last decades of the 20th century (*medium confidence*) (Section 2.2.5.3). The main cause is the strong evaporation increase due to local warming (the estimated rate of evaporation change in relation to warming is about $0.7\ mm\ day^{-1}\ ^\circ C^{-1}$ (or $25\% \ ^\circ C^{-1}$) over the period of 1958-2006).

2.1.7.2 Net water loss from the sea is expected to increase in the future due to a decrease in precipitation and river runoff and an increase in evaporation (*high confidence*). (Section 2.2.5.3).

2.1.8 In the 20th century a significant reduction in the area and volume of glaciers across high mountains of the Mediterranean has occurred. Deglaciation has generally accelerated in recent decades (*high confidence*). (Section 2.2.6.1).

2.1.8.1 Warming has shifted the occurrence of periglacial processes to higher elevations and degraded permafrost in high mountain environments. Glaciers in the Mediterranean region are projected to continue losing mass in the 21st century until complete disappearance of most mountain glaciers by the end of the century (*very high confidence*). (Section 2.2.6.2).

2.1.8.2 At lower elevation, the snow water equivalent is projected to decline by 25% (10 to 40%) from 1986-2005 to 2031-2050, regardless

of the scenario. This will continue with a 30% decrease at the end of the 21st century for a low emission scenario to 80% for high emission scenario (*high confidence*). [Section 2.2.6.2].

2.1.9 Mediterranean Sea surface waters are warming and deep waters are becoming saltier (*high confidence*). [Section 2.2.7.1].

2.1.9.1 Since the beginning of the 1980s, average Mediterranean Sea surface temperatures have increased throughout the basin, but with large sub-regional differences in the range between +0.29 and +0.44°C per decade, with stronger trends in the eastern basins (Adriatic, Aegean, Levantine and north-east Ionian Sea), marine heat waves have become longer and more intense (*high confidence*). [Section 2.2.7.1].

2.1.9.2 The water mass temperature and salinity changes of the water outflowing from the Mediterranean Sea through the Strait of Gibraltar are 0.077°C decade⁻¹ and 0.063 psu (practical salinity unit) decade⁻¹, respectively, compared to 2004 (*high confidence*). [Section 2.2.7.1].

2.1.10 Widespread sea surface temperature increase will continue in the 21st century (*very high confidence*).

2.1.10.1 During the 21st century, the basin mean sea surface temperature is expected to warm by 2.7 to 3.8°C and 1.1 to 2.1°C under the RCP8.5 and the RCP4.5 scenarios, respectively (*very high confidence*). The sign of future basin average sea surface salinity change remains largely uncertain and its changes will likely be spatially and temporally heterogeneous (*medium confidence*). [Section 2.2.7.2].

2.1.10.2 Marine heat waves will very likely increase in spatial extent, become longer, more intense and more severe than today (*medium confidence*). Under the high emission scenario, the 2003 marine heat wave may become a regular event for the period 2021-2050 and a weak event at the end of the 21st century (*medium confidence*). [Section 2.2.7.2].

2.1.11 Mediterranean Sea waters have acidified and will continue to acidify along with the global ocean (*medium confidence*). The Mediterranean Sea is able to absorb relatively more anthropogenic CO₂ per unit area than the global ocean because it is more alkaline and because deep waters are ventilated over shorter timescales (*medium confidence*). [Section 2.2.9].

2.1.11.1 Sea water surface pH has decreased by -0.08 units since the beginning of the 19th century, similar to the global ocean, with deep waters exhibiting a larger anthropogenic change in pH than typical global ocean deep waters because ventilation times are faster (*medium confidence*). [Section 2.2.9.1].

2.1.11.2 In 2100, reduction of pH might reach 0.462 and 0.457 units for the western and for the eastern basins, respectively (*low confidence*). [Section 2.2.9.2].

2.1.12 Mediterranean sea level is rising, similar to global trends, with strong spatial and temporal variation and expected acceleration (*medium confidence*). [Section 2.2.8.1].

2.1.12.1 Averaged across the Mediterranean Basin, mean sea level has risen by 1.4 mm yr⁻¹ during the 20th century and has accelerated to 2.8 mm yr⁻¹ recently (1993–2018) (*high confidence*). [Section 2.2.8.1].

2.1.12.2 Mostly due to global ocean and ice-sheet dynamics, Mediterranean mean sea level rise is projected to accelerate further throughout the 21st century (*high confidence*). Around 2100, depending on the scenario, the basin mean sea level will likely be 37-90 cm higher than at the end of the 20th century, with a small probability of being over 110 cm (*medium confidence*). [Section 2.2.8.2].

2.1.12.3 Sea level rise will increase the frequency and intensity of coastal floods and erosion (*high confidence*). [Section 2.2.8.2].

2.2 Pollution

2.2.1 Across the Mediterranean Basin, ocean and inland pollution are transboundary, ubiquitous, diverse and increasing in both quantity and in the

number of pollutants, due to demographic pressure, enhanced industrial and agricultural activities, and climate change (*high confidence*). [Section 2.3.1].

Fertilizer use and nitrogen release in the Mediterranean region



Figure SPM.4 | Fertilizer use and nitrogen release in the Mediterranean Sea (UNEP/MAP/MED POL, 2013).

2.2.2 Pollution of sea water

2.2.2.1 Mediterranean waters are generally oligotrophic (low nutrient), with decreasing levels from Gibraltar eastwards to the Levantine Sea. Several coastal regions are hotspots of human-induced nutrient inputs (Lagoons of Venice and Bizerte, Gulfs of Lion and Gabès, eastern Adriatic and western Tyrrhenian Sea, North Lake of Tunis, Algerian-Provençal Basin and the Gibraltar Strait) (*high confidence*) (Fig. SPM.4). (Section 2.3.3.1).

2.2.2.2 Nutrient enrichment causes eutrophication and may provoke harmful and toxic algal blooms, trends which will likely increase. Harmful algal blooms may cause negative impacts on ecosystems (red-tide, mucilage production, anoxia) and may present serious economic threats for fisheries, aquaculture and tourism. They may also harm human health, since 40% of blooming microalgae are able to produce toxins responsible of different human intoxications. Harmful algal blooms can also occur in freshwater environments. (Section 2.3.4).

2.2.2.3 Emerging contaminants (related to recently discovered chemicals or materials) are prevalent across the Mediterranean Basin, and enhanced by increasing inflow of untreated wastewater. These substances may cause disorders of the nervous, hormonal and reproductive system (*high confidence*). (Section 2.3.3.5).

2.2.2.4 The increasing frequency of extreme precipitation events in the north of the Mediterranean increases the supply of faecal bacteria and viruses to the coastal zone (*medium confidence*). (Section 2.3.4).

2.2.2.5 The Mediterranean Sea is one of the most polluted large water bodies globally in terms of plastic and the level of this pollution is expected to increase in the future (*medium confidence*). (Section 2.3.2.3). Even with rigorous reduction of use, plastic debris and their dissolved derivatives will remain a problem since they can take 50 or more years to fully decompose (*medium confidence*) (Section 2.3.2.3).

2.2.3 Air pollution

2.2.3.1 The Mediterranean Basin is among the regions in the world with the highest concentrations of gaseous air pollutants (NO₂, SO₂ and O₃). Its dry and sunny climate, and specific atmospheric circulation patterns enhance air pollution levels (*high confidence*). (Section 2.3.3.2) Emissions of aerosols and particulate matter (PM) into the atmosphere arise from a variety of anthropogenic activities (transport, industry, biomass burning, etc.), but also from natural sources (volcanic eruptions, sea salt, soil dust suspension, natural forest fires, etc.). (Section 2.3.2.1).

2.2.3.2 Ships are among the major emitters of SO₂ and NO_x, along with road traffic. Their contribution to transport sector emissions and general air pollution in the Mediterranean Basin is increasing (*medium confidence*). (Section 2.3.3.2).

2.2.3.3 Tropospheric ozone (O₃) concentrations observed in the summer across this region are among the highest in the northern Hemisphere and still increasing in average and with more frequent high-level episodes. They are influenced by Volatile Organic Compounds (VOCs), NO_x emissions and

climate. This trend will likely be enhanced by future warming (*medium confidence*). (Section 2.3.3.2).

2.2.3.4 Particular meteorological conditions and natural sources, including the proximity of the Sahara Desert, create specific patterns of aerosol

concentrations that may influence particulate matter (PM) concentrations. The occurrence of critically high PM concentrations associated with dust outbreaks is higher in the southern Mediterranean (>30 % of annual days) than in the northern area (<20% of annual days) (*high confidence*). (Section 2.3.2.1).

2.3 Land and sea use change

2.3.1 Landscapes and their use have changed over millennia in the Mediterranean Basin, however the rate of change has increased substantially since the second half of the 20th century (*high confidence*). (Section 2.4.1.1).

2.3.1.1 Urban and peri-urban areas are growing rapidly all over the Mediterranean, especially along the coasts. Urbanization is a major driving force of biodiversity loss and biological homogenization causing landscape fragmentation, loss of open habitats and of the land use gradient, replacing agricultural systems and natural vegetation (*high confidence*). (Section 2.4.1.2).

2.3.1.2 Outside urban areas and areas with intensive agriculture, forest and shrub encroachment, as a consequence of abandoned agro-pastoralism, mainly affects marginal lands, arid and mountain regions, primarily in the north (*high confidence*). (Section 2.4.1.1).

2.3.1.3 In many regions of North Africa and the Middle East (but also on some Mediterranean islands), the dominant land use change process is forest degradation caused by land overexploitation. From the 1980's to the 1990's deforestation has increased by 160% (*high confidence*). (Section 2.4.1.1 and 2.4.1.2).

2.3.1.4 Future land use trends depend strongly on regional policies for urbanization, ag-

riculture, forestry and nature conservation. Grassland and pastures will likely continue to further decrease in extension due to rural abandonment, often due to insufficient job opportunities and public services in marginal areas (*medium confidence*). (Section 2.4.1.3).

2.3.2 Marine resource overexploitation and unsustainable fishing practices are the main driver of marine species population decline. (Section 2.4.2).

2.3.2.1 Fishing efforts have increased over long periods, but particularly so since the 1990's due to new technologies and higher capacity vessels (*high confidence*). (Section 2.4.2.1).

2.3.2.2 In 2010, the cumulative percentage of collapsed and overexploited stocks exceeded 60% across the Mediterranean Sea (*medium confidence*). The eastern Mediterranean is the most overexploited sub-basin with the highest number of collapsed species (*medium confidence*). (Section 2.4.2.2).

2.3.2.3 Sustainable management of marine resources requires reduced fishing pressure. The implementation of an ecosystem-based approach may ensure the recovery of both high and low trophic levels and support both ecosystem health and resilience against sea warming (*high confidence*). (Section 2.4.2.3).

2.4 Non-indigenous species

2.4.1 The Mediterranean Sea (and particularly the Levantine Basin) is a hotspot for the establishment of many non-indigenous species (*high confidence*). (Section 2.5.1).

2.4.1.1 Among known marine non-indigenous species introduced over the last 30 years, invertebrates dominate with >58% (mostly mollusks and

decapods), primary producers follow with approx. 23% and vertebrates with 18% (mostly fish) (*high confidence*). (Section 2.5.1.1).

2.4.1.2 Most marine non-indigenous species arrive from the Red Sea and Atlantic Ocean, but the highest impact is attributed to those introduced by ships and aquaculture (*high confidence*). (Section 2.5.1.2).

2.4.1.3 The increase in non-indigenous species can be linked to decrease or collapse in populations of native species, and to other ecological changes to the marine ecosystem (*high confidence*). (Section 2.5.1.2).

2.4.1.4 The number and spread of non-indigenous species will likely increase further with increasing shipping activity and the impacts of climate on the ocean (*medium evidence*). Forecasting future establishment of non-indigenous species using species distribution models is challenging. (Section 2.5.1.3).

2.4.2 On land, there is a high number of non-indigenous species in human-modified ecosystems and in regions with high infrastructure development (*high confidence*). (Section 2.5.2.1).

2.4.2.1 On land, most non-indigenous species in the region are plants (introduced intention-

ally as ornamentals), followed by invertebrates. Phytophagous pests, which cause damages to crops and forests, dominate non-indigenous species all over the Mediterranean Basin, accounting for more than a half of the invertebrate species. The main pathways of introduction for vertebrates are accidental escapes (*medium evidence*). (Section 2.5.2.1).

2.4.2.2 With warming, current major non-indigenous species are predicted to shift northwards by 37 to 55 km decade⁻¹, leaving a window of opportunity for new non-indigenous species adapted to xeric conditions. The trend has recently shifted towards increasing numbers of introduced invertebrates and vertebrates. This pattern will very likely continue in the near future, due to increasing air and maritime cargo, where these taxa can be easily transported as stowaways (*medium confidence*). (Section 2.5.2.3).

3 - Resources

3.1 Water

3.1.1 Water resources in the Mediterranean are scarce: resources are limited, unevenly distributed and in some areas not accessible, often mismatching human and environmental needs. (Section 3.1.1).

3.1.1.1 Renewable water resources are unevenly distributed among Mediterranean regions (72 to 74% are located in the northern Mediterranean) and so is the spatial distribution of water needs, but with opposite trends. As a consequence, 180 million people in the southern and eastern Mediterranean countries suffer from water scarcity (<1,000 m³ capita⁻¹ yr⁻¹) and 80 million people from extreme water shortage (<500 m³ capita⁻¹ yr⁻¹) (*high confidence*). (Section 3.1.1.1).

3.1.1.2 River discharge is characterized by high temporal - seasonal and inter-annual - variability and groundwater is the main source of freshwater for some Mediterranean countries (Libya, Malta, Palestine, Israel) (Section 3.1.1.2). In several cases in southern Mediterranean countries, groundwater resources are drawn from fossil aquifers, i.e. non-renewable resources (*high confidence*). (Section 3.1.1.3).

3.1.1.3 Sustainable water management is complicated by the transboundary nature of many river basins and aquifers, common in Mediter-

anean countries (18% of total renewable water resources originate outside the territories of the southern Mediterranean, 27% in eastern Mediterranean countries (*high confidence*). (Section 3.1.1.1).

3.1.2 Due to the general scarcity of water resources, conflicts arise from different sectors of water use (agriculture, tourism, industry, people, also biodiversity conservation) (*medium confidence*). (Section 3.1.2).

3.1.2.1 The spatial distribution of water use per sector in the Mediterranean area is heterogeneous. In southern and eastern countries, agricultural use reaches 76-79%. In the northern part, the four sectors are much more balanced (18-36%, Fig. SPM.5), with differences between countries. (Section 3.1.2.1).

3.1.2.2 The percentage of irrigated land of the total cultivated area in the Mediterranean is about 25% (but more than 70% in Egypt, Israel, Lebanon, Greece), with a strong increase (21%) in recent years (Section 3.1.2.2). The trend towards more efficient irrigation systems does not always generate absolute water savings due to the introduction of more water demanding crops (e.g. vegetables) (*medium confidence*). (Section 3.1.2.2).

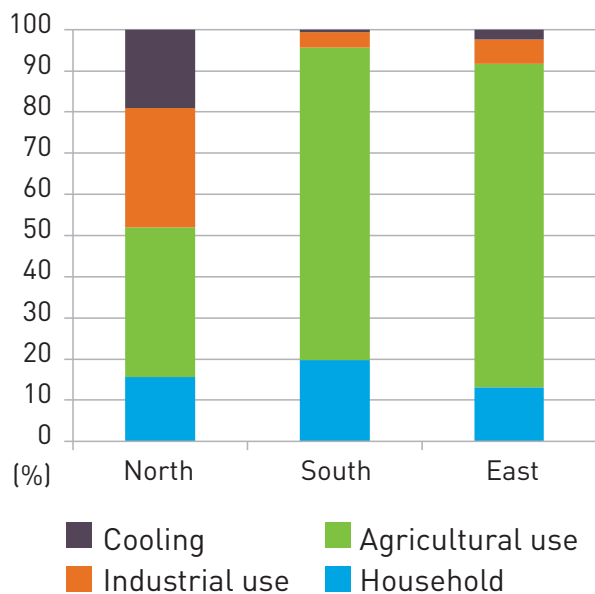


Figure SPM.5 | Total water consumption rates across four main sectors and three sub-regions (data source: AQUASTAT).

3.1.2.3 Tourism activity is at its highest in summer, coinciding with peak demands by irrigated agriculture, creating tensions for water, and this will likely be exacerbated in the future due to climate change (*medium confidence*). (Section 3.1.2.3).

3.1.2.4 Municipal water use is already constrained in several Mediterranean countries affected by water scarcity, exacerbated by demographic and migratory phenomena, as well as by the limits and obsolescence of water distribution infrastructure (*medium confidence*). Several northern countries have managed to reduce their municipal withdrawal in absolute values while several southern and eastern countries have the opposite trend (*medium confidence*). (Section 3.1.2.5).

3.1.2.5 Water-related intersectoral conflicts are likely to be exacerbated in the future because of the interactions between climate change (increasing droughts) and ongoing socio-economic and demographic trends (*medium/high confidence*). (Section 3.1.5.2).

3.1.3 Disastrous flash floods are frequent in many countries including Italy, France and Spain, affecting mainly the coastal areas, in particular, where population and urban settlements are growing in flood-prone areas. These will likely become more frequent and/or intense due to climate change and surface-sealing (*medium confidence*). (Section 3.1.3.3).

3.1.4 Climate change, in interaction with other drivers (mainly demographic and socio-economic developments including unsustainable agricultural practices), is likely to impact most of the Mediterranean Basin, through reduced runoff and groundwater recharge, increased water requirements for crops, increased conflicts among users, and increased risk of overexploitation and degradation (*high confidence*). (Section 3.1.4.1).

3.1.4.1 Impacts of even moderate (1.5 to 2°C) global warming and associated socio-economic pathways are expected to stem from reduced precipitation associated with increased evaporation, leading to a decline in runoff water (Section 3.1.4.1). In many regions, this will likely increase low flow periods in summer and the frequency of no-flow events, and higher drought risks (Section 3.1.4.1). More urban populations are likely to be exposed to severe droughts, and the number of affected people will essentially scale with the temperature increase (*high confidence*). (Section 3.1.4.1).

3.1.4.2 Aquifer recharge will be strongly impacted by warming and reduced rainfall, particularly in semi-arid areas. At current extraction rates, overexploitation of groundwater is likely to continue having a greater impact on decreasing groundwater levels than climate change (*high confidence*). (Section 3.1.4.1).

3.1.4.3 Important challenges to groundwater quality in coastal areas are likely to arise from salt-water intrusion driven by enhanced extraction of coastal groundwater aquifers and sea-level rise, as well as from increasing water pollution in the southern and eastern Mediterranean (*medium confidence*). (Section 3.1.4.1).

3.1.4.4 Impacts of global warming levels higher than 1.5 to 2°C on water resources by the end of the 21st century will be significantly stronger, generating substantially increased risks in the Mediterranean region (Section 3.1.4.2). The probability of more extreme and frequent meteorological, hydrological and agricultural droughts will likely increase substantially, with 5 to 10 times more frequent droughts in many Mediterranean regions (*high confidence*). (Section 3.1.4.2).

3.1.5 The combined dynamics of climate and socio-economic changes suggest that despite an important potential for adaptation to reduce freshwater resource vulnerability, climate change exposure cannot be fully and uniformly counterbalanced. In many regions, socio-economic developments will have greater impact on water availability com-

pared to climate-induced changes (*low confidence*). (Section 3.1.4.2).

3.1.5.1 Strategies and policies for water management and climate change adaptation are strongly interconnected with all other sectors (e.g., the water-energy-food nexus). Most adaptation and water management strategies rely on the principles of Integrated Water Resources Management (IWRM), which is based on economic efficiency, equity and environmental sustainability, also considering the nexus with agriculture (food production in particular) and energy for building the resilience needed to adapt to climate change. (Section 3.1.5.1).

3.1.5.2 Technical solutions are available to improve water availability and the efficient use of water resources. Seawater desalination is increasingly used to reduce (potable) water scarcity in arid and semi-arid Mediterranean countries, despite known drawbacks in terms of environmental impacts on near-coastal marine ecosystems and energy requirements with associated CO₂ emissions. Promising new (solar) technologies are under development, potentially reducing both greenhouse gas emissions and costs (*medium confidence*). (Section 3.1.5.2).

3.1.5.3 Technology is also expected to contribute significantly to the reduction of wastewater volume, its reclamation and reuse and the reduction of impacts on sea water quality. Agricultural, industrial and watering activities present together approx. 70% water reuse potential. The proposal has been made to recharge aquifers with treated wastewater, but critical issues in terms of water quality remain to be resolved (*medium confidence*). (Section 3.1.5.2).

3.1.5.4 Inter-basin transfer of water has been implemented in several large-scale schemes, with high social and environmental costs, and risks of conflict (*low confidence*). (Section 3.1.5.2).

3.1.5.5 Dams for water storage or hydropower exist in most countries, and rivers are diverted for water management in some countries. Large dams often generate social and environmental impacts, such as the destruction of river and wetland ecosystems and the loss of aquatic biodiversity,

forced relocation of people and loss of cultural resources. Reductions of these impacts are possible, for example through constructed wetland habitats, and management of fishing and other recreational opportunities and enhanced coordination among countries sharing the same water resources (*low confidence*) (Section 3.1.5.2). Technological developments also allow for the use of underground or subsurface dams, to contribute to sustainable management of groundwater. (Section 3.1.5.2).

3.1.5.6 The strategy of trading commodities (in particular from agriculture) that cannot be produced due to lacking water (virtual water trade) can be considered a form of adaptation. Most Mediterranean countries (e.g., Portugal, Spain, Italy, Greece, Israel, Turkey) have high footprints in terms of national consumption (above 2000 m³ yr⁻¹ capita⁻¹) (*low confidence*). (Section 3.1.5.1).

3.1.5.7 Water demand management, i.e. methods used to save (high quality) water, may reduce water consumption or water losses. This includes technical, economic, administrative, financial and/or social measures, with priority for increases in water use efficiency, in particular in the tourism and food sectors and with case-specific solutions integrating traditional knowledge with modern technical achievements (*high confidence*). (Section 3.1.5.1).

3.1.5.8 The reduction of water losses in all sectors of water use in the Mediterranean is crucial for sustainable management and adaptation strategies. Leakage in urban distribution networks and inefficient irrigation technologies are in urgent need of being addressed (*high confidence*). (Section 3.1.5.1).

3.1.5.9 Maintaining the traditional Mediterranean diet and shifting back to a locally produced Mediterranean food in conjunction with a reduction of food waste, could generate water savings in comparison to the present increasingly meat-based diet: 753 l for a locally produced diet and 116 l for less waste of water per capita and per day, in addition to benefits for health (obesity, diabetes) (*high confidence*). (Box 3.1.2).

3.2 Food

3.2.1 Warmer and drier climate conditions, with more frequent and intense extreme events, in combination with higher soil salinization, ocean acidification and land degradation, sea level rise and the emergence of new pathogens pose a threat to most elements of the food production system in the Mediterranean Basin (*high confidence*).

3.2.1.1 Climate extremes pose a threat to the entire agricultural sector. Crop yield reductions are projected for the coming decades in most current areas of production and for most crops if no adaptation takes place. (*Section 3.2.2.1*).

3.2.1.2 Maize is the crop most affected by climate change, projected to decline in yield by up to 17% in some countries by around 2050 under RCP8.5 scenario and assuming current agricultural practices (*medium confidence*); it could become infeasible in regions with limited access to irrigation water (*medium confidence*) (*Section 3.2.2.1*). Wheat yield losses of 5% to 22% are also projected because of decreased resilience of production and higher inter-annual variability in 2021-2050 under RCP8.5 scenario with no adaptation. Other water demanding crops, e.g., tomatoes, are also at risk. The production of some currently rainfed crops, such as olives, could become infeasible without irrigation (*medium confidence*). (*Section 3.2.2.1*).

3.2.1.3 Increasing atmospheric CO₂ concentrations may help offset yield losses for some crops, such as wheat and barley, but this effect could impact nutritional quality. Beneficial effects of CO₂ are likely limited by water stress conditions as well as by nutrient availability (*low confidence*). (*Section 3.2.2.1*).

3.2.1.4 Climate extremes, such as heat stress, droughts, and floods, can cause crop yield losses/failures, crop quality reduction and impacts on livestock (*high confidence*) (*Section 3.2.1.4*). These events can also induce long-term socio-economic and landscape changes (*medium confidence*). (*Section 3.2.1.4*).

3.2.1.5 Sea level rise will likely impact the agricultural sector by a direct impact on (or loss of) agricultural areas in coastal zones (e.g., in Egypt), along with up to a three-fold increase in the salinity of irrigation water and soil, and retention of sediments that do not reach the coast (*high confidence*). (*Section 3.2.2.1*).

3.2.1.6 New and/or re-emerging pests and pathogens may contribute to larger than estimated

losses in the agricultural sector. Food quality and security may also be affected by mycotoxigenic fungal pathogens and a higher level of contamination (*medium confidence*). (*Section 3.2.2.1*).

3.2.1.7 Total landings from Mediterranean fisheries have declined by 28% from 1994 to 2017 (*Section 3.2.1.3, Fig. 3.22*). Climate change is projected to heavily affect marine resources in the coming decades. Warming, acidification and water pollution are likely to reduce marine productivity, affect species distribution and trigger local extinction of more than 20% of exploited fish and marine invertebrates by 2050 (*high confidence*). (*Section 3.2.2.2*).

3.2.1.8 Perturbations in global markets for agricultural and marine products, potentially caused by environmental change elsewhere, may exacerbate the local impacts of climate change, especially because most Mediterranean countries are net importers of cereal and fodder/feeding products (*high confidence*). (*Section 3.2.1.5*).

3.2.2 Adaptation to environmental change will be of key importance to limit and partially offset the impacts of climate change in the food sector (*high confidence*).

3.2.2.1 Projected yield losses in most crops may be reduced by targeted adaptation strategies, such as crop diversification, adapting the crop calendar and use of new varieties adapted to evolving climate conditions. Strategies based on increased irrigation will have limited applicability in the region. Thus, adapted production of crops such as maize will depend on more drought-resistant varieties (*medium confidence*). (*Section 3.2.3.1*).

3.2.2.2 Successful adaptation strategies are based on combining different approaches, i.e. on farming practices (e.g., varieties, rotational patterns, crop diversity, agroforestry) and management (e.g., diversification of income, modifying irrigation practices). Sectoral co-designed climate services may help reduce risks linked to unfavorable climate conditions and extremes (*medium confidence*). (*Section 3.2.3.1*).

3.2.3 The food production system on land has the capacity to contribute to greenhouse gas mitigation strategies through nitrogen fertilization optimization, improved water management, better storage of soil organic carbon and carbon sequestration,

management of crop residues and agroindustry by-products (*high confidence*). (Section 3.2.3.2).

3.2.3.1 N₂O emissions in Mediterranean agro-ecosystems can potentially be mitigated by 30 to 50%, through adjusted fertilization (rate and timing). Replacing mineral nitrogen with organic fertilization provides soil and crops not only with nitrogen, phosphorus, potassium and micronutrients, but also enhances organic carbon when using solid fertilizers (i.e., solid manure, compost, etc.), this would be beneficial in many Mediterranean soils with low organic carbon contents (*medium confidence*). (Section 3.2.3.2).

3.2.3.2 Optimized irrigation techniques may decrease greenhouse gas emissions from Mediterranean regions in perennial crops and intensive vegetable cropping systems on paddy soils (water

table management) (*medium confidence*). (Section 3.2.3.2).

3.2.3.3 Soil organic carbon content in Mediterranean croplands is responsive to management changes such as organic amendments, cover crops and tillage reductions. There is high potential to enhance soil organic carbon storage through land restoration (as proposed by the “4‰ initiative” proposed 2015 by France during the UN-FCCC COP21). Organic fertilizers, tillage reduction and residue retention are effective practices in herbaceous systems. Woody systems, in which the carbon storage potential is higher, can benefit from maintaining a soil cover and use of agro-industry byproducts, such as composted olive mill waste, as a source of organic matter (*medium confidence*). (Section 3.2.3.3).

3.3 Energy transition in the Mediterranean

3.3.1 From 1980 to 2016, primary energy consumption in the Mediterranean Basin steadily increased by approx. 1.7% yr⁻¹, mostly due to changing demographic, socio-economic (lifestyle and consumption) and climate conditions (*high confidence*). (Section 3.3.2.1: Fig. 3.25).

3.3.1.1 The current level of Mediterranean greenhouse gas emissions is approx. 6% of global emissions, close to its proportion of the world population. International climate policy agreements demand an accelerated energy transition in the countries of this region to enable secure, sustainable and inclusive development. (Section 3.3.1).

3.3.1.2 The contribution of oil to energy production has remained stable between 1995 and 2016, while that of coal has gradually decreased. Primary energy production from natural gas has doubled, while the contribution of nuclear power and renewable energy sources contribution has risen by about 40% (*high confidence*). (Section 3.3.2.1, Fig. 3.28).

3.3.1.3 While northern rim countries advance towards the transition by gradually diversifying their energy mix, improving energy efficiency and increasing the share of renewable energies, despite recent investments, some eastern and southern rim countries lag behind

in these developments (*high confidence*). (Section 3.3.3.2).

3.3.2 Projected trajectories for energy demand over the next few decades in the Mediterranean Basin differ significantly between the northern and the eastern/southern rim countries (*high confidence*). (Section 3.3.3.2).

3.3.2.1 Energy demand in the north has decreased by 8% since 2010, due to moderate population growth, increasing efficiency and a stable economy, and is expected to continue to decrease. In 2040, northern Mediterranean energy demand would be 22%, 10% and 23% lower than 2015 levels, for three stylized energy policy scenarios (“transition” - TS, “reference” - RS, and “proactive” - PS), respectively (*medium confidence*). (Section 3.3.3.2).

3.3.2.2 Southern Mediterranean countries have undergone sustained economic and population growth over recent decades. Energy demand is thus expected to continue increasing and to reach 55% (TS), 118% (RS) and 72% (PS) by 2040 when compared to 2005 (*medium confidence*). (Section 3.3.3.2).

3.3.3 Climate change in the Mediterranean is expected to impact energy production (due to impacts on infrastructure) and energy use (by de-

creased heating demand and increased cooling needs). (Section 3.3.2.3).

3.3.3.1 Losses in power generation are projected due to warming in the region, with only marginal impact if global warming does not exceed 2°C (losses <5%), but rapid deterioration beyond 2°C (losses >5% reaching 10% at specific locations) (*low confidence*). (Section 3.3.3.5).

3.3.3.2 Traditional hydropower and thermo-electric power usable capacity is expected to decline, due to decreased streamflow and increased water temperature, leading to a 2.5 to 7% decrease in hydropower by 2050 and 10 to 15% decrease in thermopower by 2050 (ranges indicate RCP2.6 vs. RCP8.5 estimates vs 1971-2000) (*high confidence*). (Section 3.3.3.5).

3.3.3.3 Weather and climate variability, as well as extreme events, cause significant impacts on the availability and magnitude of renewable energy generation. With the increase of the share of renewable energies, the electricity transmission system will be more exposed to weather variations and may be threatened by specific weather conditions that are usually not considered as extremes (*medium confidence*). (Section 3.3.2.3).

3.3.3.4 With warming, all Mediterranean countries will experience a net increase in energy demand for cooling. The change in average daily peak electric load from 2006-2012 to 2080-2099 under RCP4.5 climate change scenarios is up to 4-6% (Balkans) and 8-10% under RCP8.5 (Balkans, Spain, Portugal) (*high confidence*). (Section 3.3.3.6, Fig. 3.50).

3.3.4 The Mediterranean Basin has significant potential for additional renewable energy production, on land and in the ocean. These include wind, solar, hydro, geothermal and bioenergy as well as energy generation by waves and currents (*high confidence*) (Section 3.3.2.2). There is also potential for high energy efficiency gains (*high confidence*). (Section 3.3.3.2).

3.3.4.1 Thermal energy from biomass (mainly wood residues and waste) currently exceeds use of all other renewable energies, mainly for the production of heat or fuel (less for electricity). Overall production of energy from solid biomass is currently 1.56 PW, varying considerably between countries and mainly concentrated on the northern rim. The production of firewood has increased by about 90% in north Africa over the last 60 years and has recently returned to its 1960's level in southern Europe, after a significant

reduction from 1973 to 2009 (*medium confidence*). (Section 3.3.2.2).

3.3.4.2 Although fossil fuels are expected to remain the dominant component of the energy mix until 2040, renewable energies will overtake natural gas and coal and become the second most used energy source in the Mediterranean Basin. In 2040, the share of renewable energies would triple to reach 27% in TS, 13% in the RS and 24% in PS (scenarios "transition" - TS, "reference" - RS, and "proactive" - PS) (*high confidence*). (Section 3.3.3.3).

3.3.4.3 Among the various renewable energy technologies, solar is expected to grow at the fastest pace in both sub-regions. End usage of solar thermal energy, in particular solar water heaters, has high potential in the south and is efficient with a good return on investment (*medium confidence*). (Section 3.3.3.3).

3.3.4.4 The potential for energy efficiency enhancements is substantial in the Mediterranean Basin, particularly in the south (*high confidence*). Overall, energy intensity is decreasing in the region, largely related to shifts in the buildings, industry and transport sector (*high confidence*). (Section 3.3.3.2).

3.3.5 By further improving energy efficiency and deploying renewable energies on a large scale, the entire Mediterranean region can reduce tensions on energy security for importing countries, improve opportunities for exporting ones and reduce energy costs and environmental damage for the whole region. Embarking on an energy transition path will also help improve social welfare in the region and contribute to job creation, among other positive externalities (*medium confidence*). (Section 3.3.3).

3.3.5.1 Given socio-economic development and climate change, an important gap between energy supply and demand is expected, particularly in southern and eastern rim countries. This challenge can be met by rapid restructuring of the energy sector, and particularly further accelerated integration of renewable energies (*medium confidence*). (Section 3.3.4.2).

3.3.5.2 Advantages/asures of the energy transition include: (i) drastic reduction of per capita greenhouse gas emissions, (ii) return on investment in renewable energies, which may lead to savings of up to 54% in energy costs for a given country, and (iii) establishment of a CO₂ emissions trading market which will provide economic

incentives for investments in renewable energies (*medium confidence*). (Section 3.3.4.2).

3.3.5.3 Despite electrification rates of almost 100% in southern and eastern rim countries, the energy dynamics of these countries are largely unsustainable in the long term, as a result of a highly subsidized electricity market (with some exceptions, e.g., Turkey) leading to a systemic misallocation of resources, population growth, increasing urbanization and expected socio-economic changes in the region, and global warming (*high confidence*). (Section 3.3.4.3).

3.3.5.4 A change in domestic energy policies, including reforming the energy pricing mechanisms, and/or the introduction of tax and regulatory incentives may be needed in some southern and eastern rim countries to reduce the cost disadvantage of renewable energies compared to fossil fuels (*medium confidence*). (Section 3.3.4.2).

3.3.5.5 Regional energy market integration and cooperation are needed to unleash cost-effective climate change mitigation. (Section 3.3.4.5). Cross-border regulations require the convergence of national regulations to allow interconnections

to work effectively. Investment regulation requires the design and development of infrastructure that will be needed for promoting international complementarities and technical standards (*high confidence*). (Section 3.3.4.5).

3.3.6 Mediterranean islands experience specific threats, challenges and opportunities in the context of global change and energy transition. Geographical and socio-economic singularities of Mediterranean islands put additional pressure on water and energy, leading to resource depletion and environmental degradation, threatening sustainable development, especially during the high touristic season when population doubles for some (*high confidence*). (Box 3.3.2).

3.3.6.1 On most islands, energy demand is set to increase, due to socio-economic trends including tourism, but also due to expected increase in the use of energy-intensive desalination techniques (*medium confidence*). (Box 3.3.2).

3.3.6.2 Enhancement of hydropower is limited on most Mediterranean islands, but there is important potential for wind power and hydrogen generation (*medium confidence*). (Box 3.3.2).

4 - Ecosystems

4.1 Marine ecosystems

4.1.1 Mediterranean marine ecosystems are unique due to their high number of endemic species, but they are also highly vulnerable to local and global pressures including environmental change. (Section 4.1.1.1).

4.1.1.1 The Mediterranean Sea represents the highest proportion of threatened marine habitats in Europe (32%, 15 habitats) with 21% being listed as vulnerable and 11% as endangered. This threat includes several valuable and unique habitats (e.g., seagrasses and coralligenous), supporting an extensive repository of biodiversity. Despite covering only 0.82% of the planet's ocean surface, the Mediterranean Sea hosts 18% of all known marine species (*high confidence*). (Section 4.1.1.1).

4.1.1.2 Over millennial time-scales, productivity in the overall oligotrophic Mediterranean Sea responds rapidly to short and long-term changes in nutrient input, either from rivers, winds or upwelling activity, all of which modify the benthic-pelagic ecosystems by extending into the entire food chain (*high confidence*). (Section 4.1.1.2).

4.1.1.3 Tropical non-indigenous species are spreading into the Mediterranean through current warming trends, causing "tropicalization" of marine fauna and flora (*medium confidence*). (Section 4.1.1.1).

4.1.1.4 Acidification in Mediterranean waters will likely impact the marine trophic chain, from its primary producers (i.e., coccolithophores and foraminifera) to corals and coralline red algae (*medium confidence*). (Section 4.1.1.1).

4.1.1.5 Climate change and direct human activities impact the integrity of marine ecosystems by disturbing plankton ecology, increasing jellyfish outbreaks, reducing fish stocks, and more generally causing changes in physiology, growth, reproduction, recruitment and behavior in marine organisms (*medium confidence*). (Section 4.1.1.1).

4.1.2 The combination of various ongoing climate drivers of environmental change (e.g., sea warming, ocean acidification, and sea level rise) has numerous detectable effects on marine organisms

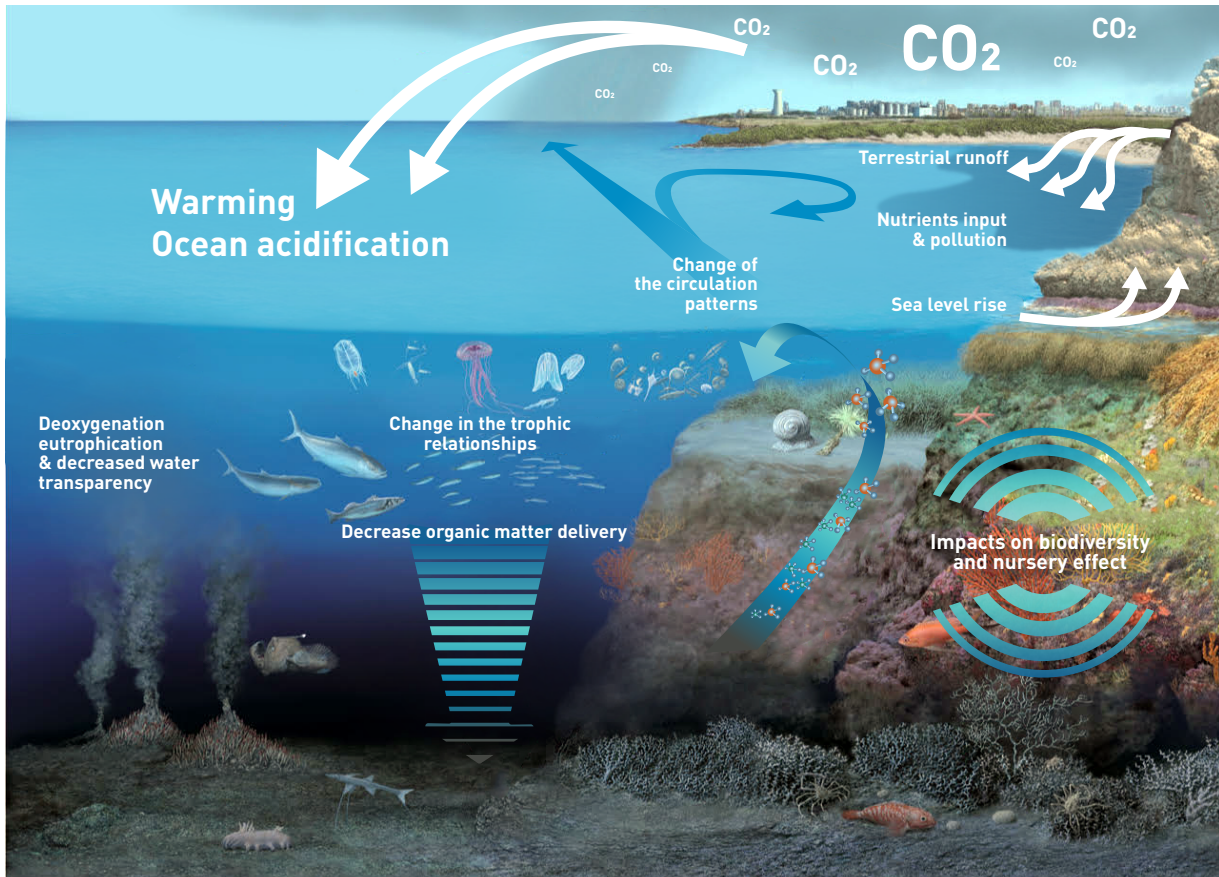


Figure SPM.6 | Climate change drivers potentially affecting marine pelagos and benthos in the Mediterranean Sea.

acting at individual, population, and ecosystem scales. Expected future impacts include major reorganizations of the biota distribution, species loss, decrease in marine productivity, increase in non-indigenous species, and potential species extinctions (*medium confidence*) (Fig. SPM.6). (Section 4.1.2.1).

4.1.2.1 Projections for high emission scenarios show that endemic assemblages will be modified by 2041–2060 and among 75 Mediterranean endemic fish species, 31 will likely extend their geographical range, while 44 will likely reduce it (*medium confidence*).

4.1.2.2 Alterations of natural habitats for commercially valuable species are likely to occur, resulting in many repercussions on marine ecosystem services such as tourism, fisheries, climate regulation, coastal protection, and ultimately on human health (*medium confidence*). (Section 4.1.2.2).

4.1.2.3 In general, small pelagic species, thermophilic and/or exotic species of smaller size and of low trophic levels, could benefit from envi-

ronmental change. Large-sized species, often with commercial interest may find conditions for survival reduced (*medium confidence*). (Section 4.1.2.1).

4.1.3 Adaptation strategies to reduce environmental change impacts on marine ecosystems need to occur in conjunction with climate mitigation and pollution reduction policies and actions. (Section 4.1.3.4).

4.1.3.1 Due to the diversity of marine community responses to climate change and other stressors in different sub-basins, wider monitoring coverage is needed to improve knowledge of the different adaptation processes that characterize and best suit each zone (*high confidence*). (Section 4.1.3.1).

4.1.3.2 All measures that improve marine ecosystem health, resilience or biodiversity have the potential to delay and reduce the adverse effects of climate drivers. These include more sustainable fishing practices, reducing pollution from agricultural activity, sustainable tourism and more effective waste management (*high confidence*). (Section 4.1.3.4).

4.1.3.3 Marine protected areas can provide an “insurance” role for biodiversity if they are placed in locations with limited vulnerability to ocean acidification and climate change (*medium confidence*) (Section 4.1.3.4). While marine protected areas cannot halt climate change and its consequences, such as ocean acidification, they are an important tool for enhancing the resilience and adaptive capacity of ecosystems (*high confidence*). (Section 4.1.3.2).

4.1.3.4 Developing practical management actions that take into consideration the uniqueness of each species and their responses towards different drivers is crucial to increasing their resilience and plasticity in the context of climate change (*high confidence*). (Section 4.1.3.3).

4.2 Coastal ecosystems

4.2.1 The coastal zone, i.e. the area in which the interaction between marine systems and the land dominate ecological and resource systems, is a hotspot of risks, especially in the MENA region (*high confidence*). (Section 4.2.1.1).

4.2.1.1 Alterations of coastal ecosystem regimes (lagoons, deltas, salt marshes, dune systems, etc.) due to climate change and human activities affect the flow of nutrients to the sea, the magnitude, timing and composition of plankton blooms, significantly increase the number and frequency of jellyfish outbreaks, and could have negative impacts on fisheries (*high confidence*). (Section 4.2.1.1).

4.2.1.2 In addition to hosting a wide diversity of wild faunal and floral species, coastal ecosystems are also often used as aquaculture platforms (i.e., fish, shellfish cultures, etc.), and the pressures on them may have significant consequences on their usages (*medium confidence*). (Section 4.2.1.1).

4.2.1.3 Seagrass meadows in the Mediterranean Sea cover 1.35 to 5 million hectares, between 5 and 17% of the worldwide seagrass habitat. The current loss rate of seagrass is approx. 5% in the Mediterranean. Even in the remaining *Posidonia* meadows, almost half of the surveyed sites have suffered net density losses of over 20% in 10 years (*medium confidence*). (Section 4.2.1.1).

4.2.1.4 The rapid spread of non-indigenous fish species represents a serious problem for trophic networks and fisheries in coastal areas, due to the local extinction of species that are preys of these generalist fish (*high confidence*). (Section 4.2.1.1).

4.2.2 In the future, environmental change, particularly warming, decreasing nutrient replenishment, and ocean acidification, are expected to cause changes in plankton communities at differ-

ent levels, from phenology and biomass to community structure (*medium confidence*) (Section 4.2.2.1). Negative impacts are also expected to affect fish, corals and seagrass meadows, while non-indigenous species are expected to be favored (*medium confidence*). (Section 4.2.2.1).

4.2.2.1 Sea level rise impacts coastal wetlands and estuaries, while reduced precipitation and prolonged droughts will reduce the water discharge and sediments flow of Mediterranean rivers and catchments. Mobile coastlines are likely to retreat or disappear because of the effects of erosion due to the accelerated rise in sea level, with the most severe impacts affecting the least mobile species (*medium confidence*). (Section 4.2.1.1 and 4.2.2.2).

4.2.2.2 Mediterranean coasts are expected to suffer further severe disturbance due to intensive urbanization and other land uses, which could worsen as land availability decreases and population growth continues. In the future, coastal storms and floods, probably more frequent and intense, will have adverse impacts on ecological balances, as well as human health and well-being, particularly in Mediterranean coastal cities (*medium confidence*). (Section 4.2.2.3).

4.2.3 Developing more integrated approaches would support adaptation policies for the entire Mediterranean, involving ecosystem-based management of coastal areas, identifying synergies and conflicts, as well as integrating local knowledge and institutions. (Section 4.2.3.6).

4.2.3.1 Suitable adaptation policies include (i) reducing pollution from runoff, both from agriculture, industry and waste management, (ii) defining policies to limit or prevent acidification and (iii) moving aquaculture operations to areas pro-

tected from critical acidification levels (*high confidence*). [Section 4.2.3.1].

4.2.3.2 Early Detection and Rapid Response has been recognized as a key aspect for non-indigenous species management. Efficient public

awareness campaigns disseminating information to local communities may help to quickly detect unwanted non-indigenous species, together with formalized early warning systems (*medium confidence*). [Section 4.2.3.3].

4.3 Terrestrial ecosystems

4.3.1 Terrestrial biodiversity changes in the Mediterranean Basin over the past 40 years have occurred more quickly and extensively than in most other regions in the world. Urbanization and the loss of grasslands are key factors in ecosystem degradation across the region. Since 1990, agricultural abandonment has led to a general increase in forested area of 0.67% yr⁻¹ across the basin, with significant variations between northern and southern shores of the Mediterranean. [Section 4.3.1.2].

4.3.1.1 Since about 1980, biodiversity changes have occurred more quickly and extensively in different Mediterranean species groups and habitats than before. Species loss is marked by a general trend of homogenization (loss of vulnerable and rare species) recorded in several species groups, and also by a general simplification of biotic interactions (loss of specialized relationships) (*high confidence*) [Section 4.3.1.2].

4.3.1.2 In all Mediterranean mountain regions, subalpine species move to higher altitudes wherever this is possible (*medium confidence*). [Section 4.3.1.2].

4.3.1.3 Almost all countries in the northern sub-region have undergone increase in forest area due to the decline of extensive agriculture and agro-pastoral systems, with rates around 1% yr⁻¹ in Italy, France and Spain. In the southernmost areas, semi-natural ecosystems are more at risk of fragmentation or disappearance due to human pressure from clearing and cultivation, overexploitation of firewood and overgrazing (*high confidence*). [Section 4.3.1.2].

4.3.1.4 Agro-system biodiversity has declined dramatically since the early 1950s due to the intensification of agriculture, leading to an increase of highly modified agroecosystems and simplified agricultural landscapes (*high confidence*). Traditional and extensive agricultural practices, including agro-ecological methods, gener-

ally help maintain high biodiversity levels (*medium confidence*). [Section 4.3.1.2].

4.3.1.5 Over the last five decades, agricultural production has increasingly been impacted by loss of pollinators, with an increase by a factor of three in the number of crops requiring the intervention of pollinators (*medium confidence*). [Section 4.3.1.2].

4.3.1.6 Mediterranean drylands have a significant and specific biodiversity value, with most plants and animals highly adapted to water-limited conditions. [Section 4.3.1.2]. European Mediterranean drylands are undergoing an overall increase in the percent of arid area in response to climate change and extensive land abandonment. Almost 15% of the humid Mediterranean domain has been replaced by more arid area since the 60s, while arid area has remained stable (*medium confidence*). [Section 4.3.1.2].

4.3.1.7 Freshwater ecosystems offer many important ecosystem services (e.g., water supply for drinking, agriculture and industries, water purification, erosion control, recreation, tourism and flood mitigation) [Section 4.3.1.2: freshwater ecosystems]. 48% of Mediterranean wetlands were lost between 1970 and 2013, with 36% of wetland-dependent animals in the Mediterranean threatened by extinction (*high confidence*). [Section 4.3.1.2].

4.3.2 Drier climate and increased human pressure are expected to cause significant impacts on terrestrial biodiversity, forest productivity, burnt area, freshwater ecosystems and agro-systems during the 21st century (*medium confidence*). [Section 4.3.2].

4.3.2.1 All factors considered, a general reduction of forest productivity in the medium- and long-term is likely associated with higher mortality and dieback, particularly for species or populations growing in water-limited environments,

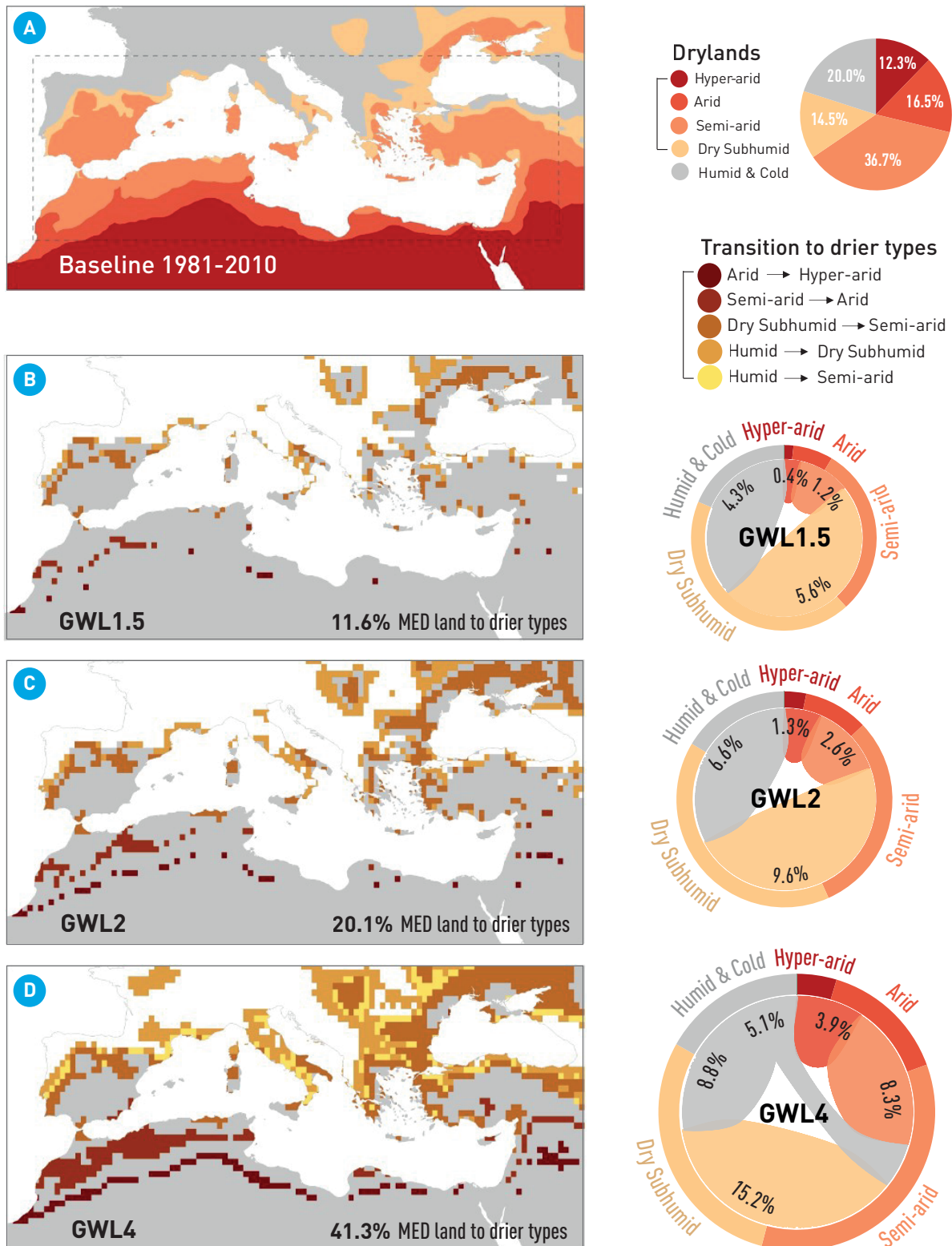


Figure SPM.7 | Distribution of drylands and their subtypes based on observations for the 1981-2010 period. Areal cover of drylands per subtype is estimated within the boundaries of the Mediterranean SREX region (dashed line). (B, C, D) Distribution of projected dryland transitions for three Global Warming Levels (GWLs: +1.5°C, +2°C and +4°C above preindustrial levels), relative to the baseline period. Grey shaded areas in (B), (C) and (D) are drylands of the baseline period. Chord diagrams denote the areal extent of projected transitions in each dryland subtype for each GWL (proportional to the total extent of land changing to drier types) (see Section 4.3.2.4, Fig. 4.15)

which constitute the majority of Mediterranean forests (*medium confidence*). (Section 4.3.2.1).

4.3.2.2 An increase in wildfires, and hence burnt area is projected in Mediterranean Europe under most global warming scenarios. Burnt area could increase across the region by up to 40% for 1.5°C warming and up to 100% from current levels for 3°C warming at the end of the 21st century (*high confidence*). (Section 4.3.2.1).

4.3.2.3 Most Mediterranean drylands will likely become drier and their extent is expected to increase across the region. Global warming projections of 1.5°C, 2°C and 4°C above pre-industrial levels correspond to 12%, 20% and 41% increases in dryland area respectively (*medium confidence*) (Fig. SPM.7). (Section 4.3.2.3).

4.3.2.4 For freshwater systems, projections suggest decreased hydrological connectivity, increased concentration of pollutants during droughts, changes in biological communities as a result of harsher environmental conditions, and a decrease in biological processes like nutrient uptake, primary production, or decomposition. Increased pressure by users on the shrinking water resources will likely aggravate impacts on river ecosystems (*medium confidence*). (Section 4.3.2.5).

4.3.3 For most ecosystems, management options exist that can enhance resilience under environmental change. (Section 4.3.3).

4.3.3.1 Promotion of "climate-wise connectivity" through permeability of landscapes, conservation or creation of dispersal corridors and habitat networks may all facilitate the upward migration of lowland species to mountains in order to adapt to new climate change conditions (*medium confidence*). (Section 4.3.3.2).

4.3.3.2 Promotion of more adequate forest management taking into account local conditions and future projections can improve the adaptation of Mediterranean forests to warmer climates (e.g., mixed-species forest stands, thinning, management of understory). The management of spatial heterogeneity in landscapes can help reduce fire extent under climate warming (*low confidence*). (Section 4.3.3.1).

4.3.3.3 Preserving the natural flow variability of Mediterranean rivers and streams and wide riparian zones, along with reductions in water demand may assist adaptation of freshwater ecosystems to future environmental change (*medium confidence*). (Section 4.3.3.5).

5 - Society

5.1 Development

5.1.1 For this report, sustainable development seeks to address the needs of current and future generations, utilizing natural resources in ways that preserve and sustain them, and ensure equitable access to them in the present and the future. If losses in well-being are to be avoided for future generations, sustainability strategies will need to improve well-being and environmental sustainability at the same time. (Section 5.1.1.1).

5.1.2 Due to the growing impact of climate change on population, institutional response is increasingly needed, at a local, national and international level. This means mitigating, adapting and regulating the action of business and other multinational enterprises, and taking into account human rights issues. (Section 5.1.1.2).

5.1.2.1 Climate-proofing infrastructure across the entire Mediterranean region is necessary to with-

stand present and future climate change impacts in the coming decades. Investments in research and development greatly reduce the costs of adaptation (*high confidence*). (Section 5.1.1.3).

5.1.2.2 The Mediterranean has a rich history as well as exceptional natural and cultural landscapes, which attracted more than 360 million tourists in 2017. In the past 20 years, the gross domestic product contribution from the tourism sector has steadily increased by 60% in Mediterranean countries. Climate change will likely impact the thermal comfort of tourists during the main season. Sea-level rise will likely affect beaches and cultural heritage sites (*high confidence*) (Section 5.1.1.3).

5.1.2.3 A significant part of Mediterranean tourism is oriented towards outdoor activities, which if unmitigated, are at risk of further degrad-

ing natural resources, including freshwater availability (*high confidence*). (Section 5.1.1.3).

5.1.2.4 Mediterranean tourism has a major role for employment throughout the region, and has the potential to become more resilient to climate change than the overall economy. Sustainable tourism can secure significant employment and help offset the negative economic impact of climate change (*medium confidence*). (Section 5.1.1.3).

5.1.3 Poverty, inequalities and gender imbalances relate both directly and indirectly to the achievement of sustainable development in Mediterranean countries. The presence of these imbalances, both relative and absolute, hampers economic development, de facto blocking parts of society from the benefits of higher standards of living (Section 5.1.1.3).

5.1.3.1 The loss to human development due to inequality over the past few years (2010 to 2017) is consistently more significant in southern Mediterranean countries than northern Mediterranean countries (*high confidence*). (Section 5.1.1.3; Box 5.1.1).

5.1.3.2 Gender inequalities are significant in Mediterranean countries, ranked between the 18th position and the 159th (out of 164) in the global ranking of the Gender Development Index (*high confidence*). (Section 5.1.1.3; Box 5.1.2).

5.1.3.3 Climate change education means active participation of the community, especially children and youth as agents of change and enhanced collaboration between education policymakers and researchers to set the basis of educational policy and actions in scientific knowledge and expertise (*medium confidence*). (Section 5.1.1.4).

5.1.4 The expected increasingly extreme climate conditions and pollution of the Mediterranean Basin are likely to result in economic vulnerabilities and risks of higher intensity than in other European regions. (Section 5.1.2).

5.1.4.1 Higher intensity and more recurrent flash-floods with higher mortality in the eastern

Mediterranean directly affect agriculture, commerce, tourism and industry (*medium confidence*). (Section 5.1.2).

5.1.4.2 The effect of sea level rise, together with changes in storm features is likely to seriously affect port operations, slowing down trade operations and productivity levels (*medium confidence*). (Section 5.1.2).

5.1.4.3 The economic impact on tourism depends on the country and the season. Some adaptation to warming can be achieved by spreading out tourism offers to the spring and autumn. Northern Mediterranean regions could experience climate-induced tourism revenue decreases of up to -0.45% of gross domestic product per year by 2100 (*medium confidence*). (Section 5.1.2).

5.1.4.4 Economic costs due to droughts (e.g., on food security) may exceed those caused by earthquakes or floods (*low confidence*). (Section 5.1.1.3).

5.1.5 The success of adaptation strategies will involve consideration of the specific regional climate conditions, in sectoral, political and socio-economic contexts by ensuring dialogue between stakeholders, through cooperative structures, knowledge transfer and monitoring progress to support regular reviews of policy objectives and the inclusion of new scientific information when it becomes available. (Section 5.1.3).

5.1.5.1 The variants of sustainable urban growth represented by sustainable cities, resilient cities, green cities or low carbon cities bring opportunities to create pathways for transformative and sustainable urban development (*high confidence*). (Section 5.1.3.1).

5.1.5.2 Stronger pollution and greenhouse gas emissions control instruments can be deployed. Institutional approaches may facilitate internalization of externalities. Command and control instruments may have an action on production inputs, emission outputs, location or production techniques. Economic incentive (market-based) instruments include taxes, liability payments, emission permits, subsidies etc. (Section 5.1.3.2, Table 5.3).

5.2 Human health

5.2.1 Environmental change has already led to a wide range of impacts on human health in Mediterranean countries, and most trends are likely to continue. (Section 5.2.1.1).

5.2.1.1 Direct impacts are related to exposure to extreme events as heat waves and cold spells, floods and storms. Interaction with environmental systems leads to indirect impacts such as changes in water availability and quality, in food availability and quality, rising air pollution including pollution from forest fires, and changing patterns of vector-, food- and water-borne diseases (high confidence). (Section 5.2.1.1).

5.2.1.2 Population vulnerability to the impacts of environmental and climate change is strongly influenced by population density, level of economic development, food availability, income level and distribution, local environmental condi-

tions, pre-existing health status, and the quality and availability of public health care (high confidence). (Section 5.2.2).

5.2.1.3 Vulnerable Mediterranean populations include the elderly, the poor, and people with pre-existing or chronic medical conditions, displaced people, pregnant women and babies. People who are disadvantaged due to a lack of shelter, clean water, energy or food are more at risk from extreme events (high confidence). (Section 5.2.2).

5.2.2 Heat waves are responsible for high mortality rates causing tens of thousands of premature deaths, especially in large cities and among the elderly. Heat-related morbidity and mortality has been partially reduced in recent years by more efficient protection of people (high confidence) (Fig. SPM.8). (Section 5.2.3.1).

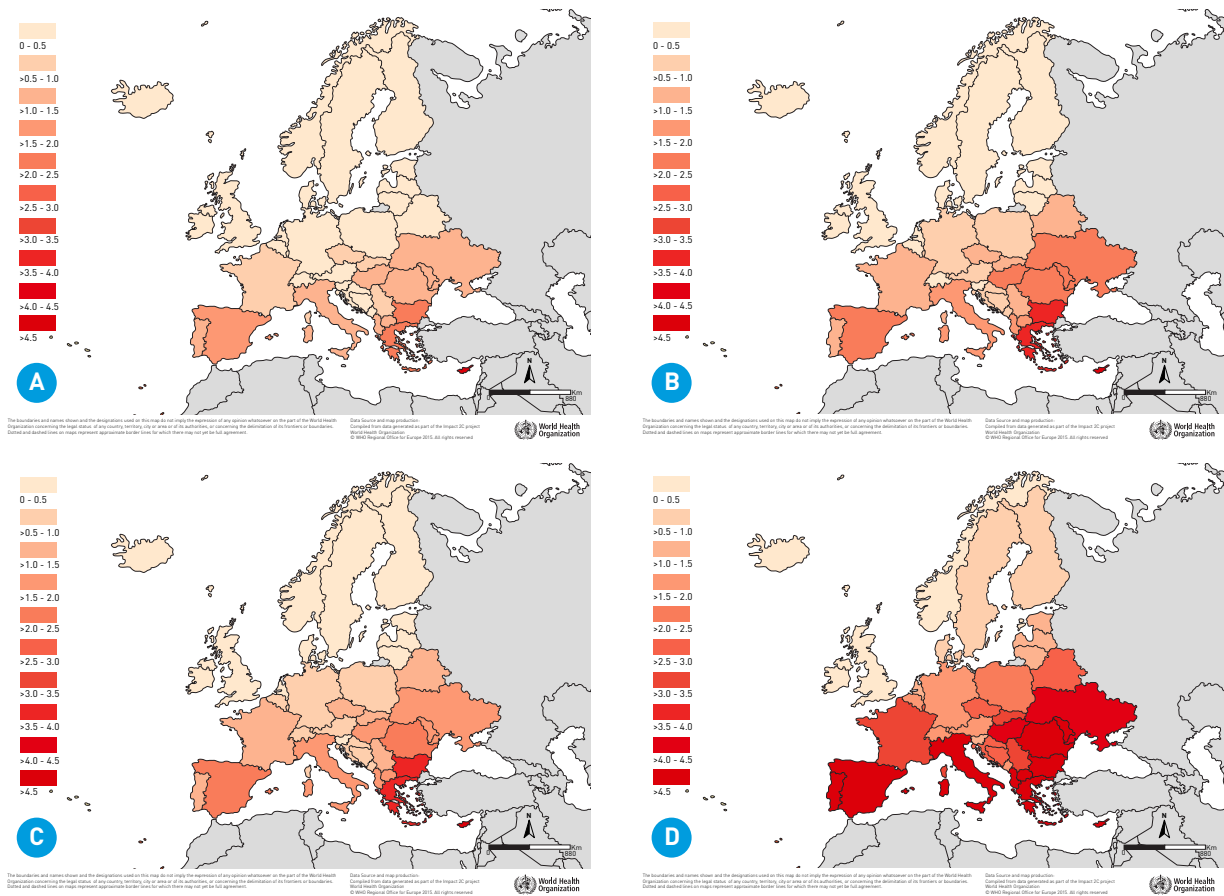


Figure SPM.8 | Attributable fraction of heat-related deaths during summer with different climate scenarios by country in Europe. A) RCP4.5 in 2050; B) RCP8.5 in 2050, C) RCP4.5 in 2085 and D) RCP8.5 in 2085 (Kendrovski et al., 2017).

5.2.2.1 Most Mediterranean cities are compact and densely populated and have experienced strong impacts from extremely high temperatures on their population (*medium confidence*). (Section 5.2.3.1).

5.2.2.2 In recent decades, mortality rates due to heat stress have been reduced through national plans and alert systems that have raised risk awareness and avoidance among the population (*high confidence*). (Section 5.2.3.1).

5.2.2.3 The European population at risk for heat stress is expected to increase (4% annually) in the coming years and could increase to 20 to 48% by 2050, depending on different combinations of socio-economic scenarios. Vulnerability varies between regions and the Mediterranean region will be among the most affected. Annual mortality attributable to heat in Mediterranean Europe will increase by a factor of 1.8 and 2.6 for moderate (RCP4.5) or high (RCP8.5) global warming levels, respectively, by the middle of the 21st century, while by the end of the century the increase will be by a factor of 3 and 7 respectively (*high confidence*). (Section 5.2.5.2).

5.2.2.4 The impact of heat on mortality will be more influenced by socio-economic factors due to the impacts on vulnerability than by the exposure to high temperatures (*medium confidence*). (Section 5.2.5.2).

5.2.3 Despite the rise in mean temperature, cold waves are not likely to disappear (*high confidence*). Moderate cold-related risk will remain a temperature-related risk throughout the 21st century, in combination with risks due to pathogenic agents (*low confidence*). (Section 5.2.5.3 and 5.2.3.4).

5.2.4 Environmental changes in the Mediterranean Basin will likely exacerbate risks for vector-borne disease outbreaks in the Mediterranean region, since warmer climate and changing rainfall patterns (together with landscape management) may create hospitable environments for mosquitoes, ticks, and other climate-sensitive vectors, particularly for the West Nile Virus, Chikungunya and Leishmaniasis (*medium confidence*). (Section 5.2.3.3).

5.2.4.1 Projections for 2025 show an elevated risk for vector-borne diseases in the Mediterranean. By 2050, the West Nile Virus high-risk areas are expected to expand further and the transmission seasons will extend significantly (*medium confidence*). (Section 5.2.5.4).

5.2.4.2 Future changes in the habitability of the Mediterranean Basin for vector-based disease vectors and pathogens vary geographically and will significantly modify the extent and transmission patterns in the area. A significant reduction of habitat suitability for the tiger mosquito *Aedes albopictus* (vector for chikungunya and dengue) is projected for the middle of the 21st century in southern Europe and the Mediterranean related to significant increase in summer temperatures (*high confidence*). (Section 5.2.5.4).

5.2.4.3 With rising average temperatures and increasing frequency and length of heat waves, a rising number of cases of food-borne illness must be expected for business-as-usual scenarios, unless education, epidemiological surveillance and enforcement (related to food safety) are intensified (*high confidence*). (Section 5.2.5.4).

5.2.5 Every year, around one million fatalities are attributed to outdoor and indoor air pollution in the European and eastern Mediterranean regions. (Section 5.2.4.1).

5.2.5.1 Synergistic impacts are observed between ozone levels, particulate matter concentrations and climate, especially during heat wave days, with high temporal and spatial variability with a 1.66% increase in mortality for each 1°C temperature increase on low ozone level days and an increase of up to 2.1% on days with high ozone levels. Reducing the exposure to particulate matter improves the life expectancy of Europeans by about 8 months (*high confidence*). (Section 5.2.4.1).

5.2.5.2 Exposure to forest fire smoke and pollutants of natural origin, such as Saharan dust, is related to increased mortality, respiratory and cardiovascular diseases with variable impacts depending on age (*medium confidence*). (Section 5.2.4.2).

5.2.5.3 Ozone-related morbidity and mortality is expected to increase by 10-14% from 2021 to 2050 in several Mediterranean countries. The combined influence of O₃ and PM_{2.5} (particulate matter with a diameter of less than 2.5 µm) will increase European mortality by 8-11% in 2050 and by 15-16% in 2080 compared to the year 2000 (*medium confidence*). (Section 5.2.5.5).

5.2.6 Climate change and extreme events have a negative impact on mental health for people who experience loss of homes, destruction of settlements and damage to community infrastructure (*medium confidence*) (Section 5.2.4.3). Displacement may lead to adverse health outcomes, especially

for vulnerable population groups as well as those who suffer from chronic diseases (*medium confidence*). (Section 5.2.4.4).

5.2.7 Prevention plans related to human health should be developed further by specifically considering climate change risks. Most mitigation and adaptation measures for climate change offer

synergies with other public health issues, notably air pollution. Mediterranean countries need to enhance cross-border collaboration, as adaptation to many of the health risks (e.g., vector-borne diseases, droughts, migration) requires collaboration across borders and also across the different parts of the basin (*low confidence*). (Section 5.2.6.2).

5.3 Human security

5.3.1 Human security is a condition that exists when the vital core of human lives is protected, and where people have the freedom and capacity to live with dignity (*medium confidence*). (Section 5.3.1.1).

5.3.1.1 Environmental and climate change constitutes a threat to the enjoyment of economic, social and cultural rights, acting as a risk multiplier and a key crosscutting issue for multiple aspects of human rights and international justice. (Section 5.3.2.2).

5.3.1.2 There is a substantial divide between Mediterranean countries when it comes to individual circumstances and the specific impacts of environmental change on security, which depend on climate but also geographical, social, cultural, economic and political conditions. (Section 5.3.1.1).

5.3.2 Recent human migration (mostly within southern and eastern countries of the Mediterranean Basin but also between the South and the North) can partially be attributed to environmental change, but other drivers such as economic and political factors are usually more important. While slow-onset environmental and climate-related events have significantly affected human well-being in some areas, adaptation is usually possible for reducing the need for human migration. In contrast, fast-onset events with associated environmental degradation (such as storms and floods) have likely led to migration, mostly temporary and over short-distances (*medium confidence*). (Section 5.3.2.3).

5.3.3 Climate fluctuations have likely played a role in the decline or collapse of ancient civilizations, probably involving situations of increased violent conflicts. For the contemporary period, several studies indicate a link between armed conflict and environmental change, but other scholars disagree (*low confidence*). (Section 5.3.2.4; Box 5.3.1)

5.3.3.1 Negative weather shocks such as dry spells occurring during the crop growing season by reducing agricultural production and income may increase the continuation and intensity rather than the

outbreak of civil conflicts, especially in regions with agriculturally-dependent and politically excluded groups. Several recent studies identify a link between higher food prices caused by climate change and urban social unrest in Africa. Rising food prices are considered to have played a significant role in the Arab Spring unrest across North Africa and the Middle East in 2011, although such forms of violence are mostly triggered by a complex set of political and economic factors rather than only by higher food prices caused by climatic change (*low confidence*). (Section 5.3.2.4).

5.3.3.2 For conflict, the impact of expected future environmental change remains rather speculative. However, recent historical experience makes it likely that severe and rapid climate change could further exacerbate political instability in the poorest parts of the Mediterranean Basin (*medium confidence*). (Section 5.3.3.2).

5.3.3.3 Knowledge is limited regarding how natural disasters interact with and/or are conditioned by socio-economic, political, and demographic contexts to cause conflict. Future research remains necessary. (Section 5.3.5).

5.3.4 Parts of the rich Mediterranean cultural heritage, notably many UNESCO World Heritage Sites, are directly threatened by sea-level rise or other aspects of environmental change. There is an urgent need for mitigation and adaptation as a large number of world heritage sites are already at risk today. By 2100, flood risk may increase by 50% and erosion risk by 13% across the Mediterranean region (*high confidence*). (Section 5.3.3.1).

5.3.5 Culture is a key factor to the success of environmental change adaptation policies in the highly diverse multicultural setting of the Mediterranean Basin. Climate adaptation policies have the potential to infringe on human rights in the Mediterranean region if they are disconnected from concerns such as justice, equity, poverty alleviation, social inclusion, and income redistribution (*high confidence*). (Section 5.3.4.1).

6 - Managing future risks and building socio-ecological resilience in the Mediterranean

6.1 Although national governments have an important role to play in reducing the burden of climate change on human health, it is at the local scale that most actions and measures are taken. These measures include (but are not limited to) the improvement of housing and infrastructure, the education and awareness-raising of the most vulnerable communities, the implementation of early warning systems, the strengthening of local emergency and healthcare services, and the general improvement of the adaptive capacity of the community and local institutions (*high confidence*). (Section 6.2.2).

6.2 Sustainable water security measures require integrated approaches which include water saving technologies, such as new equipment in irrigation agriculture and households, often complemented by improved water efficiency, multi-scale storages, use of unconventional water sources stemming from recharging wastewater or sea water desalinization. Some of these measures may cause environmental impacts due to soil contamination, energy consumption or coastal ecosystem degradation (*high confidence*). (Section 6.3.3).

6.3 Adaptation of Mediterranean agriculture to water scarcity will benefit from more sustainable approaches. Many studies on no tillage and agroforestry in the Mediterranean show that these practices may have positive effects on the soil by keeping more water, therefore enhancing yields, especially in water-stressed years (Section 6.4.3). These strategies also have benefits for climate mitigation, since conservation agriculture emits less greenhouse gases and enhances soil carbon sequestration and storage (*medium confidence*). (Section 6.4.2).

6.4 Anticipated changes in fire regimes can have significant impacts on natural and social systems. These impacts can be exacerbated by some of the current fire suppression policies, such as deployment of prescribed fire over large tracts of land (Section 6.5.3). Transformative changes in fire management practices in the Mediterranean countries are necessary for reducing risk and vulnerability and increasing natural and societal resilience, e.g., development of socio-economic sustainable activities that ensure low overall landscape risk (*medium confidence*). (Section 6.5.4).

6.5 Land Degradation Neutrality is a conceptual framework to halt the loss of land due to unsustainable management and land use changes. Its purpose

is to maintain the land resource base so that it can continue to supply ecosystem services while enhancing the resilience of the communities that depend on the land. This concept, endorsed by the UNCCD Parties and the sustainable development goals (SDG), just starts to be applied, but could beneficially be extended to further Mediterranean areas (*low confidence*). (Section 6.6.4).

6.6 Interconnections between hazards may result in consecutive and compound events that can lead to non-linear increases in the magnitude of individual events, thus challenging the resilience of populations living in floodplains. Good practices in flood management include development of dedicated early warning systems, construction of check dams, improvement of drainage systems in urbanized areas, emergency management plans in addition to urban planning for resilience and strategic retreat and nature-based solutions, such as reforestation in upstream areas, floodplain restoration and bank erosion protection, and adequate agricultural practices for retaining water (*medium confidence*). (Section 6.8.2).

6.7 Sea-level rise will lead to increases in coastal-flood and erosion risk along the entire Mediterranean coast. Proactive adaptation to these hazards is essential for maintaining the functions of coastal zones. Coastal adaptation practices can be classified in the following broad categories: Protect, accommodate, advance, and retreat. Nature-based protection solutions, i.e. beach and shore nourishment as well as dune or wetland restoration, is becoming a more common alternative to hard structures. Flood fatalities are reduced as societies are learning to live with flood hazards (*medium confidence*). (Section 6.9.2).

6.8 Tourism and recreation, red coral extraction, and fisheries (both capture and aquaculture production) are the sectors that are most vulnerable to sea acidification (Section 6.11.1). Recruitment and seed production present possible bottlenecks for shellfish aquaculture in the future since early life stages are vulnerable to acidification and warming (Section 6.11.1). As an example, seagrasses may provide "refugia" from ocean acidification for associated calcifying organisms, as their photosynthetic activity may raise pH above the thresholds for impacts on calcification and/or limit the time spent below some critical pH thresholds (*medium confidence*). (Section 6.11.4).

6.9 Although the level of non-indigenous species arrivals will likely remain high in northern countries

in the coming decades, their presence will likely increase substantially in southern and eastern countries where biodiversity may be high but capacity to manage non-indigenous species is low. In such places, unmanaged non-indigenous species may threaten human livelihoods (Section 6.12.1). Only few non-native species succeed in establishing in their new locations and gaining importance, but those that do can result in billions of dollars in costs (medium confidence). (Section 6.12.2).

6.10 Only few Mediterranean cities have local climate plans that consider mitigation and adaptation in a joint manner. There is an urgent need for more integrated local climate plans. Cities, in particular, need to become more resilient to environmental change as impacts will be disproportionately high in these locations due to a concentration of population and assets in combination with hazard-amplifying conditions (e.g., increased runoff through soil sealing, urban heat island effect). This requires knowledge exchange and promotion of ambitious action against climate and environmental change and new approaches to urban development (medium confidence). (Section 6.13).

Draft decision IG.25/5

Amendments to Annexes I, II, and IV to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution of 15 March 2019, UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, and in particular article 23 thereof, which establishes the amendment procedure for Annexes to the Barcelona Convention and to its Protocols,

Having also regard to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities herein after referred to as “the LBS Protocol”, and in particular Article 14.2 (b) thereof, which provides that the function of the meetings of the Parties to the Protocol shall be, *inter alia*, to revise and amend any Annex to the Protocol, as appropriate,

Recalling Decision IG.24/10 on Main elements of the six Regional Plans to Reduce/Prevent marine pollution from Land-based Sources; Updating the Annexes to the LBS and Dumping Protocols of the Barcelona Convention, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Conscious of the need to update the Annexes to the LBS Protocol to reflect the regulatory, scientific and technical developments related to land-based sources activities that have been achieved at both global and regional levels, including relevant developments under the Mediterranean Action Plan (MAP)-Barcelona Convention system, with particular focus on those developments related to the implementation of the ecosystem approach for achieving good environmental status (GES) of the Mediterranean Sea and coast, and to the enhanced integration of the sustainable consumption and production and circular economy approaches,

Appreciating the work delivered by the Working Group of Experts (Videoconference, 10 December 2020), which was mandated to update the Annexes to the LBS Protocol,

Having considered the report of the MED POL Focal Points Meeting (Videoconference, 27-28 May 2021),

1. *Adopt* the amendments to the Annexes I, II and IV to the LBS Protocol, set out in the Annex to this Decision;
2. *Agree*, in accordance with Article 23 (2) (iv), to determine a period of 60 days since the adoption of this Decision, within which, any Contracting Party that is unable to approve the amendments to so notify the Depositary in writing;
3. *Request* the Depositary to communicate without delay to all Contracting Parties the adopted amendments, pursuant to article 23 (2) (iii) of the Barcelona Convention.

Annex I

ANNEX I

ELEMENTS TO BE TAKEN INTO ACCOUNT IN THE PREPARATION OF ACTION PLANS, PROGRAMMES AND MEASURES FOR THE ELIMINATION OF POLLUTION FROM LAND-BASED SOURCES AND ACTIVITIES

This annex contains elements which will be taken into account in the preparation of action plans, programmes and measures for the elimination of pollution from land-based sources and activities referred to in articles 5, 7 and 15 of this Protocol.

Such action plans, programmes and measures will aim to cover the sectors of activity listed in section A and also cover the groups of substances enumerated in section C, selected on the basis of the characteristics listed in section B of the present annex.

Priorities for action should be established by the Parties, on the basis of the relative importance of their impact on public health, the environment and socio-economic and cultural conditions. Such programmes should cover point sources, diffuse sources and atmospheric deposition.

In preparing action plans, programmes and measures, the Parties, in conformity with the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, adopted in Washington, D.C. in 1995, will give priority to substances that are toxic, persistent and liable to bioaccumulate, in particular to persistent organic pollutants (POPs), as well as to wastewater treatment and management.

A. SECTORS OF ACTIVITY

The following sectors of activity (not listed in order of priority) will be primarily considered when setting priorities for the preparation of action plans, programmes and measures for the elimination of the pollution from land-based sources and activities:

1. Energy production;
2. Fertilizer production;
3. Production and formulation of biocides;
4. The pharmaceutical industry;
5. Petroleum refining;
6. The paper, paper-pulp and wood production and processing industry;
7. Cement production;
8. The tanning and dressing industry including leather dyeing and finishing;
9. The metal industry including thermal processes in the metallurgical industry;
10. Mining and quarrying;
11. The shipbuilding and repairing industry;
12. Harbour operations;
13. The textile industry including textile pre-treatment, dyeing and finishing;
14. The electronic industry;
15. The recycling industry;
16. Other sectors of the organic chemical industry;
17. Other sectors of the inorganic chemical industry;
18. Tourism and leisure activities and infrastructure, including cruise shipping and leisure craft;
19. Agriculture;

20. Animal husbandry including animal slaughterhouses and animal by-products industries;
21. Food processing;
22. Aquaculture and fishing;
23. Treatment and disposal of hazardous wastes;
24. Treatment and disposal of urban wastewater;
25. Management, including treatment and disposal, of urban solid waste;
26. Disposal of sewage sludge;
27. The waste management industry;
28. Incineration of waste and management of its residues;
29. Works which cause physical alteration of the natural state of the coastline including physical restructuring of rivers, coastline or seabed (water management), and dredging;
30. Transport;
31. Construction;
32. Water collection and supply including desalination of seawater.
33. Mixed industrial zones including at least one of the above sectors.

B. CHARACTERISTICS OF SUBSTANCES IN THE ENVIRONMENT

For the preparation of action plans, programmes and measures, the Parties should take into account the characteristics listed below:

1. Persistence;
2. Toxicity or other noxious properties (e.g. carcinogenicity, mutagenicity, teratogenicity);
3. Bioaccumulation;
4. Radioactivity;
5. The ratio between observed concentrations and no observed effect concentrations (NOEC);
6. The risk of eutrophication of anthropogenic origin;
7. The risk of acidification;
8. Health effects and risks;
9. Transboundary significance;
10. The risk of undesirable changes in the marine ecosystem and irreversibility or durability of effects, in particular:
 - a) adverse impacts on species composition and spatial and temporal variation per species/population, including distribution, abundance, and/or biomass, fecundity, survival and mortality/injury rates and behavior
 - b) adverse impacts on habitats characteristics;
11. Interference with the sustainable exploitation of living resources or with other legitimate uses of the sea;
12. Effects on the taste and/or smell of marine products for human consumption;
13. Effects on the smell, colour, transparency or other characteristics of seawater;
14. Distribution pattern (i.e. quantities involved, use patterns and probability of reaching the marine environment);
15. Potential for long-range environmental transport and climate change.

C. CATEGORIES OF SUBSTANCES

The following categories of substances and sources of pollution will serve as guidance in the preparation of action plans, programmes and measures:

1. Organohalogen compounds and substances which may form such compounds in the marine environment. Priority will be given to Aldrin, Chlordane, DDT, Dieldrin, Dioxins and Furans, Endrin,

Heptachlor, Hexachlorobenzene, Mirex, PCBs, Toxaphene; Polychlorinated Biphenyls (PCBs), Polychlorinated dibenzodioxins (PCDDs), Polychlorinated dibenzofurans (PCDFs), endosulfan and its related isomers, hexachlorocyclohexane, Diethylhexylphthalate (DEHP), Chlordecone, Hexabromobiphenyl, Hexabromodiphenyl ether and heptabromodiphenyl ether, Lindane, Pentachlorobenzene, Tetrabromodiphenyl ether and pentabromodiphenyl ether, Perfluorooctane sulfonic acid and its salts, and perfluorooctane sulfonyl fluoride, hexabromocyclododecane (HBCD), hexachlorobutadiene, pentachlorophenol and its salts and esters, and polychlorinated naphthalenes;

2. Suspended/Particulate Matter, total Volatile Organic Compounds (VOC), Nitrogen oxides, NH₃, sulfur oxide, ;
3. Organophosphorus compounds and silicon substances which may form such compounds in the marine environment;
4. Organotin compounds and substances which may form such compounds in the marine environment;
5. Polycyclic aromatic hydrocarbons;
6. Heavy metals and their compounds. Priority given to chromium, cadmium, lead, mercury, nickel, organic tin compounds, organic mercury compounds and organic lead compounds;
7. Used lubricating oils;
8. Radioactive substances, including their wastes, when their discharges do not comply with the principles of radiation protection as defined by the competent international organizations, taking into account the protection of the marine environment;
9. Biocides and their derivatives;
10. Pathogenic microorganisms;
11. Crude oils and hydrocarbons of petroleum origin;
12. Cyanides and fluorides;
13. Non-biodegradable detergents and other nonbiodegradable surface-active substances;
14. Compounds of nitrogen and phosphorus and other substances which may cause eutrophication, including biodegradable substances expressed as Biological Oxygen Demand (BOD) or Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC), Total Nitrogen and Total Phosphorus;
15. Litter (any persistent manufactured or processed solid material which is discarded, disposed of, or abandoned in the marine and coastal environment) including plastics, microplastic and micro-sized litter;
16. Thermal discharges and input of other forms of energy;
17. Acid or alkaline compounds which may impair the quality of water;
18. Non-toxic substances that have an adverse effect on the oxygen content of the marine environment;
19. Non-toxic substances that may interfere with any legitimate use of the sea;
20. Non-toxic substances that may have adverse effects on the physical or chemical characteristics of seawater.
21. Brine;
22. Phenolic compounds, brominated flame retardants, polycyclic aromatic hydrocarbons and short chain chlorinated paraffins;
23. Chemicals used for the preservation and/or treatment of wood, timber, wood pulp, cellulose, paper, hides and textiles.

ANNEX II

ELEMENTS TO BE TAKEN INTO ACCOUNT IN THE ISSUE OF THE AUTHORIZATIONS FOR DISCHARGES OF WASTES

With a view to the issue of an authorization for the discharges of wastes containing substances referred to in article 6 to this Protocol, particular account will be taken, as the case may be, of the following factors:

A. CHARACTERISTICS AND COMPOSITION OF THE DISCHARGES

1. Type and size of point or diffuse source (e.g. industrial process).
2. Type of discharges (e.g. origin, average composition).
3. State of waste (e.g. solid, liquid, sludge, slurry).
4. Total amount (volume discharged, e.g. per year).
5. Discharge pattern (continuous, intermittent, seasonally variable, etc.).
6. Concentrations with respect to relevant constituents of substances listed in annex I and of other substances as appropriate.
7. Physical, chemical and biochemical properties of the waste discharges.

B. CHARACTERISTICS OF DISCHARGE CONSTITUENTS WITH RESPECT TO THEIR HARMFULNESS

1. Persistence (physical, chemical, biological) in the marine environment.
2. Toxicity and other harmful effects.
3. Accumulation in biological materials or sediments.
4. Biochemical transformation producing harmful compounds.
5. Adverse effects on the oxygen content and balance.
6. Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other sea-water constituents which may produce harmful biological or other effects on any of the uses listed in section E below.
7. All other characteristics as listed in annex I, section B.

C. CHARACTERISTICS OF DISCHARGE SITE AND RECEIVING ENVIRONMENT

1. Hydrographic, meteorological, geological and topographical characteristics of the coastal area.
2. Location and type of the discharge (outfall, canal outlet, etc.) and its relation to other areas (such as amenity areas, spawning, nursery, and fishing areas, shellfish grounds) and other discharges.
3. Initial dilution achieved at the point of discharge into the receiving environment.
4. Dispersion characteristics such as effects of currents, tides and wind on horizontal transport and vertical mixing.
5. Receiving water characteristics with respect to physical, chemical, biological and ecological conditions in the discharge area, as well as the ecosystem functions and processes, in particular temperature, hydrology, bathymetry, turbidity, transparency, sound, salinity, nutrients, organic carbon, chlorophyll, dissolved gases, acidity (pH), links between species of marine birds, mammals, reptiles, fish and cephalopods and habitats, pelagic-benthic community shifts and productivity.
6. Capacity of the receiving marine environment to receive waste discharges without undesirable effects.

D. AVAILABILITY OF WASTE TECHNOLOGIES

The methods of waste reduction and discharge for industrial effluents as well as domestic sewage should be selected taking into account the availability and feasibility of:

- (a) Alternative treatment processes;
- (b) Re-use or elimination methods;
- (c) On-land disposal alternatives;
- (d) Appropriate low-waste technologies.

E. POTENTIAL IMPAIRMENT OF MARINE ECOSYSTEMS AND SEA-WATER USES

1. Effects on human health through pollution impact on:

- (a) Edible marine organisms extraction and cultivation of living resources;
- (b) Bathing waters;
- (c) Aesthetics including color and odor;

2. Effects on marine ecosystems including food webs, in particular living resources, endangered species and critical habitats including from:

- (a) Noise
- (b) Artificial light
- (c) Acidification
- (d) Eutrophication
- (e) Hydrographic changes

3. Physical restructuring of rivers, coastline or seabed

4. Effects on other legitimate uses of the sea.

ANNEX IV

CRITERIA FOR THE DEFINITION OF BEST AVAILABLE TECHNIQUES AND BEST ENVIRONMENTAL PRACTICE

A. BEST AVAILABLE TECHNIQUES

1. The use of the best available techniques shall aim at preventing or minimizing the environmental impacts along all stages of life cycle of products and keeping as long as possible the value of products, materials and resources in the economy, minimizing the generation of waste.
2. The term “best available techniques” means the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for preventing and, where is not practicable, reducing discharges, emissions and waste. In determining whether a set of processes, facilities and methods of operation constitute the best available techniques in general or individual cases, special consideration shall be given to:
 - (a) comparable processes, facilities or methods of operation which have recently been successfully tried out;
 - (b) technological advances and changes in scientific knowledge and understanding;
 - (c) the economic feasibility of such techniques;
 - (d) time limits for installation in both new and existing plants;
 - (e) the nature, effects and volume of the discharges and emissions concerned;
 - (h) the commissioning dates for new or existing installations;
 - (i) the consumption and nature of raw materials used in the process and its energy efficiency;
 - (j) the need to prevent or reduce the overall impact of the releases to the environment and the risks to it;
 - (k) the need to prevent accidents and to minimize their consequences for the environment;
 - (l) the need to ensure occupational health and safety at workplaces.
 - (m) the need to use non-toxic substances in view of facilitating non-toxic waste streams to facilitate recovery and recycling
 - (p) the need to keep material and products in use as long as possible
3. It therefore follows that what is “best available techniques” for a particular process will change with time in the light of technological advances, economic and social factors, as well as changes in scientific knowledge and understanding.
4. If the reduction of discharges and emissions resulting from the use of best available techniques does not lead to environmentally acceptable results, additional measures have to be applied.
5. “Techniques” include both the technology used and the way in which the installation is designed, built, maintained, operated, dismantled and recycled.

B. BEST ENVIRONMENTAL PRACTICE

6. The term “best environmental practice” means the application of the most appropriate combination of environmental control measures and strategies to prevent and control pollution, to design out waste and pollution, to keep products and material in use and to regenerate natural systems. In making a selection for individual cases, at least the following graduated range of measures should be considered:

- (a) the provision of information and education to the public and to users about the environmental consequences of choice of particular activities and choice of products, their use and ultimate disposal;
- (b) the development and application of codes of good environmental practice, which cover all aspects of the activity in the product's life;
- (c) the mandatory application of labels informing users of environmental risks related to a product, its use and ultimate disposal;
- (d) saving resources, including energy;
- (e) making collection and disposal systems as well as reuse centres available to the public;
- (f) avoiding the use of hazardous substances or products and the generation of hazardous waste;
- (g) establishing processes (i.e., industrial symbiosis) by which wastes, or by-products of an industry or industrial process become the raw materials for another;
- (h) the application of economic instruments to activities, products or groups of products;
- (i) establishing a system of licensing, involving a range of restrictions or a ban;
- (j) the use of eco-labels, eco-design and eco-innovation to identify products proven to be environmentally sound;
- (k) establishing collaboration along the value chain in order to ensure that the origin and value of raw materials remain traceable when closing the loop;

7. In determining what combination of measures constitute best environmental practice, in general or individual cases, particular consideration should be given to:

- (a) the environmental hazard of the product and its production, use and ultimate disposal;
- (b) the substitution by less polluting activities or substances;
- (c) the scale of use;
- (d) the potential environmental benefit or penalty of substitute materials or activities;
- (e) advances and changes in scientific knowledge and understanding;
- (f) time limits for implementation;
- (g) social and economic implications;
- (h) the potential for keeping material and resources in use (e.g., through product services systems)

8. It therefore follows that best environmental practice for a particular source will change with time in the light of technological advances, economic and social factors, as well as changes in scientific knowledge and understanding.

9. If the reduction of inputs resulting from the use of best environmental practice does not lead to environmentally acceptable results, additional measures have to be applied and best environmental practice redefined.

C. GENERAL PREVENTION MEASURES RELATING TO BEST AVAILABLE TECHNIQUES AND BEST ENVIRONMENTAL PRACTICES

10. Priority should be given to the application of BAT and implementation of BEP to the sectors and categories of substances listed in Annex I.

Draft decision IG.25/6

Amendments to the Annex to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution of 15 March 2019, UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, and in particular Article 23 thereof, which establishes the amendment procedure for Annexes to the Barcelona Convention and to its Protocols,

Having also regard to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea, hereinafter referred to as “the Dumping Protocol”, and in particular Article 14 (c) thereof, which provides that the function of the meetings of the Parties to the Protocol shall be to review and amend as required any Annex to the Protocol,

Recalling Decision IG.24/10 on Main elements of the six Regional Plans to Reduce/Prevent Marine Pollution from Land-based Sources; Updating the Annexes to the LBS, and Dumping Protocols of the Barcelona Convention, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Conscious of the need to update the Annexes to the Dumping Protocol to further address emerging marine pollution issues and to reflect the significant regulatory, scientific and technical developments related to dumping activities that have been achieved at both global and regional levels, including relevant developments under the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) and its 1996 Protocol thereof, and under the Mediterranean Action Plan (MAP)-Barcelona Convention system, with particular focus on those developments related to the implementation of the ecosystem approach for achieving good environmental status (GES) of the Mediterranean Sea and coast,

Appreciating the work delivered by the Working Group of Experts (Videoconference on 9 February 2021), which was mandated to update the Annex to the Dumping Protocol,

Recalling the mandate of the Mediterranean Pollution Assessment and Control Programme (MED POL), as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Having considered the report of the MED POL Focal Points Meeting (Videoconference, 27-28 May 2021),

1. *Adopt* the amendments to the Annex to the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea, set out in the Annex to this Decision;
2. *Agreed*, in accordance with Article 23 (2) (iv), to determine a period of 60 days since the adoption of this Decision, within which, any Contracting Party that is unable to approve the amendments to notify so the Depositary in writing;
3. *Request* the Depositary to communicate without delay to all Contracting Parties the adopted amendments, pursuant to article 23 (2) (iii) of the Barcelona Convention.

Annex I

DUMPING PROTOCOL TO THE BARCELONA CONVENTION

ANNEX

The factors to be considered in establishing criteria governing the issue of permits for the dumping of matter at sea taking into account Article 6 include:

A. CHARACTERISTICS AND COMPOSITION OF THE MATTER

1. Total amount and average compositions of matter dumped (e.g. per year).
2. Origin and form (e.g. solid, sludge, liquid, or gaseous within the matter, e.g. gases in sediments, or any mixture of these forms).
3. Properties: physical (e.g. solubility and density), chemical and biochemical (e.g. oxygen demand, nutrients) and biological (e.g. presence of viruses, bacteria, yeasts, parasites, invasive species).
4. Toxicity including but not limited to, trace metals, organohalogens, organosilicons, biocides (e.g. TBT), petroleum hydrocarbons, or other toxic substances, and as their mixtures.
5. Persistence: physical, chemical and biological.
6. Accumulation and biotransformation in biological materials and sediments including but not limited to, trace metals, organohalogens, organosilicons, biocides (e.g. TBT) or other toxic substances.
7. Susceptibility to physical, chemical, and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials.
8. Probability of production of taints or other changes reducing marketability of resources (fish, shellfish, etc.)
9. Presence of marine litter/debris (e.g. plastic materials, micro-litter, etc.).

B. CHARACTERISTICS OF DUMPING SITE AND METHOD OF DEPOSIT

1. Location of the dumping site (e.g. coordinates, depth and distance from the coast), location/distance in relation to other amenities, values and other uses of the sea in the areas under consideration (e.g. amenity areas, spawning, nursery and fishing areas, marine protected areas and exploitable resources).
2. Rate of disposal per specific period (e.g. quantity per day, per week, per month).
3. Methods of packaging and containment, if any.
4. Initial dilution achieved by proposed method of release, particularly the speed of the ship.
5. Physical, chemical and biological characteristics of the water-column and the seabed, including:
 - a) Dispersal characteristics (e.g. effects of currents, tides and wind on horizontal transport and vertical mixing).
 - b) Water characteristics, physical, chemical and biological (e.g. temperature, pH, salinity, turbidity, transparency, stratification, oxygen indices of pollution-dissolved oxygen (DO), chemical oxygen demand (COD), biochemical oxygen demand (BOD5), nitrogen present in organic and mineral form, including suspended matter, other dissolved gases, organic carbon, other nutrients (phosphate and silicate) and productivity).
 - c) Bottom characteristics (e.g. substrate, topography/morphology, geochemical and geological characteristics and biological productivity).
 - d) Levels of underwater noise, particularly in relation to sensitive resources (e.g. cetaceans and pinnipeds, etc.)
6. Existence and effects of other dumpings which have been made in the dumping area (e.g. heavy metal background reading and organic carbon content).
7. Assessment of the constituent fluxes associated with dumping in relation to existing fluxes of substances in the marine environment.
8. Consideration of the physical characteristics of the waste proposed for disposal in relation to the site characteristics and waste assessment.
9. Assessment of potential effects of dumping in the selected site(s) using, *inter alia*, modelling tools and cumulative effects of other activities in the same maritime sector, taking into consideration C.1, C.2 and C.3 under "Section C: General Considerations and Conditions".

10. When issuing a permit for dumping, the Contracting Parties shall endeavour to determine whether an adequate scientific basis exist for assessing the consequences of such dumping in the area concerned, in accordance with the foregoing provisions and taking into account seasonal variations. If it is accepted that a permit can be issued, then a suitable field monitoring programme may be developed/implemented, where appropriate.

C. GENERAL CONSIDERATIONS AND CONDITIONS

1. Possible effects on amenities (e.g. presence of floating or stranded material, turbidity, objectionable odor, discoloration and foaming).

2. Possible effects on marine life, fish and shellfish culture, fish stocks and fisheries, seaweed harvesting and culture, as well as effect on local communities living near islands or near marine protected areas.

3. Possible effects on other uses of the sea (e.g. impairment of water quality for industrial use, such as desalination plants, underwater corrosion of structures, interference with ship operations from floating materials, interference with fishing, mariculture, or navigation through deposit of waste or solid objects on the sea floor and protection of areas of special importance for scientific or conservation purposes).

4. Consideration of possible waste reduction/prevention techniques at source including: a) product reformulation; b) clean production technologies; c) process modification; d) input substitution; e) and on-site, closed-loop recycling.

5. Consideration of the following hierarchy of waste or other matter management options: re-use; off-site recycling; destruction of hazardous constituents; treatment to reduce or remove the hazardous constituents; disposal on land and in water.

6. The practical availability of alternative land-based methods of treatment, disposal or elimination or of treatment to render the matter less harmful for sea dumping.

7. Economic and operational feasibility.

Draft Decision IG.25/7

Amendments to the Annexes to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolutions of 15 March 2019, UNEP/EA.4/Res.10, entitled “Innovation on biodiversity and land degradation”, and UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Having regard to the Protocol concerning the Protection of the Mediterranean Sea Against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, hereinafter referred to as the “Offshore Protocol”, adopted in Madrid, Spain in 1994 and entered into force on 24 March 2011,

Having also regard to Article 23 to the Barcelona Convention, which specifies the procedure to amend the Annexes to the Convention or to any Protocol,

Conscious of the need to update the Annexes to the Offshore Protocol to reflect the significant regulatory, scientific and technical developments related to offshore activities that have been achieved at both regional and global levels, including relevant developments under the Mediterranean Action Plan-Barcelona Convention system, with particular focus on those developments related to the implementation of the ecosystem approach and sustainable consumption and production,

Recalling Decision IG.22/3, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016), on the Mediterranean Offshore Action Plan in the Framework of the Offshore Protocol, in particular its Specific Objective 7 (c),

Having considered the reports of the Second Meeting of the Barcelona Convention Offshore Oil and Gas Group (OFOG) Sub-Group on Environmental Impact (Athens, Greece, 27-28 June 2019) and the Third Meeting of the Barcelona Convention Offshore Oil and Gas Group (OFOG) Sub-Group on Environmental Impact (Online, 3-4 June 2021),

1. *Adopt* the Amended Annexes I, II, III, IV and VII A to the Offshore Protocol, set out in the Annex to this Decision;

2. *Urge* the Contracting Parties to control and timely report on the harmful and noxious substances and materials listed in Annexes I and II, using the online Barcelona Convention Reporting System (BCRS), in line with the reporting obligations under Article 26 of the Barcelona Convention and Article 30 of the Offshore Protocol;

3. *Welcome* the collaborative approach and support offered by industry partners with a view to establishing an effective and sustainable framework to facilitate the implementation of the Offshore Protocol and the Mediterranean Offshore Action Plan;

4. *Agree*, in accordance with Article 23 (2) (iv), to determine a period of 60 days since the adoption of this Decision, within which, any Contracting Party that is unable to approve the amendments to notify so in writing the Depositary;

5. *Request* the Depositary to communicate without delay to all Contracting Parties the adopted amendments, pursuant to article 23 (2) of the Barcelona Convention.

Annex

Amendments to the Annexes to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)

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Appendix 1:**Amendments to ANNEX I to the Offshore Protocol****HARMFUL OR NOXIOUS SUBSTANCES AND MATERIALS THE DISPOSAL OF WHICH IN THE PROTOCOL AREA IS PROHIBITED**

A. The following substances and materials and compounds thereof are listed for the purposes of Article 9, paragraph 4, of the Protocol. They have been selected mainly on the basis of their toxicity, persistence and bioaccumulation:

1. Mercury and mercury compounds, with the exception of mercury within drilling mud/fluids and drilling cuttings up to a maximum of 1 mg/kg dry weight in stock barite. The above exception does not apply in Specially Protected Areas, as determined in Article 21, in coastal or inland waters, or in wetlands
2. Cadmium and cadmium compounds, with the exception of cadmium within drilling mud/fluids and drilling cuttings of 3 mg/kg dry weight in stock barite. The above exception does not apply in Specially Protected Areas, as determined in Article 21, in coastal or inland waters, or in wetlands
3. Organotin compounds and substances which may form such compounds in the marine environment, with the exception of those which are biologically harmless or which are rapidly converted into biologically harmless substances
4. Organophosphorus compounds and substances which may form such compounds in the marine environment, with the exception of those which are biologically harmless or which are rapidly converted into biologically harmless substances
5. Organohalogen compounds and substances which may form such compounds in the marine environment, with the exception of those which are biologically harmless, or which are rapidly converted into biologically harmless substances
6. Polynuclear aromatic hydrocarbons (PAHs), also known as polycyclic aromatic compounds
7. Oil & grease in production water, with the exception of permitted process discharges with an oil in water concentration of less than 30 mg/l, as an average in any calendar month. The discharge concentration of oil in production water shall not exceed 100 mg/l at any time
8. Drilling fluids and drill cuttings within 1.61 km or 0.87 nm from shore
9. Non-aqueous drilling fluids (NAFs), with the exception of NAFs associated with drill cuttings and small volume discharges
10. Oil-based drilling fluids and associated cuttings
11. Copper
12. Lead and organic lead compounds
13. Zinc
14. Phosphorus
15. Aliphatic hydrocarbons, also known as non-aromatic compounds
16. Tin and organic tin compounds
17. Free oil, diesel oil, formation oil
18. 4-(dimethyl butyl amino) diphenylamine (6PPD) (Organic Nitrogen Compounds)
19. Neodecanoic acid, ethenyl ester (Organic Esters)
20. Phthalate Esters
21. Dicofol, endosulfan, hexachlorocyclohexane isomers (HCH), methoxychlor, pentachlorophenol (PCP), trifluralin (Pesticides/Biocides)
22. Phenols
23. Clotrimazole (Pharmaceuticals)
24. Musk xylene (Synthetic musks)
25. Crude oil, fuel oil, oily sludge, used lubricating oils and refined products
26. Persistent synthetic materials which may float, sink or remain in suspension and which may interfere with any legitimate use of the sea

27. Substances having proven carcinogenic, teratogenic or mutagenic properties in or through the marine environment
28. Radioactive substances, including their wastes, if their discharges do not comply with the principles of radiation protection as defined by the competent international organizations, taking into account the protection of the marine environment

B. Annex I does not apply to discharges which contain substances listed above that are below the limits defined jointly by the Parties and, in relation to oil, below the limits defined in Article 10 of this Protocol.

Appendix 2:

Amendments to ANNEX II to the Offshore Protocol

**HARMFUL OR NOXIOUS SUBSTANCES AND MATERIALS THE DISPOSAL OF WHICH
IN THE PROTOCOL AREA IS SUBJECT TO A SPECIAL PERMIT**

- A. The following substances and materials and compounds thereof have been selected for the purpose of Article 9, paragraph 5, of the Protocol.
1. Arsenic
 2. Beryllium
 3. Nickel
 4. Vanadium
 5. Chromium
 6. Biocides and their derivatives not covered in Annex I
 7. Selenium
 8. Antimony
 9. Molybdenum
 10. Titanium
 11. Barium (other than barium sulphate)
 12. Boron
 13. Uranium
 14. Cobalt
 15. Thallium
 16. Tellurium
 17. Silver
 18. Cyanides
- B. The control and strict limitation of the discharge of substances referred to in section A must be implemented in accordance with Annex III.

Appendix 3:

Amendments to ANNEX III to the Offshore Protocol

FACTORS TO BE CONSIDERED FOR THE ISSUE OF THE PERMITS

For the purpose of the issue of a permit required under Article 9, paragraph 7, particular account will be taken, as the case may be, of the following factors:

A. Characteristics and composition of the waste

1. Type and size of waste source (e.g. industrial process);
2. Type of waste (origin, average composition);
3. Form of waste (solid, liquid, sludge, slurry, gaseous);
4. Total amount (volume discharged, e.g. per year);
5. Discharge pattern (continuous, intermittent, seasonally variable, etc.);
6. Concentrations with respect to major constituents, substances listed in Annex I, substances listed in Annex II, and other substances as appropriate;
7. Physical, chemical and biochemical properties of the waste.

B. Characteristics of waste constituents with respect to their harmfulness

1. Persistence (physical, chemical, biological) in the marine environment;
2. Toxicity and other harmful effects;
3. Accumulation in biological materials or sediments;
4. Biochemical transformation producing harmful compounds;
5. Adverse effects on the oxygen content and balance;
6. Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other sea-water constituents which may produce harmful biological or other effects on any of the uses listed in Section E below.

C. Characteristics of discharge site and receiving marine environment

1. Hydrographic, meteorological, geological and topographical characteristics of the area;
2. Location and type of the discharge (outfall, canal, outlet, etc.) and its relation to other areas (such as amenity areas, spawning, nursery and fishing areas, shellfish grounds) and other discharges;
3. Initial dilution achieved at the point of discharge into the receiving marine environment;
4. Dispersion characteristics such as effects of currents, tides and wind on horizontal transport and vertical mixing;
5. Receiving water characteristics with respect to physical, hydrological, chemical, biological and ecological conditions in the discharge area; temperature, hydrology (wave and current regimes, upwelling, mixing, residence time, freshwater input, sea level), bathymetry, turbidity, transparency, noise, salinity, nutrients, organic carbon, dissolved gases, pH, links between

species of marine birds, mammals, reptiles, fish and cephalopods and habitats, pelagic-benthic community shifts and productivity;

6. Capacity of the receiving marine environment to receive waste discharges without undesirable effects.

D. Availability of waste technologies

The methods of waste reduction and discharge for industrial effluents as well as domestic sewage should be selected taking into account the availability and feasibility of:

- (a) Alternative treatment processes;
- (b) Reuse or elimination methods;
- (c) On-land disposal alternatives;
- (d) Appropriate low-waste technologies.

E. Potential impairment of marine ecosystem and sea-water uses

1. Effects on human life through pollution impact on:

- (a) Edible marine organisms;
- (b) Bathing waters;
- (c) Aesthetics.

2. Effects on marine ecosystems, in particular living resources, endangered species and critical habitats.

3. Effects on other legitimate uses of the sea in conformity with international law.

Appendix 4:

Amendments to ANNEX IV to the Offshore Protocol

ENVIRONMENTAL IMPACT ASSESSMENT

1. Each Party shall require that the environmental impact assessment contains at least the following:
 - (a) A description of the geographical boundaries of the area within which the activities are to be carried out, including safety zones where applicable, with particular regard to the environmental sensitivity of areas likely to be affected. Safety zones, where applicable, shall cover areas within a distance of 500 metres around installations and be established in conformity the provisions of general international law and technical requirements;
 - (b) A description of the initial state of the environment of the area, (baseline scenario) and the likely evolution of the state in a “no- project scenario”, on the basis of available information and scientific knowledge;
 - (c) An indication of the nature, aims, scope and duration of the proposed activities, including description of reasonable alternatives and an indication of the main reasons for selecting the chosen option supported by a comparison of environmental effects;
 - (d) A description of the methods, installations and other means to be used, possible alternatives to such methods and means;
 - (e) A description of the foreseeable direct or indirect short and long-term and cumulative effects of the proposed activities on the environment, including fauna, flora, soil, air, water, climate and the ecological balance, including possible transboundary impacts. This description shall include an estimate by type and quantity of expected discharges and emissions (pollutants, water, air, noise, vibration, heat, light, radiation) produced during the construction and operation phases, as well as demolition and decommissioning works, where relevant;
 - (f) A statement setting out the measures proposed for reducing to the minimum the risk of damage to the environment as a result of carrying out the proposed activities, including possible alternatives to such measures;
 - (g) An indication of the measures to be taken for the protection of the environment in order to avoid, prevent, reduce and if possible offset pollution and any other likely pollution and other pollution and other adverse effects during and after the proposed activities;
 - (h) A reference to the methodology used for the environmental impact assessment;
 - (i) An indication of whether the environment of any other State is likely to be affected by the proposed activities.
2. Each Party shall promulgate standards taking into account the international rules, standards and recommended practices and procedures, adopted in accordance with Article 23 of the Protocol, by which environmental impact assessments are to be evaluated.

Appendix 5:**Amendments to ANNEX VII to the Offshore Protocol****CONTINGENCY PLAN****A. The operator's contingency plan**

1. Operators are obliged to ensure:

- (a) That the most appropriate alarm system and communication system are available at the installation and they are in good working order;
- (b) That the alarm is immediately raised on the occurrence of an emergency and that any emergency is immediately communicated to the competent authority;
- (c) That, in coordination with the competent authority, transmission of the alarm and appropriate assistance and coordination of assistance can be organized and supervised without delay;
- (d) That immediate information about the nature and extent of the emergency is given to the crew on the installation and to the competent authority;
- (e) That the competent authority is constantly informed about the progress of combating the emergency;
- (f) That at all times sufficient and most appropriate materials and equipment, including stand-by boats and aircraft, are available to put into effect the emergency plan;
- (g) That the most appropriate methods and techniques are known to the specialized crew referred to in Annex VI, paragraph (c), in order to combat leakages, spillages, accidental discharges, fire, explosions, blow-outs and any other threat to human life or the environment;
- (h) That the most appropriate methods and techniques are known to the specialized crew responsible for reducing and preventing long-term adverse effects on the environment, in order to mitigate the negative impacts on wildlife both onshore and offshore including the situations where oiled animals reach shore earlier than the actual spill;
- (i) That the crew is thoroughly familiar with the operator's contingency plan, that periodic emergency exercises are held so that the crew has a thorough working knowledge of the equipment and procedures and that each individual knows exactly his role within the plan;
- (j) That the names and positions of persons authorised to initiate emergency procedures are known to the crew and the authorities;
- (k) That there is evidence of prior environment and health assessments of any chemicals foreseen for use as dispersants.

2. The operator shall cooperate, on an institutional basis, with other operators or entities capable of rendering necessary assistance, so as to ensure that, in cases where the magnitude or nature of an emergency creates a risk for which assistance is or might be required, such assistance can be rendered.

Draft Decision IG.25/8

**Regional Plans on Urban Wastewater Treatment and Sewage Sludge Management
in the Framework of Article 15 of the Land Based Sources Protocol**

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution of 15 March 2019, UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Recalling further the United Nations Environment Assembly resolutions of 6 December 2017, UNEP/EA.3/Res.10, entitled “Addressing water pollution to protect and restore water-related ecosystems”, and of 15 March 2019, UNEP/EA.4/L.12, entitled “Protection of the marine environment from land-based activities”,

Having regard to the Barcelona Convention, in particular Article 8 thereof, whereby Contracting Parties shall take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and draw up and implement plans for the reduction and phasing out of substances that are toxic, persistent and liable to bioaccumulate arising from land-based sources,

Having also regard to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, hereinafter referred to as “the Land-based Sources Protocol,” in particular Article 5 thereof, whereby Contracting Parties undertake to eliminate pollution deriving from land-based sources and activities and to this end shall elaborate and implement national and regional action plans and programmes, containing measures and timetables for their implementation, and Article 15 paragraph 3 thereof, whereby the measures and timetables contained in the regional action plans and programmes adopted under Article 15 are binding,

Recalling Decision IG.24/10 on Main Elements of the Six Regional Plans to Reduce/Prevent Marine Pollution from Land-Based Sources; Updating the Annexes to the LBS and Dumping Protocols of the Barcelona Convention, adopted by the Contracting Parties at their 21st Meeting (COP21) (Naples, Italy, 2-5 December 2019),

Conscious of the urgent need to enhance action in synergy with relevant regional and global initiatives, such as the UNEP Global Wastewater Initiative (GW²I); the Global Partnership for Nutrient Management (GPNM); the 2030 agenda of the Sustainable Development Goals (SDGs); Water and Environment Support in the ENI Southern Neighborhood Region (WES); UfM Water Agenda: “advancing solutions to water-related challenges,” to substantially reduce pollution in the Mediterranean, to prevent and reduce pollution from wastewater and excess nutrients, and the harmful effects thereof and, where appropriate, coordinate such action to achieve that end,

Committed to increased efforts to tackle the regional challenges in dealing with urban wastewater treatment and sewage sludge management in order to protect the coastal and marine environment and human health from adverse effects of wastewater discharges and ensure the effective reuse of beneficial substances and exploitation of energy potential of sewage sludge,

Recalling the mandate of the Mediterranean Pollution Assessment and Control Programme (MEDPOL) to contribute to the prevention and elimination of land-based pollution of the Mediterranean, and to assist the Contracting Parties, through planning and coordination of initiatives and actions, to meet their obligations under the Barcelona Convention and its Protocols,

Having considered the report of the MED POL Focal Points Meeting (Videoconference, 27-28 May 2021),

1. *Adopt* the Regional Plan on Urban Wastewater Treatment in the framework of Article 15 of the Land-based Sources Protocol, set out in Annex I to this decision;
2. *Adopt* the Regional Plan on Sewage Sludge Management in the framework of Article 15 of the Land-based Sources Protocol, set out in Annex III to this decision;
3. *Adopt* the work plans with timetables for the implementation of articles of the Regional Plan on Urban Wastewater Treatment and the Regional Plan on Sewage Sludge Management, set out in Annexes II and IV to this decision, respectively;
4. *Call upon* the Contracting Parties to effectively implement the Regional Plans on Urban Wastewater Treatment and Sewage Sludge Management and to report to the Secretariat, accordingly, as provided for in its Article 19;
5. *Request* the Secretariat (MED POL) to provide, upon request and subject to availability of funds, the necessary assistance to the Contracting Parties for the implementation of the measures provided for in the Regional Plans on Urban Wastewater Treatment and on Sewage Sludge Management;
6. *Urge* the Contracting Parties, intergovernmental organizations, donor agencies, industry, non-governmental organizations and academic institutions to support the implementation of the different measures of the Regional Plans on Urban Wastewater Treatment and on Sewage Sludge Management by providing sufficient financial, technical and scientific contribution.

ANNEX I

Regional Plan on Urban Wastewater Treatment

Regional Plan on Urban Wastewater Treatment

ARTICLE I

Definition of Terms

For the purpose of this Regional Plan for Urban Wastewater Treatment; hereinafter referred to as the "Regional Plan":

- a) "Agglomeration" means an area where the population and/or economic activities are sufficiently concentrated for urban wastewater to be collected and conducted to an urban wastewater treatment plant or to a final discharge point;
- b) "Appropriate treatment" means treatment of urban wastewater by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives;
- c) "Aquifer" is an underground rock formation or sedimentary deposit porous enough to hold water that can be used to supply wells;
- d) "Aquifer recharge" is the process of water infiltration by rainfall or other surface water into the ground. Groundwater recharge or deep percolation is a hydrologic process, whereby water moves downward from surface water to groundwater;
- e) "Best Available Techniques (BAT)" as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
- f) "Best Environmental Practice (BEP)" as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
- g) "Biochemical Oxygen Demand (BOD5)" Amount of oxygen needed for the biochemical oxidation of the organic matter to carbon dioxide in 5 days;
- h) "Collecting system" means a system of conduits which collects and conducts urban wastewater;
- i) "Contaminants of Emerging Concern (CEC)" include several types of chemicals: persistent organic pollutants (POPs), pharmaceuticals and personal care products (PPCPs), including a wide suite of human prescribed drugs, veterinary medicines such as antimicrobials, antibiotics, anti-fungal, growth promoters and hormones; endocrine-disrupting chemicals (EDCs), including synthetic estrogens and androgens, nanomaterials such as carbon nanotubes or nano-scale particulate titanium dioxide, of which little is known about either their environmental fate or effects;
- j) "Domestic wastewater" means wastewater from residential settlements and services which originates predominantly from the human metabolism and from household activities;
- k) "Emission Limit Value (ELV)" means the maximum allowable concentration of a pollutant in an effluent discharged to the environment;
- l) "Good Environmental Status": Concentrations of nutrients in the euphotic layer are in line with prevailing physiographic, geographic and climate conditions;
- m) "Industrial wastewater" means any wastewater which is discharged from premises used for carrying on any trade or industry, other than domestic wastewater and run-off rainwater;
- n) "Managed aquifer recharge (MAR)" is defined as the intentional recharge of water to aquifers for subsequent recovery or environmental benefit;
- o) "One (1) population equivalent (p.e.)" means the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 grams of oxygen per day. For the purpose of this regional plan, the load expressed in p.e. shall be calculated on the basis of the maximum

average weekly load entering the treatment plant during the year, excluding unusual situations such as those due to heavy rain;

- p) "Primary treatment" means treatment of urban wastewater by a physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD5 of the incoming wastewater is reduced by at least 20 percent before discharge and the total suspended solids of the incoming wastewater are reduced by at least 50 percent;
- q) "Reclaimed water" urban wastewater that has been treated to meet specific water quality criteria with the intent of being used for a range of beneficial purposes;
- r) "Secondary treatment" means treatment of urban wastewater by a process generally involving biological treatment with a secondary settlement or other process so that the treatment results in a minimum reduction of the initial load of 70 to 90 percent of BOD5;
- s) "Tertiary treatment" means treatment of urban wastewater by processes generally involving physical, chemical, biological and other procedures including disinfection when required depending on downstream uses, so that the treatment results in reduction of phosphorus and nitrogen;
- t) "Urban wastewater" means the domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or run-off rainwater;
- u) "WEFE" means Water – Energy – Food – Ecosystem Nexus;
- v) "Wastewater Treatment Plant (WWTP)" means systems used to treat urban wastewater using physical, chemical and/or biological techniques.

ARTICLE II

Scope and Objective

1. The area to which the Regional Plan applies is the area defined in accordance with Article 3 and Article 4 of the LBS Protocol, consisting of the Mediterranean Sea Area as defined in Article 1 of the Convention; the hydrologic basin of the Mediterranean Sea Area; waters on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit; brackish waters, coastal salt waters including marshes and coastal lagoons; and ground waters communicating with the Mediterranean Sea.
2. The Regional Plan shall apply to the collection, treatment, reuse and discharge of urban wastewaters and the pre-treatment and discharge of industrial wastewater entering collecting systems from certain industrial sectors.
3. The objective of the Regional Plan on Urban Wastewater Treatment is to protect the coastal and marine environment and human health from the adverse effects of the above-mentioned wastewater direct and or indirect discharges, in particular regarding adverse effects on the oxygen content of the coastal and marine environment and eutrophication phenomena as well as promote resource water and energy efficiency.

ARTICLE III

Preservation of Rights

4. The provisions of this Regional Plan shall be without prejudice to stricter provisions respecting the management of urban wastewater treatment plants contained in other existing or future national, regional or international instruments or programs.

ARTICLE IV

Guiding Principles

5. The Regional Plan measures are formulated to ensure the application of the following principles:
 - i. Effective reclamation and reuse of treated wastewater is promoted as a means for water resource conservation and efficiency to effectively address regional water scarcity;
 - ii. Wastewater collection and treatment systems incorporate aspects related to climate change impacts in the design and operation phases, including extreme hydrological patterns and their impact on influent wastewater;
 - iii. Wastewater treatment processes promote energy efficiency and water savings, and integrate renewable energy alternatives to the extent possible in accordance with BAT and BEP;
 - iv. Industrial wastewater is treated to the extent possible on site. Industrial wastewater entering collecting systems and WWTPs are subject to pre-treatment, if necessary, in order to (a) protect the collecting systems and the treatment plant; (b) ensure that the operation of the WWTP and the treatment of the sludge are not impeded; and (c) ensure that discharge effluents do not adversely affect the Mediterranean marine environment, particularly for priority substances, contaminants of emerging concern which are harmful to the receiving waters and cannot be treated in urban WWTPs;
 - v. For the purpose of this Regional Plan, WEFE nexus is incorporated into the design phase of WWTPs with the aim to promote energy efficiency and reuse of reclaimed wastewater;
 - vi. Selection of treatment technologies takes into consideration investment and operational costs of the treatment technology and the ability to pay by beneficiaries in order to ensure sustainable and reliable quality-treated wastewater.

ARTICLE V

Measures

I. Collection and treatment of urban wastewater

6. The Contracting Parties shall ensure that all agglomerations are provided with collecting systems for urban wastewater as follows:
 - i. At the latest by 2025, [to the extent possible,] for those with a population equivalent (p.e.) of more than 15,000;
 - ii. At the latest by 2030, [to the extent possible,] for those with a population equivalent (p.e.) between 2000 and 15,000.
7. The Contracting Parties shall set emission limit values for discharge of treated effluents from WWTPs upon implementation of necessary measures. To this aim, the Contracting Parties shall adopt at the latest by 2025 the emission limit values as provided for in Appendix I for the following categories:
 - i. Discharge of effluents from urban wastewater treatment plants to the environment (Appendix I.A).

- ii. Reuse of reclaimed wastewater for agriculture irrigation Appendix I.B).
 - iii. Discharge of industrial wastewater into collecting systems and urban wastewater treatment plants (Appendix I.C).
8. The Contracting Parties may approve stricter emission limit values than those provided in Appendix I considering the characteristics of receiving/recipient environment.
9. The Contracting Parties shall ensure that prior to discharge, treated wastewater from urban WWTPs meets the following requirements by 2030 at the latest, [to the extent possible]:
 - i. All discharges from agglomerations of more than 15,000 p.e. are subject to the extent possible to tertiary treatment provided that the Good Environmental Status (GES) of the recipient environment is maintained.
 - ii. All discharges from agglomerations between 2000 and 15,000 p.e. are subject to the extent possible to secondary treatment provided that the Good Environmental Status (GES) of the recipient environment is maintained.
10. The Contracting Parties shall promote to the extent possible nature-based solutions for small agglomerations of less than 2000 p.e. with a focus on constructed wetlands where applicable and individual or other appropriate system in accordance with best available technology.
11. The Contracting Parties shall ensure that urban wastewater treatment plants, built to comply with the requirements of Articles 7 and 8, are designed, constructed, operated and maintained to ensure sufficient performance under normal local climatic conditions.
12. The Contracting Parties shall ensure that WWTPs are designed to account for:
 - i. Seasonal variations of loads including from touristic activities;
 - ii. Volume and characteristics of the local municipal wastewater; and
 - iii. Limitation of pollution of receiving water (taking into consideration, inter alia, Contaminants of Emerging Concern).
13. The Contracting Parties shall implement measures for:
 - i. Segregating collecting systems for storm water and municipal wastewater, if technically and economically feasible;
 - ii. Preventing or if not possible minimizing sewage and wastewater treatment plants' overflow due to rainwater penetration and flooding;
 - iii. Addressing impacts of points of discharge of treated wastewater so as to minimize effects on receiving waters;
 - iv. Adopting tools for conservation of surface water runoff in built environment; and
 - v. Reducing pollutant loads and litter in storm water runoff from municipal and industrial sources.

II. Reclamation and reuse of wastewater

14. The Contracting Parties shall promote the reuse of reclaimed wastewater. To this aim, the Contracting Parties shall:
 - i. Ensure that treatment technologies and additional treatments for reclaimed wastewater meet the emission limit values for reuse of reclaimed wastewater as provided for in Appendix I.B.
 - ii. Implement wastewater reuse systems that include, inter alia:
 - a) Storage and distribution systems for reuse of reclaimed wastewater effluents in agriculture;

- b) Recharge methods in case of managed aquifer recharge strictly complying with Appendix II Guiding Principles.

III. Industrial wastewater discharge

15. By 2025 at the latest, the Contracting Parties shall ensure that the competent authority or appropriate body adopt emission limit values appropriate to the nature of industry discharging industrial effluents to collecting systems connected to urban WWTPs.
16. By 2035 at the latest, the Contracting Parties shall ensure that industrial wastewater discharged into collecting systems and urban WWTPs shall meet, as a minimum, the emission limit values set in Appendix I.C.

IV. Monitoring

17. The Contracting Parties shall take measures to ensure regular monitoring in accordance with general elements, monitoring frequencies and compliance criteria requirements as provided in Appendix III of the Regional Plan:
 - i. Discharges from urban wastewater treatment plants to verify compliance with the requirements.
 - ii. Receiving waters subject to discharges from urban wastewater treatment plants.
 - iii. Quality of reclaimed wastewater discharged from treatment plants for beneficial use.
 - iv. Discharged industrial effluents to collecting systems including substances harmful to receiving waters, sewerage networks and urban wastewater treatment plants.

ARTICLE VI

Technical Assistance, Transfer of Technology and Capacity Building

18. For the purpose of facilitating the effective implementation of Article V of this Regional Plan, the Contracting Parties collaborate to implement, exchange and share best practices directly or with the support of the Secretariat including BAT, BEP, sustainable consumption and production, circular economy, resource efficiency, WEFE Nexus in the design, construction, operation and maintenance of the urban wastewater treatment plants in the context of Integrated Water Resources Management. To this aim, the Contracting Parties also collaborate in preparing and implementing common technical guidelines.

ARTICLE VII

Timetable for Implementation

19. The Contracting Parties shall implement the measures included in this Regional Plan as per the timelines associated with these measures.

ARTICLE VIII

Reporting

20. The Contracting Parties shall report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol.

ARTICLE IX
Entry into Force

21. The present Regional Plan shall enter into force and become binding on the 180th day following the day of notification by the Secretariat in accordance with Article 15, paragraphs 3 and 4, of the LBS Protocol.

APPENDIX I.A

Emission Limit Values for discharge of effluents from urban wastewater treatment plants to the environment

The competent authority shall set emission limit values for wastewater treatment in accordance with a combined approach taking into account best available techniques and compliance with quality standards enabling the good environmental status of the receiving environment to be achieved.

*Table 1: Emission limit values for discharge of urban wastewater effluents to the environment **

Parameter	Unit	Emission limit values
BOD₅	mg/L	25
Total phosphorous	mg/L	2
Total Nitrogen	mg/L	40
Total phosphorus	%	Minimum percentage of reduction of overall load entering WWTP is at least 75%
Total nitrogen	%	
Arsenic (As)	mg/L	0.5
Cadmium (Cd)	mg/L	0.025
Chlorine residual	mg/L	0.3
Chromium (Cr)	mg/L	0.25
COD	mg/L	125
Copper (Cu)	mg/L	0.5
Cyanide	mg/L	0.01
Lead (Pb)	mg/L	0.04
Mercury (Hg)	mg/L	0.0025
Mineral Oil	mg/L	1.5
Nickel	mg/L	0.25
pH	pH unit	6 to 9
Phenol	mg/L	0.15
Total Suspended Solids (TSS)	mg/L	30
Zinc	mg/L	1
Total Hydrocarbons	mg/L	10

** Different emission limit values, including for other parameters, may be adopted further to a risk-based assessment provided that there is no negative impact on the recipient environment*

Emission limit values (ELVs) for other emerging pollutants may be set considering the following factors:

- Setting thresholds for toxicity of effluent streams discharged to the environment to prevent toxicity to aquatic organisms;
- Determination of the minimum percentage of biodegradability of the effluent streams (at least 80%) to achieve minimum accumulation in the ecosystem and losses of habitats and biodiversity; and
- Identification of potential microplastic sources and adoption of related policy and methodology further to state of the art on related research on this topic.
- Emission limit values for microbiological parameters shall be established through a risk assessment to ensure that post-discharge uses, such as bathing, supply or irrigation, where appropriate, and in accordance with WHO guidelines for bathing areas, are not compromised by the effect of discharge.

APPENDIX I.B

Emission limit values for reuse of reclaimed wastewater for agriculture irrigation

Classes definitions for reclaimed wastewater for reuse in agriculture irrigation:

Class A – All food crops, including crops eaten raw when reclaimed wastewater comes into direct contact with edible parts of the crop, and irrigation of root crops.

Class B - Processed food crops: crops which are intended for human consumption not to be eaten raw but after a treatment process; food crops consumed raw where the edible part is produced above ground and is not in direct contact with reclaimed water or food, which are not irrigated with drip irrigation or other irrigation method that avoids direct contact with the edible part of the crop. **Non-food crops:** crops which are not intended for human consumption.

Table 2: Emission limit values for reclaimed wastewater use in agricultural irrigation according to Class definition

Parameter	Limit values for reclaimed water quality class for effluent reuse in agricultural irrigation *	
	Class A	Class B
BOD5	≤10 mg/L	25 mg/L or reduction of the influent load of 70% to 90%.
COD**	100 mg/L	125 mg/L
Escherichia coli	≤10 cfu/100 ml	≤100 cfu/100 ml
Fecal Coli	≤10 cfu/100ml or below detection limit	≤100 cfu/100ml
Intestinal nematodes (helminth eggs)	≤1 egg/l	≤1 egg/l
Legionella spp	≤1,000 cfu/l	≤1,000 cfu/l
Total Suspended Solids (TSS)	≤10 mg/L	35 mg/L or reduction of influent load of 90%.
Turbidity	≤5 NTU	None
Parameters applicable to both Classes (A and B)		
Total Nitrogen		25
Total phosphorous		5
Sodium - Na		150
Chlorides - Cl		250
Boron - B		0.5
Heavy metals		
Cadmium - Cd		0.01
Chromium - Cr		0.1
Copper - Cu		0.2
Mercury - Hg		0.002
Nickel - Ni		0.2
Lead - Pb		0.1

Parameter	Limit values for reclaimed water quality class for effluent reuse in agricultural irrigation *	
	Class A	Class B
Zinc - Zn	0.5	
pH	6.5-8.5	
Additional heavy metals		
Aluminium - Al	1 to 5	
Arsenic - As	0.1	
Beryllium - Be	0.1	
Cobalt - Co	0.05	
Iron - Fe	2	
Lithium - Li	2.5	
Manganese - Mn	0.2	
Molibdenum - Mo	0.01	
Selenium - Se	0.02	
Vanadium - V	0.1	

* Different emission limit values, including for different parameters, may be adopted further to a risk-based assessment provided that the total loads do not affect the recipient environment and human health

APPENDIX I.C

**Emission limit values for discharge of industrial wastewater into collecting systems
and urban wastewater treatment plants**

Industrial wastewater entering collecting systems and urban wastewater treatment plants shall be subject to pre-treatment as required in order to:

- Protect the health of staff working in collecting systems and treatment plants.
- Ensure that collecting systems, WWTP and associated equipment are not damaged.
- Ensure that the operation of the WWTP and the treatment of sludge are not impeded.
- Ensure that discharges from the treatment plants do not adversely affect the environment or prevent receiving water from complying with other regulatory requirements.
- Ensure that sludge can be treated and disposed of safely in an environmentally acceptable manner.

Table 3: Emission limit values (ELV) for industries to discharge their effluents to collecting systems and Urban WWTPs which will not damage wastewater treatment processes and does not affect the recipient environment

Parameter	Unit	Limit values for effluent discharge *
Aluminium - Al	mg/L	25
BOD5	mg/L	COD concentration not to exceed four times BOD concentration
Fluoride – F	mg/L	6
Sodium - Na	mg/L	230
Phenols	mg/L	3
Total O&G	mg/L	250
Arsenic - As	mg/L	0.1
Benzene	mg/L	0.05
Beryllium - Be	mg/L	0.5
Cadmium - Cd	mg/L	0.1
Chloride - Cl	mg/L	430
Chlorine	mg/L	0.5
Chromium - Cr	mg/L	0.5
Cobalt - Co	mg/L	1
COD	mg/L	2000
Copper - Cu	mg/L	0.5 to 1
Cyanide	mg/L	0.2 to 0.5
AOX	mg/L	1
Lead - Pb	mg/L	0.5
Lithium - Li	mg/L	0.3
Manganese - Mn	mg/L	1
Mercury - Hg	mg/L	0.05
Mineral Oil	mg/L	20
Molybdenum - Mo	mg/L	0.15
Nickel - Ni	mg/L	0.5
Total phosphorous - (TP)	mg/L	30
pH	units	6.0-10.0
Polyphenols	mg/L	100
Selenium - Se	mg/L	0.05
Total Dissolved Solids (TDS)	mg/L	3,500
Temp	C°	40° Celsius
Tin - Sn	mg/L	2

Parameter	Unit	Limit values for effluent discharge *
Total Nitrogen - (TN)**	mg/L	15-30
Total Hydrocarbons	mg/L	20
Toxicity to fish eggs (Tegg)		2
Total Suspended Solids (TSS)	mg/L	1000
Vanadium - V	mg/L	0.5
Volatile halogenated hydrocarbons (VHHC)	mg/L	0.1***
Zinc - Zn	mg/L	3

* The adoption and implementation of the ELVs shall respond to the respective industries. Different emission limit values, including for different parameters, may be adopted further to a risk-based assessment also in line with national regulations and procedures in collaboration with the operators of treatment plants. ELVs may be increased for small industries discharging to the collecting system when (i) the plant uses BAT and (ii) the effects of the discharged effluent on the collecting system and the WWTP are negligible.

** Total nitrogen as the sum of ammonia nitrogen, nitrite nitrogen and nitrate nitrogen

*** Volatile halogenated hydrocarbons - sum of trichloroethene, tetrachloroethene, 1,1,1-trichloroethane, dichloromethane - calculated as chlorine

APPENDIX II

Guiding principles on reuse of reclaimed wastewater for aquifer recharge

Managed aquifer recharge (MAR) is defined as the intentional recharge of water to aquifers for subsequent recovery or environmental benefit. The purposes for undertaking managed aquifer recharge are as follows:

- Establish saltwater intrusion barriers in coastal aquifers.
- Provide storage for the recharged water for subsequent retrieval and reuse.
- Maintain groundwater dependent terrestrial and aquatic ecosystems.
- Dilute saline or polluted aquifers.
- Control or prevent ground subsidence.

Recharge methods:

1. **Surface spreading** – a method of recharge whereby the water moves from the land surface to the aquifer by infiltration and percolation through the vadose zone. When used as a recharge method, adverse effects to the soil and related dependent ecosystems should be avoided.
2. **Direct injection** – a method of directly pumping/ injecting water into the groundwater zone. Direct discharges of pollutants into groundwater is not allowed.

Risk assessment:

Health and environmental risk assessment is needed to define minimum quality requirements. The assessment will address appropriate health protection; provision of public confidence in reuse practices; avoiding adverse effects on groundwater, soils and related dependent ecosystems. The overall levels of health protection should be comparable for different water-related exposures (i.e. drinking water, and reclaimed water for irrigation of food crops).

APPENDIX III

Monitoring frequencies of pollutants discharged directly to the environment; or destined for reuse in agriculture; or discharged from industrial facilities to collecting systems

Monitoring the treated effluents discharge from urban WWTPs is used to determine compliance with emission limit values for discharge to the environment; to reuse in agriculture irrigation; or for aquifer recharge (Appendix I.A, Appendix I.B, Appendix I.C).

Monitoring frequencies need to be sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost. Monitoring frequency should be determined on a case-by-case basis, consider the variability of the concentration of various parameters. A highly variable discharge should require more frequent monitoring than a discharge that is relatively consistent over time (particularly in terms of flow and pollutant concentration).

Frequency requirements may be reduced based on a demonstration of excellent performance. Facilities can demonstrate good performance by meeting a set of compliance and enforcement criteria and demonstrating their ability to discharge pollutants below the necessary levels consistently.

The sampling frequency for monitoring of the discharge effluents may be defined to the extent possible as per the tables below:

Table 4: Recommended sampling frequency for treated effluents at the point of discharge

Parameter	Monitoring Frequency		Grab / Composite sample
	Large UWWTP (more than 5,000 p.e.)	Small UWWTP (less than 5,000 p.e.)	
Heavy metals	Once a quarter	Once a year	Composite sample
EC + pH	Continuous monitoring	Once a month	Grab samples
BOD, COD	Once a week	Once a month	Composite sample
Turbidity	Once a week	Once a month	Grab samples
TSS	Every two weeks	Once a month	Composite sample
Nutrients (N, P, K)	Once a week	Once a month	Composite sample
Pathogens	Every two weeks	Once a month	Grab samples
Mineral Oil, Phenol, Total Hydrocarbons	Once a month	Once a month	Grab samples

Table 5: Recommended Minimum frequency for reclaimed wastewater monitoring for agricultural irrigation

Parameter	Monitoring Frequency for reclaimed wastewater quality classes	
	Class A	Class B
BOD	Once a week	Once a month
TSS	Once a week	Once a month
Turbidity	Continuous	Once a month
Escherichia coli	Once a week	Twice a month
Legionella spp (when applicable)	Once a week	Once a week
Intestinal nematodes (when applicable)	Twice a month or frequency determined according to the number of eggs in wastewater	
Heavy metals	Once a quarter	Once a year
EC and pH	Continuous monitoring	Once a month
Nutrients (N, P, K)	Once a week	Once a month

Table 6: Recommended sampling frequency per year for industrial wastewater at the point of discharge to the collecting systems and urban WWTP

No.	Industrial Activities	Sampling frequency (*)
1	Wastewater containing mineral oil	4 Once every three months
2	Domestic and communal wastewater (function halls, restaurants, shopping malls, hotels etc.)	4 Once every three months
3	Food Sector - Animal and vegetable products	4 Once every three months
4	Food Sector - Meat industry & Fish processing	4 Once every three months
5	Textile sector - manufacturing and finishing	4 Once every three months
6	Metals production and processing	6 Once every two months
7	Laundry Facilities	4 Once every three months
8	Gas stations	4 Once every three months
9	Agriculture: chicken farms, pig farms, fish farms, etc.	4 Once every three months
10	Leather production, fur processing, leather fiber board manufacturing	4 Once every three months
11	Waste and wastewater management	Waste – 4 Once every three months Hazardous waste – 6 Once every two months
12	Production of printing blocks, publications and graphic-arts products	4 Once every three months
13	Chemical industry including chemicals, pharmaceuticals, fertilizers, pesticides, detergents, solvents, petrochemicals, Cosmetic, plastic etc.	Water consumption: - less than 5,000 m ³ /year – 6 once every two months - higher than 5,000 m ³ /year – 12; once per a year
14	Hospitals	4 Once every three months

* The sampling rate should reflect the fluctuation of the effluent

Annex II

**Work plan with timetable for the implementation of Articles of
the Regional Plan on Urban Wastewater Treatment**

Related Article (Paragraph)	Other measures that the Contracting Parties legally commit to undertake as per the Regional Plan with no specific deadlines
Art. V (10)	Promote nature-based solutions to the extent possible for small agglomerations of less than 2000 p.e.
Art. V (11)	Ensure that urban wastewater treatment plants, built to comply with the requirements of Articles 7 and 8, are designed, constructed, operated and maintained to ensure sufficient performance under normal local climatic conditions
Art. V (12)	Ensure that WWTPs are designed to account for seasonal variations of loads; volume and characteristics of the local municipal wastewater; and limitation of pollution of receiving water.
Art. V (13.i)	Implement measures for segregating collecting systems for storm water and municipal wastewater, if technically and economically feasible;
Art. V (13.ii)	Prevent or if not possible minimize sewage and wastewater treatment plants' overflow due to rainwater penetration and flooding;
Art. V (13.iii)	Address impacts of points of discharge of treated wastewater;
Art. V (13.iv)	Adopt tools for conservation of surface water runoff in built environment;
Art. V (13.v)	Reduce pollutant loads and litter in storm water runoff from municipal and industrial sources.
Art. V (14.i)	Promote the reuse of reclaimed wastewater.
Art. V (14.ii)	Implement wastewater reuse systems
Art. V (17)	Take measures to ensure regular monitoring of discharged effluent wastewater, receiving water, reclaimed wastewater and industrial effluents
Art. VI (18)	Collaborate to implement, exchange and share best practices directly or with the support of the Secretariat
Art. VIII (18)	Report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol

Annex III

Regional Plan on Sewage Sludge Management

Regional Plan on Sewage Sludge Management

ARTICLE I

Definition of Terms

For the purpose of this Regional Plan for the Sewage Sludge Management; hereinafter referred to as the "Regional Plan":

- (a) "Anaerobic digestion" is the biological conversion of organic matter to biogas and residual solids at temperatures between 20°C and about 40°C, typically 37°C with a mean residence time of 15 to 30 days (Mesophilic) or that takes place between 49°C and 57°C (thermophilic);
- (b) "Best Available Techniques (BAT)" as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
- (c) "Best Environmental Practice (BEP)" as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
- (d) "Biosolids" are organic-based materials from industrial or municipal wastewater sludge and their derived products, in the form of solids, semisolids, semi-liquids (pasty), and liquids which have been treated to meet specific standards, guidelines or requirements;
- (e) "Collecting system" means a system of conduits which collects and conducts urban wastewater;
- (f) "Composting" is the natural aerobic biological process, carried out under controlled conditions, which converts organic material into a stable humus-like product;
- (g) "Domestic wastewater" means wastewater from residential settlements and services which originates predominantly from the human metabolism and from household activities;
- (h) "Industrial wastewater" means any wastewater which is discharged from premises used for carrying on any trade or industry, other than domestic wastewater and run-off rainwater;
- (i) "Primary sludge" is sludge from primary settling tanks, typically grayish and slimy in nature, and, in most of the cases, has an extremely offensive odor. Primary sludge can be readily digested under suitable conditions of operation;
- (j) "Primary treatment" means treatment of urban wastewater by a physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD₅ of the incoming wastewater is reduced by at least 20 percent before discharge and the total suspended solids of the incoming wastewater are reduced by at least 50 percent;
- (k) "Secondary sludge (activated sludge)" is the sludge particles produced in raw or settled wastewater by the growth of organisms in aeration tanks in the presence of dissolved oxygen. The term activated comes from the fact that the particles are teeming with bacteria, fungi, and protozoa. Activated sludge is different from primary sludge in that the sludge particles contain many living organisms which can feed on the incoming wastewater;
- (l) "Secondary treatment" means treatment of urban wastewater by a process generally involving biological treatment with a secondary settlement or other process so that the treatment results in a minimum reduction of the initial load of 70 to 90 percent of BOD₅;
- (m) "Sludge incineration (waste to energy)" is a two-step process involving drying and combustion after a preceding dewatering process, such as filters, drying beds, or centrifuges;
- (n) "Tertiary treatment" means treatment of urban wastewater by processes generally involving physical, chemical, biological and other procedures including disinfection when required depending on downstream uses, so that the treatment results in reduction of phosphorus and nitrogen;
- (o) "Urban wastewater" means the domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or run-off rainwater;
- (p) "Wastewater Treatment Plant (WWTP)" means systems used to treat urban wastewater using physical, chemical and/or biological techniques.

ARTICLE II

Scope and Objective

1. The area to which the Regional Plan applies is the area defined in accordance with Article 3 and Article 4 of the LBS Protocol, consisting of the Mediterranean Sea Area as defined in Article 1 of the Convention; the hydrologic basin of the Mediterranean Sea Area; waters on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit; brackish waters, coastal salt waters including marshes and coastal lagoons; and ground waters communicating with the Mediterranean Sea.
2. The Regional Plan shall apply to the treatment, disposal and use of sewage sludge from Urban Wastewater Treatment Plants.
3. The objective of the Regional Plan is to ensure effective reuse of beneficial substances and exploitation of energy potential of sewage sludge, while preventing harmful effects on human health and the environment.

ARTICLE III

Preservation of Rights

4. The provisions of this Regional Plan shall be without prejudice to stricter provisions respecting the management of sewage sludge from urban wastewater treatment plants contained in other existing or future national, regional or international instruments or programs.

ARTICLE IV

Guiding Principles

5. The Regional Plan measures are formulated to ensure the application of the following principles:
 - i. Sewage sludge shall meet the required quality criteria suitable for its intended use or disposal;
 - ii. Management alternatives are prioritized for beneficial use of sewage sludge in agricultural land applications in order to minimize landfilling and adverse environmental effects;
 - iii. Since sewage sludge can have valuable agronomic properties reducing dependence on fertilizers, its application is encouraged in agriculture subject to adequate treatment and quality standards for human health and environment protection.
 - iv. Sewage sludge can be used in other applications such as forests, mine reclamation sites, and other disturbed lands, parks, and golf courses, subject to adequate treatment and quality standards for human health and environment protection;
 - v. Use of sewage sludge does not impair the quality of the soil and of agricultural products;
 - vi. Use of sewage sludge in agriculture is regulated in such a way as to prevent harmful effects on soil, water bodies, vegetation, animals and humans;
 - vii. Sewage sludge may be used as an alternative fuel; energy production; and for incineration and co-incineration and other proven applications.

ARTICLE V

Measures

I. Treatment of sewage sludge

6. The Contracting Parties shall ensure that all required sludge treatment processes are carried out in line with common agreed guidelines, in order to obtain treated sludge of quality suitable for their specific use in, inter alia:
- i. Agricultural land application as a fertilizer or for land reclamation;
 - ii. Energy recovery; and
 - iii. Cement industry.

II. Agricultural use

7. Where specific conditions as provided for in point 9 are used for the spreading of sludge, the Contracting Parties shall apply appropriate treatment to limit the pathogen content in the sludge in order to obtain biosolids for agricultural applications. To this aim, the Contracting Parties shall set classes for sludge with limit values for pathogen contents for biosolids to ensure that use would not affect human health and the environment. The following two “biosolids classes” and corresponding limit values for pathogen content for biosolids are considered. By 2025 at the latest, the Contracting Parties shall adopt Class A. Class B may be adopted where appropriate:
- i. Class ‘A’ biosolids suitable for use as fertilizer for agricultural crops having met the pathogen reduction requirements set in Table 1 by treatment processes that include a suitable combination of composting, heat drying, heat treatment, thermophilic anaerobic digestion, beta or gamma ray irradiation and pasteurization, or any other equivalent treatment technologies.
 - ii. Class ‘B’ biosolids suitable for use as fertilizer for non-food crops having met the pathogen reduction requirements set in Table 1 by treatment processes that include a suitable combination of aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying, or any other equivalent treatment technologies.

Table 1: Limit values for pathogen content for biosolids classes

Class	Faecal Coliforms (<i>Escherichia coli</i>)	Salmonella sp.	Enterovirus*	Helminths ova*
Class A	< 1000 MPN/g DM (< 1000 MPN/g DM)	< 3 MPN/4 g DM	1 PFU/4 g DM**	1 viable/4 g DM
Class B	< 2,000,000 MPN/g DM*** (< 200,000 MPN/g DM)			

* These parameters may be included based on specific local conditions, and if monitored, lower frequencies may apply.

** PFU: Plaque Forming Unit

** MPN: Most Probable Number; DM: Dry Matter

*** Geometric mean of seven samples

8. The Contracting Parties shall apply adequate treatment to limit concentrations of heavy metals in biosolids destined for agricultural applications. To this aim, the Contracting Parties shall adopt limit values for heavy metals to ensure that use would not affect human health and the environment. The following limit values for heavy metals in biosolids (Table 2) and heavy metals in soil (Table 3) shall be adopted at the latest by 2025.

Table 2: Limit values for concentration of heavy metals in biosolids (mg.kg ⁻¹ DS) *							
Range**	Cadmium	Chromium	Copper	Mercury	Nickel	Lead	Zinc
Lower	20	1000	1000	16	300	750	2500
Upper	40	1500	1750	25	400	1200	4000

* Different emission limit values, including for other parameters, may be adopted further to a risk-based assessment if there is no negative impact on the recipient environment.

** To be defined based on local conditions including soil pH.

Table 3: Limit values for concentrations of heavy metals in soil to which biosolids is applied (mg.kg ⁻¹ DS) *							
Range**	Cadmium	Chromium	Copper	Mercury	Nickel	Lead	Zinc
Lower	1	100	50	1	30	50	150
Upper	3	150	140	1.5	75	300	300

* Different emission limit values, including for other parameters, may be adopted further to a risk-based assessment if there is no negative impact on the recipient environment

** To be defined based on local conditions including soil pH

9. The Contracting Parties shall specify the conditions for use of sludge in its different states (stabilized, treated, untreated) taking into consideration the proximity of sludge application to various types of human activities and civil structure facilities/natural features. To this aim, the Contracting Parties agree to formulate a common guideline.
10. In the event that limit values set in Tables 1 to 3 cannot be met, the Contracting Parties shall apply alternative means to agricultural use including incineration and regulated landfilling ensuring in both cases, that there is no negative impact on the environment (particularly for water sources) and human health, and that disposal of sewage sludge in coastal areas is prohibited.
11. The Contracting Parties shall apply adequate treatment processes to reduce volatile organic compounds and diminish possible odor emissions in the different stages of sludge treatment, transport and application in agriculture and other suitable uses.

III. Sewage sludge use and energy/nutrient recovery

12. The Contracting Parties shall establish the required infrastructure for the implementation of the requirements of the applicable measures of this Regional Plan with regards to the use for agricultural land applications and/or for energy/nutrient recovery at the latest by 2035.

IV. Considerations for reducing impacts of climate change

13. The Contracting Parties shall reduce energy costs and increase water savings during treatment by using BAT and applying BEP including the use of alternative and renewable energy sources based on advanced technologies such as anaerobic digestion, pyrolysis/gasification, mass burning and other technologies.
14. The Contracting Parties shall implement technologies targeting energy efficient treatment of sludge such as pretreatment of sludge, solar drying, bio-drying, composting, etc.

15. The Contracting Parties shall promote implementation of adaptation measures for climate change protection including:
- i. Taking advantage of the biosolids as an important source of nutrients and organic matter;
 - ii. Using biosolids as soil amendment to combat desertification; improve infiltration of water (precipitation or irrigation water); ensure better drainage in high rainfall areas; and decrease surface water runoff;
 - iii. Increasing on-site carbon sequestration potential.

V. Monitoring

16. The Contracting Parties shall take measures to ensure monitoring of the quality of sewage sludge in the WWTP or after treatment outside the WWTP, whichever constitutes the last treatment process before use, with the aim of determining sludge class as provided for in Article V of this Regional Plan, and accordingly, to select the adequate monitoring programmes to the extent possible as indicated in Table 4 on the frequency of monitoring for pollutants, pathogen densities, and vector attraction reduction in sewage sludge. To this aim, the Contracting Parties collaborate to formulate common agreed technical guidelines on routine monitoring of treated sewage sludge.

Table 4: Frequency of monitoring for pollutants, pathogen densities, and vector attraction reduction in Sewage Sludge		
Amount of biosolids (dry matter) Tons per 365-day period	Tons per day	Frequency
> 0 to < 290	> 0 to < 0.80	Once per year
≥ 290 to < 1,500	≥ 0.80 to < 4.10	Once per quarter (4 times per year)
≥ 1,500 to < 15,000	≥ 4.10 to < 41	Once per 60 days (6 times per year)
≥ 15,000	≥ 41	Once per month (12 times per year)

ARTICLE VI

Technical Assistance, Transfer of Technology and Capacity Building

17. For the purpose of facilitating the effective implementation of the measures and monitoring obligations under Article V of this Regional Plan, the Contracting Parties are urged to consider the techniques provided for in this Plan and to exchange and share best practices directly or with the support of the Secretariat including BAT, BEP, sustainable consumption and production, circular economy, resource efficiency, WEFEX Nexus in the design, construction, operation and maintenance of the urban wastewater treatment plants.

ARTICLE VII

Timetable for Implementation

18. The Contracting Parties shall implement the measures included in this Regional Plan as per the timelines associated with these measures.

ARTICLE VIII

Reporting

19. The Contracting Parties shall report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol.

ARTICLE IX
Entry into Force

20. The present Regional Plan shall enter into force and become binding on the 180th day following the day of notification by the Secretariat in accordance with Article 15, paragraphs 3 and 4, of the LBS Protocol.

Annex IV

**Work plan with timetable for the implementation of Articles of
the Regional Plan on Sewage Sludge Management**

Related Article (Paragraph)	Other measures that the Contracting Parties legally commit to undertake as per the Regional Plan with no specific deadlines
Art. V (7)	Set classes for sludge with limit values for pathogen contents for biosolids to ensure that use would not affect human health and the environment
Art. V (7)	Consider adopting Class B biosolids suitable for use as fertilizer for non-food crops having met the pathogen reduction requirements set in Table 1 by treatment processes
Art. V (9)	Specify the conditions for use of sludge in its different states (stabilized, treated, untreated) taking into consideration the proximity of sludge application to various types of human activities and civil structure facilities/natural features
Art. V (10)	In the event that limit values set in Tables 1 to 3 (pathogens and heavy metals in biosolids and soil) cannot be met, the Contracting Parties shall apply alternative means to agricultural use including incineration and regulated landfilling
Art. V (11)	Apply adequate treatment processes to reduce volatile organic compounds and diminish possible odor emissions in the different stages of sludge treatment, transport and application in agriculture and other suitable uses
Art. V (13)	Reduce energy costs and increase water savings during treatment by using BAT and applying BEP
Art. V (14)	Implement technologies targeting energy efficient treatment of sludge such as pretreatment of sludge, solar drying, bio-drying, composting, etc.
Art. V (15)	Promote implementation of adaptation measures for climate change protection
Art. V (16)	Take measures to ensure monitoring of the quality of sewage sludge in the WWTP or after treatment outside the WWTP
Art. VI (17)	Exchange and share best practices directly or with the support of the Secretariat including BAT, BEP, sustainable consumption and production, circular economy, resource efficiency, WEFEX Nexus in the design, construction, operation and maintenance of the urban wastewater treatment plants
Art. VIII (19)	Report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol

Draft Decision IG.25/9

**Amendments to the Regional Plan on Marine Litter Management in the Mediterranean
in the Framework of Article 15 of the Land Based Sources Protocol**

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution of 15 March 2019, UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Recalling further the United Nations Environment Assembly resolutions of 6 December 2017, UNEP/EA.3/Res.7 entitled “Marine litter and microplastics”; of 15 March 2019, UNEP/EA.4/Res.6, entitled “Marine plastic litter and microplastics”; and of 15 March 2020, UNEP/EA.4/Res.9 entitled “Addressing single-use plastic products pollution”,

Having regard to the Barcelona Convention, in particular Article 8 thereof, whereby the Contracting Parties shall take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and draw up and implement plans for the reduction and phasing out of substances that are toxic, persistent and liable to bioaccumulate arising from land-based sources,

Having also regard to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, hereinafter referred to as “the LBS Protocol”, in particular Article 5 thereof, whereby the Contracting Parties undertake to eliminate pollution deriving from land-based sources and to this end shall elaborate and implement national and regional action plans and programmes, containing measures and timetables for their implementation, and Article 15 paragraph 3 thereof, whereby the measures and timetables contained in the regional action plans and programmes adopted under Article 15 are binding,

Recalling Decision IG.24/10 on the Main Elements of the Six Regional Plans to Reduce/Prevent Marine Pollution from Land-Based Sources; Updating the Annexes to the LBS and Dumping Protocols of the Barcelona Convention, adopted by the Contracting Parties at their 21st Meeting (COP21) (Naples, Italy, 2-5 December 2019),

Conscious of the urgent need to enhance action in synergy with other relevant regional and global initiatives, to prevent and reduce marine litter, including plastic pollution and microplastics, and the harmful effects thereof,

Committed to increased efforts to tackle the regional challenges for the prevention of marine litter in an efficient and effective way by reducing the impact of certain plastic products on the Mediterranean Sea Area through the application of circular economy principles, extended producer responsibility and sustainable consumption and production to achieve good environmental status,

Having considered the report of the MED POL Focal Points Meeting (Videoconference, 27-28 May 2021), and the Conclusions and Recommendations of the 8th Ecosystem Approach Coordination Group Meeting (Teleconference, 9 September 2021)

1. *Adopt* the amendments to the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land-based Sources Protocol, hereinafter referred to as “the Regional Plan on Marine Litter”, set out in Annex I to this Decision.

2. *Adopt* the following Annexes to this Decision:

(a) Annex II – “Work Plan with timetable for the implementation of relevant Articles of the Regional Plan on Marine Litter” to guide and facilitate the work of the Secretariat and the Contracting Parties

on priority measures with regards to the implementation of the Regional Plan and mobilize external resources for this purpose, as appropriate,

(b) Annex III – “Potential Research Topics” to promote and support scientific research by the Contracting Parties and scientific community to fill the knowledge gaps on marine litter sources and impacts as well as to support implementation of relevant measures;

(c) Annex IV – “2021 Baseline Values and Threshold Values for IMAP Common Indicator 22” to facilitate the assessment of Good Environmental Status in the Mediterranean, under the IMAP Ecological Objective 10 on Marine Litter;

3. *Call upon* the Contracting Parties to effectively implement the Regional Plan on Marine Litter and its measures and to report to the Secretariat, accordingly, as provided for in its Article 19;

4. *Request* the Secretariat (MED POL and SCP/RAC) to provide, upon request and subject to availability of funds, the necessary assistance to the Contracting Parties for the implementation of the measures provided for in the Regional Plan on Marine Litter, specifically through the provision of support for the implementation of technical guidelines developed in the framework of the Mediterranean Action Plan (MAP)-Barcelona Convention system, including the new Guidelines to tackle Single Use Plastic Products in the Mediterranean (UNEP MED WG.515/Inf.23);

5. *Request* the Secretariat (MED POL and SCP/RAC) to promote the work undertaken by the Mediterranean Action Plan (MAP) - Barcelona Convention system on sharing best practices on marine litter management and combating plastic pollution in other international fora, such as the UNEP Global Programme of Action, the UNEP Regional Seas Conventions and Action Plans, the Food and Agriculture Organization of the United Nations (FAO), and relevant Multilateral Environmental Agreements (MEAs) and partnerships, such as the Basel Convention Plastic Waste Partnership; and to actively contribute to the work developed in that fora by *inter alia* sharing and promoting Contracting Parties efforts in combating marine litter, including plastic pollution;

6. *Urge* the Contracting Parties, intergovernmental organizations, donor agencies, industry, non-governmental organizations and academic institutions to support the implementation of the different measures of the Regional Plan on Marine Litter providing sufficient financial, technical and scientific contribution;

7. *Further encourage* the work of Marine Litter Platform, established in the Mediterranean region by a number of stakeholders, to facilitate the implementation of the Regional Plan on Marine Litter and further coordinate efforts for a plastic-free and litter-free Mediterranean, and to this aim, request the Secretariat to continue its efforts to strengthening and further expanding this coordinating Platform, by including *inter alia* the industry, in order to maximize synergies, complementarities, and impacts on the ground with the view to facilitating the achievements of the ambitious objectives of the Regional Plan on Marine Litter in close collaboration with the Contracting Parties.

ANNEX I

Regional Plan on Marine Litter Management in the Mediterranean

Regional Plan on Marine Litter Management in the Mediterranean

Part I – General provisions

ARTICLE 1

Rationale for the Regional Plan

1. Marine litter may have significant implications for the marine and coastal environment at a global level. These impacts are environmental, economic, health and safety and cultural, rooted in our prevailing production and consumption patterns. The problem originates mostly from land-based activities and sea-based activities, as well as lack of governmental financial resources, general lack of understanding of the public's co-responsibility, and the optimisation of the application of legal enforcement systems could limit pollution.
2. The rationale for the preparation of this Regional Plan is to improve the quality of the marine and coastal environment in accordance with the provisions of the LBS Protocol and to achieve the goals set by the decisions of the 17th meeting of the Contracting Parties in 2012, Decision IG.20/4: "Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap" and Decision IG 20/10: "Adoption of the Strategic Framework for Marine Litter management," at the considerable lower cost than with the no action scenario.

ARTICLE 2

Area and Scope of Application

3. The area to which this Regional Plan applies is the area defined in Article 3 of the LBS Protocol paragraphs (a), (c) and (d).¹ The Regional Plan shall apply to discharges referred to in Article 4(a)² of the LBS Protocol and any operational discharge from ships, platforms and other man-made structures at sea.

¹ Article 3 of the LBS Protocol: Protocol Area:

The area to which this Protocol applies (hereinafter referred to as the "Protocol Area") shall be:

- (a) *The Mediterranean Sea Area as defined in article 1 of the Convention.*
- (c) *Waters on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit.*
- (d) *Brackish waters, coastal saltwater including marshes and coastal lagoons, and ground waters communicating with the Mediterranean Sea.*

² Article 4 of the LBS Protocol Application:

This Protocol shall apply: (a) To discharges originating from land-based point and diffuse sources and activities within the territories of the Contracting Parties that may affect directly or indirectly the Mediterranean Sea Area. These discharges shall include those which reach the Mediterranean Area, as defined in article 3(a), (c) and (d) of this Protocol, through coastal disposals, rivers, outfalls, canals, or other watercourses, including ground water flow, or through run-off and disposal under the seabed with access from land.

ARTICLE 3

Definition of Terms

4. For the purpose of this Regional Plan:
- a) *Abandoned, lost or otherwise discarded fishing gear or parts thereof (ALDFG) or Derelict fishing gear (DFG)* are the collective terms for commercial and recreational fishing gear or aquaculture-related items that have been abandoned, lost or otherwise discarded into the marine environment;
 - b) *Barcelona Convention* means the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, 1995 hereinafter referred to as the Barcelona Convention;
 - c) *Best Available Techniques (BAT)* as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
 - d) *Best Environmental Practice (BEP)* as defined in Annex IV for the Land-Based Source and Activities (LBS) Protocol;
 - e) *Circular economy*, an approach contributing to Sustainable Consumption and Production patterns, refers to a system where products, materials and resources maintain their value and use in the economy, for as long as possible, thus minimizing waste by sharing, leasing, reusing, repairing, refurbishing, remanufacturing and recycling, instead of throw-away or take-make-dispose models;
 - f) *Extended Producer Responsibility* means a set of measures taken by Contracting Parties to ensure that producers of products bear financial responsibility or financial and organisational responsibility for the management of the waste stage of a product's life cycle;
 - g) *Fishing gear* means any item or piece of equipment that is used in fishing or aquaculture to target, capture or rear marine biological resources or that is floating on the sea surface, and is deployed with the objective of attracting and capturing or of rearing such marine biological resources;
 - h) *Garbage* includes all kinds of food, domestic and operational waste, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically. Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage, or as a result of aquaculture activities;
 - i) *LBS National Action Plan* means the national action plans containing measures and timetables for their implementation developed by the Contracting Parties in accordance with Article 5 of the LBS Protocol as endorsed by the 14th and 19th meetings of the Contracting Parties with the view to implement the Strategic Action Programme (SAP-MED) to combat land-based sources in the Mediterranean adopted by the Contracting Parties in 1997 and UNEP/MAP's ecosystem approach-based ecological objectives on pollution and litter;
 - j) *LBS Protocol* means the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities, 1996, hereinafter referred to as the LBS Protocol;
 - k) *Leakage* means unintentional disposal of wastes into the marine environment;
 - l) *Lightweight plastic carrier bag* means a plastic carrier bag with a wall thickness below 50 microns;
 - m) *Marine litter*, regardless of the size, means any persistent, manufactured or processed solid material, discarded, disposed of, or abandoned in the marine and coastal environment;
 - n) *Marine Litter monitoring* the long term, standardized measurement, observation and assessment of litter on beaches, in the water column including the sea surface and the seabed and in biota in order to determine litter types, quantities, sources and pathways and assess

the effectiveness of measures and whether GES has been achieved by comparing with established baseline and threshold values;

- o) *Micro litter* means the fraction of marine litter of less than 5 mm in size with a further division into *Large Micro Particles* (1-5 mm) and *Small Micro Particles* (<1 mm);
- p) *Microplastics*, most commonly defined as manmade solid particles composed of mixtures of polymers and functional additives, smaller than 5 mm;
- q) *Plastic* means a material consisting of a polymer, to which additives or other substances may have been added, and which can function as a main structural component of final products, with the exception of natural polymers that have not been chemically modified;
- r) *Primary microplastics* are tiny particles designed for direct commercial use (such as cosmetics, detergents and paints components), or for indirect use (such as pre-production pellets);
- s) *Secondary microplastics* means the fraction of microplastics in the marine environment which results from the breakdown of larger plastic items into numerous tiny fragments due to mechanical forces and/or photochemical processes, as well as from other degradation sources such as water bottles, fibres in wastewater from washing clothes and particles of rubber lost from tyres due to normal wear;
- t) *Single Use Plastics (SUPs)*: means an item or product that is made wholly or partly from plastic and that is not conceived; designed or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to a producer for refill or re-used for the same purpose for which it was conceived;
- u) *Waste* means substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law.

ARTICLE 4

Objectives and Principles

Objectives

5. The main objectives of the Regional Plan are to:
 - a) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species (in particular the endangered species), public health and safety, as well as reduction of the socioeconomic costs it causes;
 - b) Remove to the extent possible already existent marine litter by using environmentally sound methods;
 - c) Ensure that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas;
 - d) Enhance knowledge and understanding on marine litter and its impacts;
 - e) Support Contracting Parties in the development, implementation, and coordination of programmes for litter reduction, including National Action Plans (NAPs).

Principles

6. In implementing the Regional Plan, the Contracting Parties shall be guided by:
- a) *Integration* by virtue of which marine litter management shall be an integral part of the solid waste management and other relevant strategies;
 - b) *Prevention* by virtue of which any marine litter management measure should aim at addressing the prevention of marine litter generation at the source;
 - c) *Precautionary principle* by virtue of which where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation;
 - d) *Polluter-pays principle* by virtue of which the costs of pollution prevention, control and reduction measures are to be borne by the polluter, with due regard to the public interest;
 - e) *Ecosystem-based approach* by virtue of which the cumulative effects of marine litter on marine and coastal ecosystem, habitats and species with other contaminants and substances that are present in the marine environment should be fully taken into account;
 - f) *Public participation and stakeholder involvement*;
 - g) *Sustainable Consumption and Production* by virtue of which current unsustainable patterns of consumption and production must be transformed to sustainable ones that decouple human development from environmental degradation, in particular through the use of systemic approaches addressing environmental impacts along the entire value chain, including circular economy.

ARTICLE 5

Preservation of Rights

7. The provisions of this Regional Plan shall be without prejudice to stricter provisions respecting marine litter management measures contained in other existing national, regional or international instruments or programmes.

Part II – Measures and Operational Targets

ARTICLE 6

Coherence and Integration of Measures

8. The Contracting Parties shall make best effort that the measures provided for in Articles 7 to 10 are implemented, as specified in the respective articles, in a coherent manner to achieve good environmental status and relevant targets on marine litter. Various actors shall be involved in the development and implementation of agreed measures as provided for in Article 17.

ARTICLE 7

Integration of marine litter measures into the LBS National Action Plans (LBS NAPs)

9. The Contracting Parties in accordance with Article 5 of the LBS Protocol shall elaborate and implement, individually or jointly, as appropriate, national and regional action plans and programmes, containing measures and timetables for their implementation. In doing so, the Contracting Parties shall consider updating periodically the LBS NAPs to integrate marine litter

in accordance with the provisions of this Regional Plan and other means to perform their obligations.

10. The LBS National Action Plan shall include:
- a) Development and implementation of appropriate policy, legal instruments and institutional arrangements, including adequate management plans for solid waste also including those originating from sewer and storm water systems, [marine litter hotspots from riverine or other land based sources] which shall incorporate marine litter prevention and reduction measures;
 - b) Monitoring and assessment programmes for marine litter [including from marine litter hotspots contributing to litter transport to the marine environment];
 - c) Measures and targets to prevent and reduce marine litter;
 - d) Measures and targets to increase plastic waste collection and recycling;
 - e) Programmes of removal and environmentally sound disposal of existing marine litter according to the national legislation about management of this kind of waste; and
 - f) Awareness raising and education programmes.

ARTICLE 8

Legal and Institutional Aspects

11. For the purpose of implementing the Regional Plan, the Contracting Parties shall adopt, as appropriate, the necessary legislation and/or establish adequate institutional arrangements to ensure efficient marine litter including plastic waste and microplastics reduction and the prevention of its generation. To this aim the Contracting Parties shall endeavor to ensure:
- a) Institutional coordination, where necessary, among the relevant national policy bodies and relevant regional organizations and programmes, in order to promote integration;
 - b) Close coordination and collaboration between national, regional and local authorities in the field of marine litter management;
12. By the year 2028, at the latest, the Contracting Parties shall take adequate regulatory measures to integrate the informal sector³ into regulated waste collection and recycling schemes;
13. By the year 2025, the Contracting Parties shall establish, as appropriate, a regulatory framework for compostable plastics to be integrated into national waste management policies;
14. The Contracting Parties shall give due consideration to the implementation of the relevant related provisions of the Protocols⁴ of the Barcelona Convention affecting marine litter management to enhance efficiency, synergies and maximize the results.

³ Informal recycling sector (IRS) refers to individuals or community enterprises who are involved in the recovery of material and waste management activities which are not necessarily sponsored, financed, recognized, supported, organized, or acknowledged by the formal solid waste authorities.

⁴ Specifically in the framework of the Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, 2002 (Port reception facilities); Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea, 1995 (waste dumping prohibition); Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, 1995 (Regional Plans to protect endangered species; establishment of SPA and SPAMIs); Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, 1994 (prohibition of the disposal of garbage from offshore installations); and the Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movement of Hazardous Wastes and their Disposal, 1996.

ARTICLE 9

Prevention of Marine Litter

15. In conformity with the objectives and principles of the Regional Plan the Contracting Parties shall:
- 15.1 Apply to the extent possible instruments needed to regulate and prevent marine litter pollution including plastic waste from land-based and sea-based sources, in particular the implementation of economic instruments, bans and design requirements:
- a) Extended Producer Responsibility;
 - b) Safe/formal markets for recycled plastics that incentivize the collection of plastic waste and, hence, reduce marine litter generation;
 - c) Fiscal and economic incentives or other equally effective measures (e.g. market restrictions) to promote the phasing out, of light weight plastic carrier bags and other single-use plastic items which are most found and cause the most impact on the marine and coastal environment;
 - d) Innovative business practices to prevent plastic waste generation in line with the Extended Producer Responsibility approach by:
 - i. Establishment of Deposit/Refund System for expandable polystyrene boxes in the commercial and recreational fishing and aquaculture sectors.
 - ii. Establishment of Deposit/Refund System for food and beverage packaging, prioritizing when possible their reuse and recycling including deposit refund systems for bottles, containers and cans (e.g. glass, plastic and aluminium).
 - e) Best practices to create incentives for:
 - i. Fishing vessels to retrieve derelict fishing gear, collect other items of marine litter, and deliver it to port reception facilities;
 - ii. Delivering waste in port reception facilities such as the non-special fee system.
- 15.2 Apply by the year 2025, prevention measures aiming to achieve, to the extent possible, a circular economy for plastics:
- a) Regulate the use of primary microplastics, as appropriate, by promoting voluntary commitments (e.g. certification schemes) or other actions (e.g. legal instruments);
 - b) Implement Sustainable Procurement Policies prioritizing the phase out of single-use plastic products and promoting reuse options. To this aim, the Contracting Parties may consider the list of Single Use Plastic Items presented in Appendix I to the Regional Plan;
 - c) Establish voluntary agreements with retailers and supermarkets to set an objective of reduction of light weight plastic carrier bags consumption as well as selling dry food or cleaning products in bulk and refill special and reusable containers;
 - d) Establish procedures and manufacturing methodologies together with the plastic industry in order to minimize the decomposition characteristics of plastic and reduce microplastic;
 - e) Identify single-use plastic products which are most found and cause impacts on the marine environment and implement sound measures to phase out consumption and production and minimise the risk to end up in the marine environment. To this aim, the Contracting Parties may consider in addition to the list of Single Use Plastic Items presented in Appendix I, the List of Chemical Additives of Concern Used in Plastic Production in Appendix II to the Regional Plan;

- f) Set targets to phase out production and use of nonreusable, non-recyclable, and non-compostable plastic products;
- g) Take adequate measures to increase the reuse and recycling of plastics toward total plastic products;
- h) Phase-out chemical additives used in plastic products, that may have serious and often irreversible effects on human health and the environment, and in particular those chemicals already listed under the Stockholm Convention contained as Annex II of this Regional Plan;
- i) Promote the use of recycled plastics and disincentivize the use of plastic, resins and additives which hinder products recyclability;
- j) Endeavor to substitute plastics causing substantial impacts on the marine environment with materials with net positive impacts verified by life cycle assessment;
- k) Implement standards for product labelling (including on packaging) to provide consumers with clear and reliable information on sustainable choices;
- l) Establish dedicated collection and recycling schemes supported by Extended Producer Responsibility approach for end-of-life products;
- m) Implement measures to minimize the amount of marine litter associated with fishing/aquaculture;
- n) Scale-up and replicate sustainable models providing solutions to reduce single-use plastic products consumption;

15.3 Land-based Sources

- a) By the year 2025, base urban solid waste management on reduction at source, applying the following waste hierarchy as a priority order in waste prevention and management legislation and policy: prevention, preparing for re-use, recycling, other recovery, e.g. energy recovery and environmentally sound disposal;
- b) By the year 2019, implement adequate waste reducing/reusing/recycling measures in order to reduce the fraction of plastic packaging waste that goes to landfill or incineration without energy recovery;
- c) Take the necessary measures by the year 2020 to close to the extent possible the existing illegal dump sites on land in the area of the application of this Regional Plan;
- d) Take the necessary measures by 2027 to identify and, to the extent possible, restore and contain, the coastal landfills that are a source of marine litter;
- e) Apply in accordance with national and regional legislation enforcement measures to combat dumping, littering on the beach, illegal sewage disposal from land sources in the sea, the coastal zone, [rivers and marine litter hotspots] in the area of the application of this Regional Plan;
- f) Taking into consideration the occurrence and extent of marine litter accumulations, identify and assess by the year 2025, impacts of these accumulations in upstream regions of rivers and their tributaries, and apply measures to prevent or reduce their leakage into the Mediterranean, particularly during flood seasons and other extreme weather events;
- g) Apply enforcement measures to prevent, reduce and sanction illegal dumping and illegal littering in accordance with national and regional legislation, in particular on coastal zones and rivers in the area of the application of the Regional Plan;

15.4 Sea-based Sources

- h) In accordance with Article 14 of the Prevention and Emergency Protocol, explore and implement by 2017, to the extent possible, ways and means to charge reasonable cost for the use of port reception facilities or when applicable, apply No-Special-Fee system. The Contracting Parties shall also take the necessary steps to provide ships using their ports with updated information relevant to the obligations arising from Annex V of MARPOL Convention and from their legislation applicable in the field;
- i) Implement targeted measures by 2025 aiming at preventing and reducing marine litter impact in Marine Protected Areas (MPAs) and Specially Protected Areas of Mediterranean Importance (SPAMIs);
- j) Explore and implement to the extent possible by the year 2017 “Gear marking to indicate ownership” concept and “reduced fishing catches through the use of environmental neutral upon degradation of nets, pots and traps concept,” in consultation with the competent international and regional organizations in the fishing sector;
- k) Apply by the year 2020 the cost-effective measures to prevent any marine littering from dredging activities taking into account the relevant guidelines adopted in the framework of Dumping Protocol of the Barcelona Convention;
- l) Take the necessary measures to ensure that cruise ships flying their flag or entering their ports implement the procedures for minimizing, collecting, storing, processing and disposing of garbage;
- m) Take the necessary measures to promote best practices to prevent plastic waste and particularly single use plastic products in tourism and leisure activities including cruise shipping, including through regional cooperation;
- n) Implement measures on prevention, response and remediation regarding litter from maritime accidents, including containers lost at sea.

ARTICLE 10

Removing Existing Marine Litter and its Environmentally Sound Disposal

- 16 The Contracting Parties shall, where it is environmentally sound and cost effective, remove existing accumulated litter, subject to Environmental Impact Assessment procedure, in particular from Marine Protected Areas (MPAs) and Specially Protected Areas of Mediterranean Importance (SPAMI) and litter impacting endangered species listed in Annexes II and III of the SPA and Biodiversity Protocol. To this aim the Contracting Parties undertake to explore and implement to the extent possible the following measures by the year 2019. To this aim the Contracting Parties undertake to explore and implement to the extent possible the following measures by the year 2019:
- a) Identify, in collaboration with relevant stakeholders, accumulations/hotspots of marine litter at sea and implement, as appropriate, national programmes on their regular removal and sound disposal;
 - b) Implement National Marine Litter Cleanup Campaigns on a regular basis and evaluate their effectiveness;
 - c) Implement Cleanup Campaigns on a regular basis driven by beach; concessionaries/ managers/ local authorities, including outside the touristic season;
 - d) Participate in International Coastal Cleanup Campaigns and Programmes;⁵

⁵ e.g. International Coastal Clean-Up Day; the Ocean Day; etc.

- e) Apply as appropriate ‘Adopt-a-Beach’ or similar practices⁶ and enhance public participation role with regard to marine litter management;
 - f) Apply Fishing for Litter in an environmentally sound manner, based on agreed guidelines and best practice, in consultation with the competent international and regional organizations and in partnership with fishermen and ensure adequate collection, sorting, recycling and/or environmentally sound disposal of the fished litter;
 - g) Charge reasonable costs for the use of port reception facilities or, when applicable apply No-Special-Fee system, in consultation with competent international and regional organizations, when using port reception facilities for implementing the measures provided for in Article 10.
- 17 The Contracting Parties shall explore and implement to the extent possible by the year 2017 the “Fishing for Litter” environmentally sound practices to facilitate clean-up of the floating litter and the seabed from marine litter caught incidentally and/or generated by fishing vessels in their regular activities including derelict fishing gear.
- 18 The Contracting Parties shall explore and implement to the extent possible by the year 2025, targeted activities for the localization and retrieval, and where possible, reuse or recycling of derelict fishing gear including through new environmentally sustainable technologies.

Part III – Assessment

ARTICLE 11

Assessment of Marine Litter in the Mediterranean

- 19 The Contracting Parties shall assess in the framework of ecosystem approach the state of marine litter, the impact of marine litter on the marine and coastal environment and human health, as well as the socio-economic aspects of marine litter management based on coordinated and, if possible, common agreed methodologies, national monitoring programmes and surveys.
- 20 The Secretariat shall prepare the assessment of marine litter in the Mediterranean every six years using results of the national monitoring programmes and applied measures with the view to address priority issues and major information and data gaps, using all other available relevant regional and international data and where appropriate responses by the Contracting Parties to specific marine litter related questionnaires prepared by the Secretariat.
- 21 The first Assessment of the state of marine litter in the Mediterranean based on the existing information shall be submitted to the meeting of the Contracting Parties two years after entry into force of the Regional Plan.

ARTICLE 12

Mediterranean Marine Litter Monitoring Programme

- 22 Based on ecosystem approach ecological objectives and integrated monitoring programme, and in synergy with the relevant international and regional guidelines and documents, the Contracting Parties, on the basis of the proposals of the Secretariat, shall:
- a) Prepare the Regional Marine Litter Monitoring Programme, as part of the Integrated Monitoring and Assessment Programme (IMAP);

⁶ e.g. Marine Litter Watch of the European Environment Agency

- b) Establish in the year 2016 the Regional Data Base on Marine Litter which should be compatible with other regional or overarching databases;
 - c) Establish by the year 2014 Expert Group on Regional Marine Litter Monitoring Programme, in the framework of the implementation of the Ecosystem Approach.
- 23 For the purpose of this Regional Plan and in compliance with the monitoring obligations under Article 12 of the Barcelona Convention and Article 8 of the LBS Protocol, the Contracting Parties shall design by the year 2017 National Monitoring Programme on Marine Litter.
- 24 The National Monitoring Programmes should address:
- a) The need for harmonization and consistency with the integrated regional monitoring programme based on ecosystem approach and consistency with other regional seas;
 - b) Aspects related to monitoring litter originating from riverine inputs;
 - c) The need for litter monitoring in high sensitivity areas (endangered species, key habitats, etc.), and in Specially Protected Areas in the Mediterranean (SPAMIs).
- 25 To this aim, the Secretariat shall prepare, in collaboration with the relevant regional organizations, by the year 2014 the Guidelines for the preparation of the National Marine Litter Monitoring Programmes.

Part IV – Support to Implementation

ARTICLE 13

Research Topics and Scientific Cooperation

- 26 The Contracting Parties agree to cooperate, with support from the Secretariat, with competent international and regional organizations and relevant scientific institutions, on marine litter issues that due to their complexity require further research.

ARTICLE 14

Specific Guidelines

- 27 The Secretariat in cooperation with relevant international and regional organizations, shall prepare specific guidelines, taking into account where appropriate existing guidelines, to support and facilitate the implementation of measures provided for in articles 9 and 10 of the Regional Plan. Subject to availability of external funds such guidelines shall be published in different Mediterranean region languages.

ARTICLE 15

Technical Assistance

- 28 For the purpose of facilitating the implementation of the measures and monitoring obligations as provided for in Articles 7 to 10 and 12 of the Regional Plan, technical assistance, transfer of knowhow and technology shall be provided, including capacity building, by the Secretariat to the Contracting Parties in need of assistance.

ARTICLE 16

Enhancement of Public Awareness and Education

- 29 Due to the nature of the marine litter management issue, enhancement of public awareness and education, and co-responsibility of all stakeholders are very important components of the marine litter management.
- 30 To this aim the Contracting Parties shall undertake to the extent possible, where appropriate, in synergy with existing initiatives in the field of education for sustainable development and environment, and in partnership with civil society, public awareness and education activities, with adequate duration and follow up, with regard to marine litter management including activities related to prevention and promotion of sustainable consumption and production.

ARTICLE 17

Major groups and Stakeholder Participation

- 31 For the effective implementation of the Regional Plan, the Contracting Parties shall encourage appropriate involvement of, and partnerships with, various stakeholders including local authorities, civil society, private sector (producers, garbage collection and treatment companies, etc.) and other stakeholders as appropriate:
 - a) Regional, National and local authorities;
 - b) Maritime sector;
 - c) Tourism sector;
 - d) Fisheries and Aquaculture;
 - e) Agriculture;
 - f) Industry; and
 - g) Civil society.

ARTICLE 18

Regional and International Cooperation

- 32 For the purpose of facilitating the implementation of the Regional Plan the Secretariat shall establish institutional cooperation with various relevant regional and global institutions and initiatives.
- 33 The Contracting Parties shall cooperate directly or with the assistance of the Secretariat or the competent international and regional organizations to address transboundary marine litter cases.

ARTICLE 19

Reporting

- 34 In conformity with Article 26 of the Barcelona Convention and Article 13, paragraph 2(d), of the LBS Protocol the Contracting Parties shall report on a biennial basis on the implementation of this Regional Plan, in particular the implementation of the above measures, their effectiveness and difficulties encountered and data resulting from monitoring programme as provided for in Article 12 of this Regional Plan.
- 35 The Contracting Parties shall review biennially the status of implementation of the Regional Plan upon its entry into force, on the basis of the regional report prepared by the Secretariat.

Part V – Final Provisions

ARTICLE 20

Implementation Timetable

- 36 The Contracting Parties shall implement this Regional Plan, in particular the above measures according to the timetables indicated in the respective Articles of the Regional Plan.

ARTICLE 21

Entry into Force

- 37 The present Regional Plan shall enter into force and become binding on the 180th day following the day of notification by the Secretariat in accordance with Article 15, paragraphs 3 and 4, of the LBS Protocol.

ARTICLE 22

Enforcement of Measures

- 38 The Contracting Parties shall take the necessary actions to enforce the measures in accordance with their national regulations.

Appendix I
List of Single Use Plastic (SUP) Items

*Mediterranean priority list of SUPs per group of items**

Group of items	Items
Packaging	Bags
Smoking-related	Cigarette filters
Food and beverage packaging	Drink bottles, caps and lids
	Crisp packets and sweet wrappers
On-the-go food and beverage packaging	Cutlery, plates and trays
	Straws and stirrers
	Drinks cups and cup lids
	Food containers including fast food packaging
WC flushed items	Sanitary applications, including cotton buds, wet wipes and sanitary towels
Personal protective equipment	Masks and gloves

* Source of information: *Regional Guidelines to tackle single use plastic products in the Mediterranean (UNEP/MAP SCP/RAC 2021)*

Appendix II

List of Chemical Additives of Concern Used in Plastic Production

List of persistent organic pollutants (POPs) used as additives in plastics and listed in Annex A (elimination) and Annex B (restriction) to the Stockholm Convention as of 2021.⁷

Annex A:

- Decabromodiphenyl ether (commercial mixture, c-decaBDE).
- Hexabromobiphenyl.
- Hexabromocyclododecane (HBCDD).
- Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether).
- Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial pentabromodiphenyl ether).
- Short-chained chlorinated paraffins (SCCPs).
- Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds.
- Polychlorinated biphenyls (PCB).
- Polychlorinated naphthalenes.

Annex B:

- Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF)

List of additives used in plastics and identified as substance of concern in the information document of the 2019 Meetings of the conferences of the Parties to the Basel, Rotterdam and Stockholm conventions (UNEP/POPS/COP.9/INF/28/Add.1 - Plastic and toxic additives, and the circular economy: the role of the Basel and Stockholm Conventions) and main sectors concerned:

1. Substances of concern:

- **Flame-retardants:** polybrominated diphenyl ethers (PBDEs) including commercial pentabromodiphenyl ether (tetraBDE and pentaBDE), commercial octabromodiphenyl ether (hexaBDE and heptaBDE), decabromodiphenyl ether (decaBDE); decabromodiphenylethane (DBDPE); tetrabromobisphenol A (TBBPA); phosphorous flame retardants (e.g. tris(2-chloroethyl)phosphate (TCEP) and tris(2-chlorisopropyl) phosphate (TCPP); short-, medium- and long- chain chlorinated paraffins (SCCPs, MCCPs, LCCPs); boric acid; hexabromocyclododecane (HBCDD); Dechloranes in all its forms (e.g. Dechlorane 602, Dechlorane 603, Dechlorane 604 and Dechlorane Plus); hexabromobiphenyl (HBB); 1,2-bis(2,4,6-tribromophenoxy) ethane (BTBPE); hexabromobenzene (HBBz).
- **Perfluorinated chemicals:** perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF), perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds, perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds.
- **Phthalates:** phthalic acid esters (phthalates); di(2-ethylhexyl) phthalate (DEHP); diisononyl phthalate (DiNP); diisodecyl phthalate (DiDP); di(2-Propyl Heptyl) phthalate (DPHP).
- **Bisphenols:** bisphenol A; 4-tertiary-octylphenol; bisphenol B; bisphenol F; and bisphenol S.
- **Nonylphenols:** nonylphenols (NP); nonylphenol ethoxylates (NPE).

⁷ As of 2021 - New additives are under revision by the POPs Review Committee, for inclusion under the Stockholm Convention: Dechlorane Plus (flame retardant) and UV-328 (antioxidant). Likewise, the POPs Review Committee recommended to list PFHxS, its salts and PFHxS-related compounds under Annex A to the Stockholm Convention (Elimination).

2. Polymers and their additives are extensively used in the following categories of consumer products:

- Children's products.
- Packaging: food and beverage contact materials.
- Electrical and electronic equipment (EEE) and related waste (WEEE/E-waste).
- Textile, upholstery and furniture.
- Construction sector.

Annex II

**Workplan with timetable for the implementation of relevant Articles
of the Regional Plan for Marine Litter Management**

Related Article (Paragraph)	Key pollution prevention measures for implementation in the Regional Plan for Marine Litter Management in the Mediterranean	Target year for implementation of measures																
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Art. 10 (17)	Explore and implement to the extent possible the “Fishing for Litter” environmentally sound practices, in consultation with the competent international and regional organizations, to facilitate cleanup of the floating litter and the seabed from marine litter caught incidentally and/or generated by fishing vessels in their regular activities including derelict fishing gears																	
Art. 10 (18)	Explore and implement targeted activities for the localization and retrieval, and where possible, reuse or recycling of derelict fishing gear including through new environmentally sustainable technologies																	
Art. 11 (19 to 21)	Assessment of marine litter in the Mediterranean																	
Art. 12 (22.b)	Establish the Regional Data Base on Marine Litter which should be compatible with other regional or overarching databases																	
Art. 12 (22.c)	Establish Expert Group on Regional Marine Litter Monitoring Programme																	
Art. 12 (23)	Design National Monitoring Programme on Marine Litter																	
Art. 12 (25)	Prepare the Guidelines for the preparation of the National Marine Litter Monitoring Programmes																	
Art. 19 (35)	Prepare regional report on the implementation of the Regional Plan																	
Related Article (Paragraph)	Other measures that the Contracting Parties legally committed to undertake as per the Regional Plan with no specific deadlines							Proposal by the Secretariat for implementation of activities with non-legally binding deadlines										

Art. 7 (9)	Consider updating periodically the LBS NAPs to integrate marine litter in accordance with the provisions of this Regional Plan and other means to perform their obligations	Final updated NAPs are expected to be submitted by the CPs in 2025.
Art. 8 (11.a)	Ensure institutional coordination, where necessary, among the relevant national policy bodies and relevant regional organizations and programmes, in order to promote integration	As regulatory measures related to plastics and the informal sector under this article are planned for implementation as early as 2025, it is advised that institutional coordination is undertaken no later than 2025.
Art. 8 (11.b)	Ensure close coordination and collaboration between national, regional and local authorities in the field of marine litter management	
Art. 9 (15.1)	Apply to the extent possible instruments needed to regulate and prevent marine litter pollution including plastic waste from land-based and sea-based sources, in particular the implementation of economic instruments, bans and design requirements, EPR, safe/formal markets for recycled plastics, fiscal and economic incentives, innovative business practices, best practices to create incentives)	As marine litter prevention measures to apply circular economy for plastics, and to address land-based and sea-based sources of pollution are predominantly planned for implementation by 2025, it is advised that instruments to regulate and prevent marine litter pollution are put in place prior to 2025 in order to ensure the successful implementation of the other measures.
Art. 9 (15.3.e)	Apply enforcement measures to combat dumping, littering on the beach, illegal sewage disposal from land sources in the sea, the coastal zone and rivers	Implementation of enforcement measures related to illegal dumping is crucial for the successful prevention of marine litter from land-based sources. As these measures are mainly planned for 2025, it is advised that enforcement measures are in place prior to this date.
Art. 9 (15.3.g)	Apply enforcement measures to prevent, reduce and sanction illegal dumping and illegal littering in accordance with national and regional legislation, in particular on coastal zones and rivers	
Art. 9 (15.4.l)	Take the necessary measures to ensure that cruise ships flying their flag or entering their ports implement the procedures for minimizing, collecting, storing, processing and disposing of garbage	Deadlines for measures to prevent marine litter from sea-based sources go back to 2017. It is advised that measures related to minimizing, collecting, storing, processing and disposing of garbage from cruise ships are implemented as early as possible.
Art. 9 (15.4.m)	Take the necessary measures to promote best practices to prevent plastic waste and particularly single use plastic products in tourism and leisure activities including cruise shipping, including through regional cooperation	
Art. 9 (15.4.n)	Implement measures on prevention, response and remediation regarding litter from maritime accidents, including containers lost at sea	
Related Article (Paragraph)	Other measures that the Contracting Parties legally committed to undertake as per the Regional Plan with no specific deadlines	Proposal by the Secretariat for implementation of activities with non-legally binding deadlines

Art. 12 (24)	Design National Monitoring Programme on Marine Litter to include: (a) harmonization and consistency with the integrated regional monitoring programme based on EcAp; (b) the need for litter monitoring in high sensitivity areas (endangered species, key habitats, etc.), and in Specially Protected Areas in the Mediterranean (SPAMIs); and (c) the need for litter monitoring in high sensitivity areas (endangered species, key habitats, etc.), and in Specially Protected Areas in the Mediterranean (SPAMIs)	Deadlines for establishment and implementation of marine litter monitoring programmes go back to 2014 with deadlines as later as 2017. It is advised that in case monitoring programmes are not in place to establish these programmes and to implement monitoring activities as early as possible.
Art. 14 (27)	Prepare specific guidelines, taking into account where appropriate existing guidelines, to support and facilitate the implementation of measures provided for in articles 9 and 10 of the Regional Plan	A number of guidelines related to marine litter management have been prepared, and or under preparation. Implementation of activity should continue as long as the need for such guidelines is existent.
Art. 16 (29)	Enhance public awareness and education	Enhancement of public awareness and education is a necessary condition for the successful implementation of the measures of this Regional Plan. CPs are advised to put in place and to strengthen existing mechanisms to enhance public awareness, as early as possible, because the lack of such arrangements has detrimental effects on the successful implementation of all measures of this Regional Plan.
Art. 17 (31)	Encourage appropriate involvement of, and partnerships with, various stakeholders	Encouraging involvement and partnerships with various stakeholders is crucial for the effective implementation of the Regional Plan.
Art. 18 (33)	Cooperate directly or with the assistance of the Secretariat or the competent international and regional organizations to address transboundary marine litter cases	This is an on-going which should be pursued in each biennium.

Annex III

Potential Research Topics to Support the Implementation of the Regional Plan for Marine Litter Management in the Mediterranean

Introduction

Development and implementation of assessment and monitoring, as well as implementation of measures in the framework of this Regional Plan shall require scientific cooperation among parties involved. Due to complexity of marine litter management, there are quite a number of topics that require further research. In the list below are presented some of the potential research topics:

SOURCES, DISTRIBUTION AND COMPOSITION OF MARINE LITTER

- Identification (size, type, possible impact) and evaluation of accumulation areas (closed bays, gyres, canyons, and specific deep sea zones) and sources of litter, including maritime activities (how, why and by whom litter is disposed and the types of vessels/activities involved), industrial, agricultural and urban activities, rivers and diffuse inputs. Develop GIS and mapping systems to locate these.
- Evaluation of the quantity and localization of lost fishing gears.

DEGRADATION OF MARINE LITTER

- Evaluation of rates of degradation of different types of litter (plastics, degradable materials, bio plastics, etc.) and related leachability/sorbance of pollutants.
- Support research on new materials (total degradation in the environment).

MICROLITTER

- Identification of main sources (industrial pellets and personal hygiene products related micro litter particles).
- Define harm for micro litter to establish potential physical and chemical impacts on wildlife, marine living resources and the food chain.
- Define adequate indicators for the Mediterranean to assess the micro litter problem and its effects.

MODELLING

- Development of comprehensive modelling tools for the evaluation and identification of sources and fate of litter in the marine environment (including the identification of the accumulation areas and/or impacted by accidental inputs and estimating residence time).

IMPACTS/EFFECTS

- Effects (lethal or sub lethal) under different environmental conditions of entanglement, in particular threatened and protected species.
- Understanding how litter ingested by marine organisms, in particular threatened and protected species, affects their physiological condition and chemical burdens, reduces survival and reproductive performance and ultimately affects their populations or communities.
- Evaluation of the potential loss of fish stocks due to abandoned / lost fishing gears.
- Development of impact indicators (aesthetic impact, effects on fauna, flora and human health).
- Evaluation of the risk for transportation of invasive species.

COSTS

- Evaluation of direct costs and loss of income to tourism and fishery (incomes and stock losses, including protected/endangered species).
- Evaluation of costs due to clogging of rivers, coastal power plant cooling systems and/or wastewater purification systems.
- Effectiveness of market -based instruments related to marine litter.
- Development of common methodologies to evaluate the costs of removal (collection and elimination of marine litter).

EDUCATION / SENSIBILISATION

- Evaluate the effectiveness of programs of education and sensibilisation on beach cleanliness.
- Develop a best practice database.

MONITORING

- Support the rationalisation of monitoring (common and comparable monitoring approaches, standards/baselines, inter-calibration, data management system and analysis / quality insurance).
- Facilitate the harmonization of monitoring protocols for Baltic Sea, Black Sea, Mediterranean Sea and NE Atlantic.
- Develop monitoring and prevention systems for massive and accidental inputs of litter in the marine environment.

SOCIAL ASPECTS

- Development of common methodologies to collect social and economic data.
- Assessment of socially acceptable levels of marine litter to the public and industry.
- Define and promote successful social behavior changes.
- Development of an indicator for the aesthetic impact of litter.

TECHNICAL MEASURES

- Develop tools to assess the effectiveness of measures intended to reduce the amount of marine litter.
- Identification of accumulation areas of importance.
- Ranking of the ports to be equipped in priority with port reception facilities taking into consideration the Mediterranean maritime traffic.
- Share the collection and elimination of transboundary marine litter, including the intervention in case of critical situation.

LEGAL/ INSTITUTIONNAL

- Compare and harmonize national Mediterranean systems (jurisdictional measures and institutional structures) with other conventions to support management schemes dedicated to marine litter.
- Support development of agreement to tackle plastic pollution

Annex IV

2021 Baseline Values and Threshold Values for IMAF Common Indicator 22

Table 1: 2021 Baseline Values and Threshold Values for IMAP Common Indicator 22

IMAP Indicators	Categories of Marine Litter	2016 Baseline Values	2021 Baseline Values	2021 Threshold Values
Common Indicator 22	Beach Marine Litter	450-1400 items/100m	369 items/100m	130 items/100m

Draft Decision IG.25/10

MAP Data Policy

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Considering Decision IG.17/5 on the governance of the UNEP/MAP-Barcelona Convention system, adopted by the Contracting Parties at their 15th Meeting (COP 15) (Almeria, Spain, 15-18 January 2008), and Decision IG.19/6 on the Mediterranean Action Plan Civil Society Cooperation and Partnership, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009),

Considering further Decisions IG.20/13, IG.21/13, IG.23/3 and IG.24/2 on governance, adopted by the Contracting Parties at their 17th (COP 17) (Paris, France, 8-10 February 2012), 18th (COP 18) (Istanbul, Turkey, 3-6 December 2013), 20th (COP 20) (Tirana, Albania, 17-20 December 2017), and 21st (COP 21) (Naples, Italy, 2-5 December 2019) Meetings respectively,

Recalling the mandate of INFO/RAC, as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Acknowledging the importance to apply the UNEP/MAP Data Policy in the data managed by the UNEP/MAP Barcelona Convention System in order to achieve a base level of legal interoperability,

1. *Adopt* the United Nations Environment Programme/Mediterranean Action Plan (UNEP/MAP) Data Policy as set out in Annex I to the present Decision;
2. *Request* the Secretariat (INFO/RAC) to provide the necessary technical support to Contracting Parties and to address any needs identified to fully implement the UNEP/MAP Data Policy;
3. *Call upon* the Contracting Parties to take effective measures to implement the UNEP/MAP Data Policy.

Annex I

MAP Data Policy

Index

PREAMBLE

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SECTION 7: Warranty SECTION 8: Quality SECTION 9: Update SECTION 10: License
applied ANNEX I - DATA LICENCES DESCRIPTION**

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ANNEX III – METRIC TABLE TEMPLATE

PREAMBLE

1. As a standard approach, **the present data policy applies for each data flow of UNEP/MAP and its Components**. The general principles suit independently from the nature and the topic of the data flows. General restrictions have been foreseen for all the data flows.
2. Operational and specific aspects will be defined in the data metric policy (data management plan), as in the annex III, developed for each of the following data flows: IMAP, BCRS, NBB, etc. included in the InfoMAP Platform (the Information System of UNEP/MAP managed by INFO/RAC).
3. A reference document will be developed for each data flow including a summary of data management aspects and the data metric policy (data management plan) that describes the access rights of users and layers.

UNEP/MAP ADOPTS THE BASIC DATA POLICY PRINCIPLES FOR THE EXCHANGE OF DATA RELATED TO THE ENVIRONMENT OF MEDITERRANEAN SEA IN THE FRAMEWORK OF BARCELONA CONVENTION AND ITS PROTOCOLS.

ASSESSMENT OF GENERAL PRINCIPLES

4. The data policy aims to ensure that data are managed transparently, properly disseminated and recognized, in compliance with principles and rules across Countries and stakeholders.

As a general assumption, data and information should be managed **as close as possible to its source, collected once and shared with others for many purposes and readily available to easily fulfil the UNEP/MAP mandates**.

5. Data and environmental information should be accessible to enable comparisons of the state of the environment at the appropriate geographic scale, fully available to the general public and to facilitate citizen participation using the appropriate level of aggregation where needed.
6. Supported through common, free and open software standards and proprietary action based on an interoperable Infrastructure for Spatial Information in the Mediterranean area.
7. The policy will cover environmental data and information collected, acquired, processed and disseminated by UN Environment Programme/Mediterranean Action Plan through the InfoMAP Platform.

RECOGNISING:

8. The Shared Environmental Information System (SEIS) principles and the benefits of a regular SEIS-based reporting process for environmental assessment to improve and optimise existing information systems and processes.
9. The European Neighborhood Instrument (ENI)-SEIS initiative adopted by European Environmental Agency (EEA), which extends the principles of SEIS, also to the neighbouring countries, to ensure coherence and harmonization of environmental reporting at the regional level in support of a more efficient policymaking.
10. The importance of data sharing in achieving the Global Earth Observation System of Systems (GEOSS) vision, its interconnected societal benefits and the GEOSS Data Sharing Principles with the work of the Group on Earth Observations (GEO).
11. The importance of the six principles of the International Open Data Charter, in which states undertake to provide open data policies that make data accessible and freely available while protecting the rights of individuals and communities.
12. The INSPIRE EU Directive (INfrastructure for SPatial Information in the European) that establishes harmonised conditions of access to spatial data sets and services and facilitates the sharing

of spatial data sets and services between public authorities in Member States and between Member States, the institutions and bodies of the Community.

13. In developing this (MAP-Barcelona Convention data sharing policy), due consideration was given to existing regional and global policy and regulatory frameworks where appropriate as:

1. Directive 2019/1024/EU of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information
2. Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010
3. Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) and related Implementing Rules,
4. Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC,
5. The UN Convention of 1998 on the access to information, public participation in decision-making and access to justice in environmental matters (the Aarhus-Convention) and Regulation (EC) No 1376/2006 of the European Parliament and of the Council of 6 September 2006 on the application of the provisions of the Aarhus Convention on access to information, participation in decision-making and access to justice in environmental matters to Community institutions and bodies,
6. Directive 1996/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases,
7. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC

GENERAL DEFINITIONS

14. **FULLY, OPENLY AND FREELY AVAILABLE:** complete, non-discriminatory and without charge.

15. **AT NO COST:** in the context of this document means at no more than the cost of reproduction and delivery, without charge for the data.

16. **ENVIRONMENTAL DATA:** individual items or records (both digital and analogue) usually obtained by measurement, observation or modelling of the natural world and the impact of humans upon it. This includes data generated through complex systems, such as information retrieval algorithms, data assimilation techniques and the application of models.

17. **USERS:** users accessing UNEP/MAP data through INFO/RAC and other MAP Components dissemination platforms.

18. **PRODUCTS AND SERVICES:** all information that results from the transformation or processing of data in the form of assessments, web services, pictures, charts, text, or data files embodying substantial know-how. Usually associated with value adding

19. **RE-DISTRIBUTION:** distribution to a third party other than the originator of the data and products.

20. **RE-USE:** the use by persons or legal entities of data and documents held by public sector bodies, for commercial or non-commercial purposes other than the initial purpose within the public task for which the data and documents were produced. Exchange of data and documents between public sector bodies purely in pursuit of their public tasks does not constitute re-use.

SECTION 1: Subject Matter

21. This policy covers direct and indirect environmental data, including the geospatial ones, collected, acquired, processed and disseminated by UNEP/MAP CU, INFO/RAC, and other MAP Components, including data flows within the framework of the Barcelona Convention and its Protocols.
22. As such, this policy covers data which is owned by UNEP/MAP as well as data which is owned by the Contracting Parties to the Barcelona Convention and its Protocols or third parties that produce data that are of interest to environmental policies in the Mediterranean Sea and Coast.
23. Much of the source data made available to INFO/RAC falls into the category of being owned by other Organizations and in particular by Contracting Parties.
24. From these source data, added value data products are created as part of “UNEP/MAP-Barcelona Convention mandate”. This process can also add value for other Organizations or processes to whom these data can be disseminated as sources of input to their work.

SECTION 2: Objectives

25. Within the framework of the Barcelona Convention the main objectives of the MAP data policy are to support, promote and enable:

- the continuing availability of latest data and the maintenance of long-term series of observations,
- wider exploitation, re-use and re-combination of data from different sources in different frameworks and media than those for which they were originally commissioned,
- full, free and open access to all kinds of data, where possible, whilst recognizing and respecting the variety of business models and data ownerships that enable these data to be created,
- protection of integrity, transparency, and traceability in environmental data, analysis and forecasts,
- recognition of data providers and of their intellectual property rights through citation and data licenses,
- meeting relevant national legislations and government guidance on the management and distribution of environmental information,
- implementation of INSPIRE, SEIS principles, Copernicus and GEOSS data sharing principles,
- interoperability and use of European or international standards,
- use of crowd sourced and citizen science data,
- recognition of the quality of data through quality assurance and quality control procedures,
- publication of relevant metadata,
- stewardship and sharing of data from research projects.

SECTION 3: Data Provision

26. Data providers (Contracting Parties to the Barcelona Convention and its Protocols, and the UNEP/MAP-Barcelona Convention System) are expected to follow the principle that all data and products, financed with public means should be fully available for use by public bodies, and that these data should be made available for others to use with as few restrictions as possible (see following section 4).
27. Location, such as latitude/longitude coordinates, should be collected and documented with environmental and related data, without precluding access to basic information needed by other data that may be needed to meet the activity required by UNEP and MAP Components’ actions.
28. The data provider shall clearly specify intellectual property rights, use or re-use conditions, including statistical confidentiality, and quality statements in metadata information for each type of data (metadata, raster/image data etc.).

29. Data classified by the provider as “restricted” will be treated with appropriate levels of security and confidentiality, enabling access only to the profiles of authorized users.

30. The UNEP/MAP-Barcelona Convention system accepts and encourages data provided from crowd sourcing and citizen science. UNEP/MAP, through INFO/RAC, will make use of this type of data in its products and services where it judges that it is appropriate to do so and taking into account the available information on the quality of data.

SECTION 4: Access To and Redistribution

31. The data made available by the UNEP/MAP platforms are accompanied by a data license.

32. The data made available, as collected and coming from a third party may have agreements and licenses different from those defined and approved by the Contracting Parties to the Barcelona Convention and its Protocols, with license conditions agreed by INFO/RAC with the producers in order to guarantee the access limits and how to make the data available to others.

33. Possible reclassifications of the data to less detailed scales can be made by UNEP/MAP, through INFO/RAC, in agreement with the data provider or the Contracting Parties, in order to make the dataset open or free of limitations of use.

34. Access to data covers both technical access and the policies that govern access.

35. Products created by UNEP/MAP, INFO/RAC and other MAP Components are considered a public good and where possible, they will be made fully, freely and openly available for others to use.

36. As a standard approach, all data held by UNEP/MAP shall be made available with minimum time delay and at no cost.

Exception to this general rule include:

- Restriction apply resulting from binding rules,
- Restriction apply resulting from international treaties,
- Restriction apply resulting from national legislations,
- Restriction apply resulting from the protection of personal data,
- Restriction apply resulting from statistical confidentiality,
- Restriction apply resulting from the protection of intellectual property rights,
- Restriction apply resulting from the protection of national security (i.e. State security),
- Restriction apply resulting from defense,
- Restriction apply resulting from public security,
- Restriction apply resulting from embargo (limited period)

Other exceptions:

- Data is accompanied by a data license. Data originally made available to the UNEP/MAP-Barcelona Convention system by a third-party may have their own data access agreements and license conditions agreed upon with INFO/RAC, which restricts how or when data can be available to others,
- Limit in the availability of data can be determined also by when the data access request exceeds INFO/RAC handling capacities.

37. INFO/RAC will endeavor to provide access to the source data that underpins MAP-Barcelona Convention system products and services and UNEP/MAP ones, for:

- data held by UNEP/MAP-Barcelona Convention system and managed by INFO/RAC that are owned by others,
- data held by INFO/RAC which have been adapted, combined or harmonized (for instance to cover pan-Mediterranean extent),
- data located, managed and publicly accessible in other bodies or distributed, for instance in national administrations in accordance with SEIS principles,
- data where INFO/RAC has been requested to arrange access, for instance to act as a data provider for third parties (e.g. UNEP/MAP CU, MAP Components, Copernicus services, R&D projects, other public authorities).

38. Data will be provided through discovery, view and, as far as possible, through download services which are compliant with established standards from ISO, OGC, INSPIRE and other relevant standardization bodies.

39. UNEP/MAP, through INFO/RAC, will hold the data where it seems fit and will aim to provide meta-information for all data.

40. As a standard approach, datasets will be distributed under **License CC-BY 4.0** or similar.

SECTION 5: Embargo data case

41. The data produced in the context of international activities by Contracting Parties, UNEP/MAP Coordinating Unit and MAP Components can be subject to an embargo period.

42. The embargo is a limited period of time during which only the producer could analyse or publish the data.

43. The embargo can be indicated in the consortium contract, lender contract, patent, etc. and associated to specific data or requested in specific periods.

44. The reasons of the request have to be motivated and have to be accompanied by metadata in which the embargo period is explicitly stated.

45. The confidentiality, ensured for a limited period of time, does not preclude their processing for flagship publications and other main MAP purposes for which the data will be aggregated.

46. The embargo can be removed at any time by the data providers and official communication should be provided to UNEP/MAP, through INFO/RAC.

47. As a standard approach, a 24 months period is the minimum embargo period.

48. Limit of time for the embargo have not been established. The embargo ceases when the reasons for its request are no more present.

SECTION 6: Recognition of Data Sources

49. UNEP/MAP, though INFO/RAC will take rigorous measures to ensure that data contributors are properly attributed, and the integrity of their contribution preserved. Data providers will normally include stable and unique identifiers in the data they provide so that the owner of the data is known and for other necessary purposes.

50. As a standard approach UNEP/MAP, though INFO/RAC will cite the source of data, and may offer opportunities for branding through inclusion of data provider logos, etc. All instances of use of data from crowd-sourcing or citizen science shall be clearly labeled as such by INFO/RAC.

51. UNEP/MAP, though INFO/RAC may undertake and publish benchmarking exercises on data provision in terms of performance and quality.

SECTION 7: Warranty

52. UNEP/MAP data, produced by Contracting Parties and MAP Components and managed by INFO/RAC, are provided ‘as is’ to users without warranty of any kind, either express or implied, including quality and suitability for any purpose.

SECTION 8: Quality

53. Data providers shall retain the primary responsibility for the quality of the data they produce and distribute.

54. For data produced by UNEP/MAP, INFO/RAC in close cooperation with the other MAP Components and under coordination by the Coordinating Unit, shall strive to publish quality metadata including, where appropriate, information on transparency, accuracy, relevance, timeliness, consistency and comparability.

SECTION 9: Update

55. Technological shifts in Information and Communication Technologies are impacting data collection, processing and use in innovative ways. This data policy is designed to enable these opportunities to be explored and used. To enable the benefits of these developments to be fully achieved, this policy will be reviewed at regular intervals (on biennial basis, if necessary).





SECTION 10: License applied

56. Recalling the license definition and description made in previous sections, the data policy is based on the concept of open sharing, and considers the EU PSI Directive¹, as applicable, and relevant policies and guidelines used by geospatial communities to ensure use and re-use of data and products.

57. The licenses, taken into consideration, were those provided by the Creative Commons Licenses (CCL – <http://creativecommons.org>) which are the most common and used licenses available for digital material.

58. In this framework the main license for data, as mentioned in the section 4, is the CC-BY 4.0, although other possible solutions can be adopted according to ANNEX I.

ANNEX I - DATA LICENCES DESCRIPTION

Type of license	Name	Main description
	CC BY Attribution International	<i>THIS LICENSE LETS OTHERS DISTRIBUTE, REMIX, TWEAK, AND BUILD UPON YOUR WORK, EVEN COMMERCIALY, AS LONG AS THEY CREDIT YOU FOR THE ORIGINAL CREATION. RECOMMENDED FOR MAXIMUM DISSEMINATION AND USE OF LICENSED DATA AND PRODUCTS.</i>
	CC BY-SA Attribution-ShareAlike International	<i>THIS LICENSE LETS OTHERS REMIX, TWEAK, AND BUILD UPON YOUR WORK EVEN FOR COMMERCIAL PURPOSES, AS LONG AS THEY CREDIT YOU AND LICENSE THEIR NEW CREATIONS UNDER THE IDENTICAL TERMS. ALL NEW WORKS BASED ON YOURS WILL CARRY THE SAME LICENSE, SO ANY DERIVATIVES WILL ALSO ALLOW COMMERCIAL USE.</i>
	CC BY-NC Attribution- NonCommercial International	<i>THIS LICENSE LETS OTHERS REMIX, TWEAK, AND BUILD UPON YOUR WORK BUT NOT FOR COMMERCIAL PURPOSES, AS LONG AS THEY CREDIT YOU FOR THE ORIGINAL CREATION.</i>
	RESTRICTED	<i>UNEP/MAP CAN COLLECT DATA CONTAINING INDIVIDUALLY IDENTIFIABLE INFORMATION THAT ARE CONFIDENTIAL AND PROTECTED BY LAW OF ONE OR MORE COUNTRIES OF MEDITERRANEAN AREA. THIS INFORMATION IS NOT PUBLICLY RELEASED, AND THE TERM "RESTRICTED-DATA" IS USED TO REFER TO DATA OF THIS TYPE. THIS IS A LICENSE FOR MAKING MORE DETAILED DATA AVAILABLE TO QUALIFIED USERS, ONLY UNEP/MAP EXPERT CAN OPERATE ELABORATION TO PRODUCE DERIVED PRODUCTS.</i>

ANNEX II – MINIMUM DATASET LIST







For the following list of data sets the proposed licence is binding:

Thematic dataset	Licence
Basemap layer	
Administrative Unit	CC-BY 4.0
Hydrography	CC-BY 4.0
Coastline	CC-BY 4.0
Environmental data	
Protected Sites/area	CC-BY 4.0
Habitat	CC-BY 4.0
Species Distribution	CC-BY 4.0
Monitoring station	CC-BY 4.0
Monitoring programme parameter	CC-BY 4.0
Monitoring measurement	CC-BY 4.0 to Restricted
Land cover	CC-BY 4.0
Land use	CC-BY 4.0
Population distribution	CC-BY 4.0
Coastline urbanization	CC-BY 4.0
Industrial sites	CC-BY 4.0 to Restricted
Landfill sites	CC-BY 4.0 to Restricted
Flood maps	CC-BY 4.0
Surface temperature	CC-BY 4.0
Water salinity	CC-BY 4.0
Beach litter dump	CC-BY 4.0

ANNEX III – METRIC TABLE TEMPLATE

For each data flow a detailed table will be built, following consultation with Contracting Parties. The metric table will include the data the access rights for each available layer. The table will be part of the reference document resuming the data management rules for each data flow.

		Data Production				Data Aggregation		Map and document products
		Contracting Parties Data		MAP Components data	Third Party data	Minimum Common layer	Aggregation layer	
		Base Layer data	Environmental data					
Contracting Party users	National Focal Point user							
	National Expert user							
	Reporter user							
MAP Component users	CU							
	INFO/RAC							
	MEDPOL							
	REMPEC							
	PB/RAC							
	PAP/RAC							
	SCP/RAC							
	SPA/RAC							
MAP Partners								
Anonymous users								

Legend	
	All right to view, download and edit/manage data
	All right to view, download and edit/manage National data
	Right to view and download data
	Right to view and download national data
	Right to view only data
	No right

Draft Decision IG.25/11

Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO)

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res.10 of 15 March 2019, entitled “Innovation on biodiversity and land degradation”,

Considering the Post-2020 Global Biodiversity Framework elaboration (Convention on Biological Diversity)

Having regard to the Barcelona Convention, in particular Article 10 thereof, whereby Contracting Parties shall, individually or jointly, take all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats, in the Mediterranean Sea Area,

Having also regard to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, hereinafter referred to as “the SPA/BD Protocol”, in particular Article 3 paragraph 4 thereof, whereby Contracting Parties shall adopt strategies, plans and programmes for the conservation of biological diversity and the sustainable use of marine and coastal biological resources,

Recalling Decision IG.24/7 on Strategies and Action Plans under the SPA/BD Protocol, including the SAP BIO, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Aware that the achievements gained in conserving Mediterranean biodiversity and the increase in knowledge on ecosystems and their role for human well-being in the region, have not been sufficient to reduce pressures on and degradation of the Mediterranean coastal and marine environment.

Conscious of the biodiversity-driven developments at global and regional levels, including developments in the Mediterranean Action Plan-Barcelona Convention system, and of the need to strengthen the action to conserve marine and coastal biodiversity in the Mediterranean to achieve good environmental status in the context of SDGs and post 2020 biodiversity agenda,

Noting with appreciation the contribution of the SAP BIO National Correspondents and SAPBIO Advisory Committee Member Organizations to the process of the SAP BIO preparation,

Recalling the mandate of the Regional Activity Centre for Specially Protected Areas (SPA/RAC) as laid down in Decision IG. 19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Having considered the report of the 15th Meeting of Specially Protected Areas and Biological Diversity Focal Points (Videoconference, 23-25 June 2021),

1. *Adopt* the Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO), hereinafter referred to as “Post-2020 SAPBIO”, as a Mediterranean action oriented marine and Coastal Biodiversity Conservation Policy aiming at contributing to the achievement of the good environmental status, to the Sustainable Development Goals and their respective targets, and the CBD Post-2020 Global Biodiversity Framework through the optic of the Mediterranean context, set out in Annex I to the present decision.

2. *Urge* the Contracting Parties to take the necessary measures, for the effective implementation of the Post-2020 SAPBIO, and to report on their implementation in the framework of MAP Barcelona Convention reporting system;

3. *Invite* the Contracting Parties to prepare or revise their National Biodiversity Strategies and Action Plans by fully incorporating the relevant elements of the Post-2020 SAPBIO; and maximise their efforts for their timely implementation;

4. *Invite* the relevant organisations, in particular the members of the Post-2020 SAPBIO Advisory Committee, to continue contributing to the efforts by the Contracting Parties in implementing Post-2020 SAPBIO, as appropriate in close collaboration with the Secretariat (SPA/RAC);

5. *Urge* the Secretariat (SPA/RAC) to provide technical support for the implementation of the Post-2020 SAPBIO, through technical cooperation, capacity building activities, and external resource mobilization;

6. *Invite* the Secretariat, to conduct a mid-term assessment of the collective implementation of the Post-2020 SAP BIO by 2025 and Contracting Parties to review their National Biodiversity Strategies and Action Plans accordingly to ensure the achievement of the Post-2020 SAP BIO objectives by 2030;

7. *Invite* the relevant International Organisations, Funding Agencies, International Donor Community and Contracting Parties as appropriate to give due consideration to the priority actions of SAP BIO in their programming for supporting actions in the Mediterranean region.

Annex I
Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable
Management of Natural Resources in the Mediterranean Region
(Post-2020 SAPBIO)



**Strategic Action Programme for the Conservation
of Biodiversity and Sustainable Management
of Natural Resources in the Mediterranean Region**



Mediterranean
Action Plan
Barcelona
Convention



**Post-2020 Strategic Action Programme for the Conservation
of Biodiversity and Sustainable Management of Natural
Resources in the Mediterranean Region
(Post-2020 SAPBIO)**

Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO)

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EXECUTIVE SUMMARY

Introductory remarks

1. In 2003, the Contracting Parties to the Barcelona Convention adopted the SAPBIO; its evaluation in 2018 concluded that, besides some gaps in its implementation, it played an important regional role in terms of harmonization and alignment of planning for biodiversity conservation, and in facilitating exchanges among departments, within and among countries.
2. Throughout the last decade, regional cooperation on environmental matters delivered significant progress, to which the Barcelona Convention system has largely contributed. Contracting Parties adopted common objectives, monitoring and assessment frameworks, aiming at Good Environmental Status (GES). Transboundary collaboration increased around migratory species, NIS/IAS monitoring, MPA management, assessing fish stock, multiannual fisheries management plans, minimization of discards and incidental catches, and reducing marine litter. All Mediterranean countries have adopted frameworks for ex- ante environmental impact assessment (EIA), and the role of international non-governmental organizations and stakeholder networks has strengthened sharply, improving the opportunities for participation and engagement.
3. In 2019 the Barcelona Convention COP 21 requested to prepare the Post-2020 SAPBIO to be harmonised with the CBD Post-2020 Global Biodiversity Framework (*CBD/GBF*) and aligned with the UN Sustainable Development Goals.
4. Along the period 2020-2021, following a strong bottom-up elaboration process, the Post-2020 SAPBIO was built over the main needs expressed by the Mediterranean countries, through 21 ad-hoc national reports which involved the relevant authorities and stakeholders, and were discussed in national workshops. Given the transboundary nature of most of the biodiversity concerns, the national results were harmonised and the needs prioritised through sub-regional assessments and workshops. Subsequently, several regional drafts were produced and circulated, and recommendations for its elaboration and strategic elements, were provided in draft reviews and meetings of the SAPBIO Advisory Committee and of the SAPBIO National Correspondents, to be finally endorsed by the 15th meeting of SPA/BD Focal Points (June 2021) and MAP Focal Points (September 2021).

Gaps and challenges

5. Despite notable progress, the environmental status of the Mediterranean Sea is in 2020 far from where expected to be; countries are not on the track to achieve and fully implement the agreed upon goals, including the SDGs and the Ecological Objectives for GES. Most trends show some progress towards the set targets, but at an insufficient rate, unequally across the countries, or even moving away from the targets.
6. The Mediterranean Sea is subject to severe pressure from human use: intense fisheries and maritime traffic, marine litter, land-based pollution, the introduction and spread of alien invasive species, underwater noise, and their cumulative impacts with all sources of physical and chemical pollution. Because of its geographical situation it also suffers most from the impacts of climate change, warming 20% faster than the rest of the world. Altogether, it represents the highest proportion of threatened marine habitats.
7. For the time being, knowledge, data availability and sharing, were found insufficient and very patchy. National reports note a great disparity between the northern and the southern shores of the Mediterranean in terms of inventories, mapping and ecological monitoring. The coverage of marine protected areas, even very close to the 10% Aichi target at the regional level, is far from being representative of the Mediterranean Sea biodiversity, while the majority of these protected areas are still ineffectively managed and largely underfinanced.
8. Ambitious regional and international environmental agreements are rarely fully implemented on the ground, and important gaps persist in enforcing them. All the Post-2020 SAPBIO subregional reports, and the most recent and comprehensive studies both at the global and Mediterranean levels, identify

a series of gaps and critical barriers to biodiversity conservation, which are basically consistent across every assessment. Recurrently underlined is the fact that, even when national legislation is fit for purpose, the implementation on the ground is lagging behind; the political influence of the environmental sector remains generally weak, and its Ministries are still under-resourced to deliver the agreed commitments.

9. Among the drivers that should be addressed to relief the pressure on biodiversity, some overarch beyond the strict environmental sector, for example, adequate incentives for the efficient use of marine and coastal natural resources, reducing conflicts among overlapping uses, developing marine spatial planning and integrated coastal management; and to mainstream biodiversity into sector/cross-sector policies, including the accounting of natural capital and ecosystem services. The sub-regional assessments also underline enabling conditions that need be strengthened, such as improving governance and management systems, closing knowledge gaps to efficiently monitor changes, building capacities, sharply increasing the funding conditions from national sources, and largely reinforcing cooperation between countries and from international actors.

The Post-2020 SAPBIO

10. To address the complexity of drivers that impact the Mediterranean Sea and coasts, the Post-2020 SAPBIO proposes a long-term Vision 2050, adapted from the new CBD/GBF (draft) to the Mediterranean context: “By 2050, marine and coastal biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy Mediterranean Sea and coast, and delivering benefits essential for nature and people”.
11. The proposed Mission to 2030, defines what is the strategy’s purpose and approach to reach the Vision: “By 2030 start to reverse the loss of biodiversity and put the Mediterranean marine and coastal biodiversity on the path to recovery for the benefit of nature and people”.
12. The logic of the Post-2020 SAPBIO develops through a hierarchical pattern and terminology analogous to that proposed by the (draft) CBD/GBF:
13. Vision (to 2050) / Mission to 2030 / Goals to 2030 / Targets / Actions
14. The Post-2020 SAPBIO is action-oriented, scientifically based, and built through concise realistic Targets and Actions. It tries to avoid any additional layer of commitments for countries, taking advantage of the plans and strategies already adopted at national and international level. Harmonization has been ensured with the CBD/GBF (draft), the UN-SDGs, and the UNEP Marine and Coastal Strategy (2019); at the Mediterranean level, with the UNEP/MAP Strategies, including the MSSD 2016-2025 and the MAP/MTS (2022-2027), and all the regional strategic documents and frameworks with a Mediterranean significance. It was developed in parallel to the Post-2020 Regional Strategy on MCPAs and OECMs, which goes into the details on all aspects related to MCPAs and OECMs
15. The Post-2020 SAPBIO subregional assessments proposed 10 priority axes based on the main needs expressed by the countries, which accurately capture the Mediterranean needs, and can be found within the goals, targets, programs, of the CBD/GBF, and within all the main and most recent regional biodiversity agreements. Clustered under 3 overarching Goals (adapted from the CBD/GBF), these 10 headings have been kept in the Post-2020 SAPBIO to follow the “theory of change” that also inspires the CBD/GBF (draft) and the UNEP/MCS (2019), methodologically facilitating the precise description of a series of Targets (as outputs) which add up to achieve the Goals and the Mission (the outcome). The Post-2020 SAPBIO Targets directly contribute to the SDGs, CBD/GBF, UNEP (MCS, MAP/MTS), EU BD Strategy to 2030, and GFCM most recent developments (Annex II.b).
16. The Strategy is focused on narrowing the gap between most and less developed countries and promotes mainstreaming biodiversity into all environmental and sectorial policies relevant for the protection and sustainable use of marine living resources. It incorporates the main emerging issues, such as challenges from climate change, the ecosystem approach, ecosystem services, nature-based

solutions, and the need for ecosystem restoration, regarding not only marine but also coastal habitats, such as estuaries, wetlands and dunes.

17. Targets are, as possible, specific, measurable, achievable, relevant and time-bound (SMART); also flexible enough to allow that implementation considers the precise conditions and opportunities of each national context. A total of 27 Targets address the accessible, direct drivers of biodiversity loss. The Post-2020 SAPBIO is not aimed at coping with the indirect drivers of un-sustainability (e. g. trade and financial principles, business models, production and consumption, mitigating greenhouse gases, chemical pollution, etc) although its Targets and Actions consider those that can be readily influenced by the Strategy.

Goals

18. The Goals, and the summarized statement of their respective Targets, are:

Goal 1 Reduce the threats to biodiversity

ADDRESSING PRESSURES

Target 1.1. on specific and urgent pressures over protected species and habitats

T 1.2 on alien invasive species, sharing databases and controlling introduction pathways, and impacts in the most vulnerable areas

T 1.3 on pollution control, particularly plastics, nutrient leakage, and noise

MARINE AND COASTAL PROTECTED AREAS¹

T 1.4. on effective systems of MCPAs and OECMs

T 1.5. on areas with enhanced protection levels

ECOSYSTEM HEALTH

T 1.6. on ecosystem restoration, most of those with the highest relevance and potential

T 1.7. on the achievement of the Good Environmental Status

T 1.8. on climate change mitigation, adaptation, and nature-based solutions

Goal 2 Ensure that biodiversity is preserved and maintained or enhanced in order to meet people's needs

IMPROVED KNOWLEDGE

T 2.1. on the distribution and status of species protected under the SPA/BD Protocol

T 2.2. on sea-floor cartography, status and integrity of threatened habitats

T 2.3. on knowledge sharing (Mediterranean Biodiversity Platform).

SUSTAINABLE FISHERIES

T 2.4. on halting by-catch and illegal, unreported and unregulated fishing

T 2.5. on small-scale fisheries (professional, recreational), particularly in MPAs

T.2.6. on sustainable and biodiversity-friendly aquaculture.

MAINSTREAMING BIODIVERSITY

T.2.7. on the ecosystem approach, and marine and coastal spatial planning

T 2.8. on cross-sectoral integration, including tourism, mining, energy

T 2.9. on reinforced governance, compliance, and stakeholder participation

Goal 3 Enable the necessary transformative change, putting in place tools and nature-based solutions for implementation and mainstreaming

IMPLEMENTATION, MONITORING AND REPORTING

T 3.1. on the IMAP refinement and full compliance

T 3.2. on the Post-2020 SAPBIO assessment and reporting mechanisms

T 3.3. on adequate means to run the Post-2020 SAPBIO.

CAPACITY BUILDING AND NETWORKING

¹ These targets are in line with what was agreed and elaborated on under the proposed Post-2020 regional strategy on MCPA and OECM

T 3.4. on capacity building, particularly in the less developed countries

T 3.5. on networking and knowledge sharing (NIS, migratory species, MPAs, GES...).

OUTREACH AND AWARENESS

T 3.6. on raising awareness, targeting decision-makers, media, and general public

T 3.7. on integrating marine biodiversity into school, higher education, and professional training.

MOBILIZING SUFFICIENT RESOURCES

T 3.8. on employment, notably public, in direct relation to biodiversity conservation

T 3.9. on sustainable funding, national commitments and innovative sources

T 3.10. on international cooperation and increased north/south financial flows

Strategic actions

19. To achieve these Targets, the Post-2020 SAPBIO addresses clear Actions that countries can reasonably attain with the coordination of relevant international organizations and the support of donors and funding agencies. In the spirit of the Barcelona Convention, most of the Post-2020 SAPBIO Actions are designed to support the needs of the less advanced countries, optimizing the north/south collaboration opportunities; the Strategy aims at narrowing the gap between subregions, on underlying concerns such as data availability, GES status, MPA coverage, institutional capacities, disparities in human and financial resources.
20. The proposed Actions build on existing plans and strategies and try to avoid additional layers of institutional requirements. Actions are ambitious and transformational, but realistic, focused and timely to achieve the Targets. Most of the Actions are cross-cutting and serve different Targets. Given the strict selection criteria and the relatively short number of Actions (46 in total), their relevance is defined in just 2 levels of priority: High, or Very High.
21. The expected results of the SAPBIO, through its 42 Actions, are set to 2027 and to 2030, aligning with the timeframes of the CBD/GBF (2030) and the BC/MAP/MTS (2027). Each Action, considering not only what needs to be done, but how to achieve it, explains itself and includes a start-up, preparatory activity, e. g. setting the baseline to assess progress (as there may initially be gaps in indicators for new and important subjects in the framework).
22. About one third of the Actions has a regional scope; a larger part is recommended for the National level, where most of the implementation actually takes place; other Actions may have both a Regional and a National scope, or taking account of specificities, a sub-regional or transboundary character.

Strategy implementation and monitoring

23. An effective implementation mechanism is proposed to promote responsibility, accountability and transparency from all actors involved in its implementation, ensuring that all countries define national contributions that add up to the regional Goals and Targets.
24. The Strategy will be monitored as an alive/dynamic document, so the monitoring framework will need flexibility to allow some adaptation at the national level. Countries will identify their monitoring needs for the Post-2020 SAP BIO targets, requesting regional support as appropriate, updating their national monitoring programmes in light of the new elements, to ensure reporting quality data, duly harmonized with IMAP and other UNEP/MAP monitoring frameworks. The Strategy's implementation status will be periodically reviewed at the Conference of the Parties of the Barcelona Convention, through systematic national reporting of progress, facilitated by the relevant MAP Regional Activity Centres.
25. SPA/RAC is assisted by an institutional governance body, the network of Post-2020 SAPBIO National Correspondents, who will assess the progress made in implementing the Strategic Action Programme, suggesting recommendations to be submitted to SPA/BD Focal Points Meetings and, where necessary, proposing amendments to the work schedule. SPA/RAC is also assisted by the

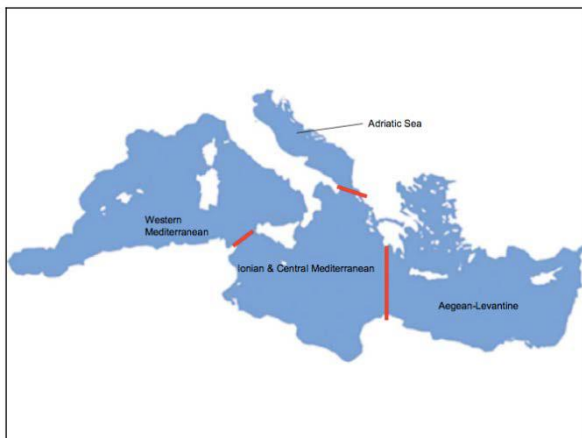
Advisory Committee, including nominated representatives by international and regional bodies with technical and scientific expertise in marine and coastal Mediterranean biodiversity issues, science, monitoring, cross-sectorial integration, fisheries, networking, outreach, funding, governance, and policies.

1. INTRODUCTION

26. In 2003, the Contracting Parties to the Barcelona Convention adopted the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAPBIO). In 2008-2009, SPA/RAC updated the SAPBIO to include the Climate Change component.
27. An evaluation covered the period 2004-2018 and concluded that, besides a series of gaps in its implementation, the SAPBIO constituted a major contribution to the preservation of the natural heritage in the Mediterranean marine and coastal zones; it played an important role as a strategic framework for implementation of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) at national and regional levels in terms of harmonization and alignment of planning for biodiversity conservation. It also played a role in facilitating exchanges among departments within and among countries on common concerns in biodiversity conservation.
28. Protecting biodiversity is a global challenge and the next decade will be decisive. Nature cannot afford any half measures or lack of ambition, as global efforts under the United Nations Convention on Biological Diversity have largely been insufficient. The Barcelona Convention COP 21 requested to prepare in 2020-2021 the Post-2020 SAPBIO to be harmonised with the CBD Post-2020 Global Biodiversity Framework (GBF) and aligned with the Sustainable Development Goals. The elaboration process has been conducted during the biennium 2020-2021 with the view of submitting the Post-2020 SAPBIO for consideration by the Contracting Parties at their COP 22 in December 2021.
29. The Post 2020-SAPBIO has been developed in parallel to the Post-2020 regional strategy on MCPAs and OECMs in the Mediterranean, which was also requested by the COP 21 to the Barcelona Convention. All matters related to MPAs and OECMs are detailed under that strategy.
30. While ambitious, the Post-2020 SAPBIO tries to be realistic, concise, and action oriented. It builds on the main needs expressed by the Mediterranean countries at national and sub-regional levels, avoiding additional layers of institutional commitments, to minimize the burden on Parties, the Secretariat and other concerned entities. It aspires to mobilize the existing capacities and to mainstream biodiversity beyond the limits of the conservation community, sharing responsibilities with other marine and coastal governmental departments, civil society organizations, and socio-economic sectors.
31. With a timeframe to 2030, the Post-2020 SAPBIO considers the main emerging issues, as the challenges from climate change, the ecosystem approach, the ecosystem services, the nature-based solutions, and the need for ecosystem restoration, considering marine coastal habitats, such as estuaries, wetlands, and coastal dunes.

2. METHODOLOGICAL PROCESS

- 32.** To deliver this mandate, during 2020 and 2021 SPA/RAC followed a bottom-up approach: the national needs and priorities were identified through 21 country ad-hoc national reports, involving the relevant authorities and stakeholders, and discussed in national workshops.
- 33.** Given the transboundary nature of most of the issues relating to the conservation and sustainable use of marine and coastal biodiversity, the national results were harmonised and the needs prioritised



through sub-regional analyses which fed sub-regional workshops. The subregions were agreed by the Contracting Parties within the framework of the Ecosystem Approach process ⁽²⁾ and used for the purpose of the Post-2020 SAPBIO elaboration process Aegean-Levantine; Ionian and Central Mediterranean; Adriatic Sea; and Western Mediterranean. Aegean-Levantine; Ionian and Central Mediterranean; Adriatic Sea; and Western Mediterranean.

34. Each sub-regional workshop delivered an assessment of marine and coastal biodiversity in the concerned sub-region, of the existing or potential threats including interaction with fisheries; and

identified priorities for the conservation and sustainable use of marine and coastal biodiversity in each subregion.

- 35.** The Post-2020 SAPBIO indicates the goals and targets to achieve at the regional level and integrates the priority actions identified at the national and sub-regional levels. It also proposes the actions needed at the regional level to support, accompany and coordinate the implementation of the priority actions to be implemented by the countries at the national level. It considers, as appropriate, the lessons learned from the implementation of SAPBIO during the period 2004-2018.
- 36.** Following the mandate from the Contracting Parties, the Post-2020 SAPBIO, while being adapted to the natural specificities, the socio-economic and political contexts of the region, is aligned with the SDGs relevant overarching frameworks and processes at the global level, in particular, the CBD Post-2020 Global Biodiversity Framework (GBF). Harmonization has been ensured with the 2030 Agenda and the UN-SDGs (applicable Goals 3,8,11,13,14,15 17), the Aichi targets (applicable targets 2,4,5,6,7, 10, 11,12,14,15), and the UNEP Marine and Coastal Strategy (2010). At the Mediterranean level, with the UNEP/MAP Strategies, decisions and agreements, including the MSSD 2016-2025 and the MAP/MTS (2022-2027), the ICZM-CRF (2016), the assessments agreed by the Barcelona Convention Contracting Parties in the framework of IMAP and the elaboration of the MED QSR (2017) and SoED (2020), the draft post-2020 strategy for marine and coastal protected areas (MCPAs) and other effective area-based conservation measures (OECMs) in the Mediterranean, and the regional Action Plans. Also were considered the EU Biodiversity Strategy for 2030, and the related Directives on Marine Strategy Framework, Habitats, Birds, and MSP; the GFCM draft strategy to 2030; the ACCOBAMS Strategy 2014-2025; the IUCN (2021) and the WWF (2021) papers for 2030, the 2019-2023 and beyond MedPAN strategy , and the Post 2020 Mediterranean

² Ecosystem Approach Roadmap: Ecosystem approach, defined by the CBD as “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way” and complemented by UNEP (2019) as “aiming to manage in an integrated and precautionary manner human uses and their cumulative impacts on marine and coastal ecosystem function at ecological scales, rather than confined to jurisdictional boundaries”

MPA Roadmap that is in development through the Med MPA Forum process.; among others with a Mediterranean significance and several basic scientific papers as detailed in the attached Literature Cited.

37. The content of the Post-2020 SAPBIO is scientifically based and built on concise realistic targets. It avoids any additional layer of commitments for countries, prepared as a tool to streamline the implementation of the plans and strategies already adopted at national and international level. It also promotes the mainstreaming of biodiversity into all environmental and sectorial policies relevant for the sustainable use of marine living resources, such as fisheries.
38. Previous drafts of the Post-2020 SAPBIO were circulated, and recommendations provided on its elaboration and strategic elements, in three meetings of the SAPBIO Advisory Committee (April 2020; April 2021; and May 2021), and a workshop of the SAPBIO National Correspondents (May 2021). The draft Post-2020 SAPBIO will be submitted for consideration by the Barcelona Convention COP 22 in December 2021, after having been reviewed and endorsed by the 15th meeting of SPA/BD Focal Points (June 2021) and MAP Focal Points (September 2021).

3. WHERE ARE WE NOW?

3.1. Mediterranean Sea values

39. The Mediterranean Sea is a hotspot for marine biodiversity and endemism. Seagrass meadows, coralligenous assemblages and dark ecosystems are the most representative marine ecosystems particular to the Mediterranean Sea. Though it covers less than 1% of the ocean surface, it hosts more than 17,000 marine species and contributes to an estimated 4-18% of the world's known marine species; of these, over 25% are found nowhere else on Earth. Below the 200m it includes a series of unique deep-sea habitats associated to volcanoes, seamounts and mud plains (IUCN 2019). It is a low primary productivity ecosystem due to limited nutrient inputs from fluvial and Atlantic origins; primary production is on average three times lower in the eastern basin than in the western part.
40. The Mediterranean Sea is home to a large share of the world's marine biodiversity but it is also the victim of decades of unsustainable use despite the efforts for an effective management. It is also unique by the severe pressure from human use, intense fisheries, maritime traffic, land-based pollution, the introduction and spread of non-indigenous and invasive alien species. Because of its geographical situation it also suffers most from the impacts of climate change, warming 20% faster than the rest of the world according to the MedECC (2020). Altogether, it represents the highest proportion of threatened marine habitats, with 21% listed as vulnerable and 11% as endangered in the Red List category in the EU28 (Gubai et al 2016), with seagrass ecosystems experiencing the most rapid decline.

3.2. Progress in marine conservation

41. Regional cooperation on environmental matters has remained active in the Mediterranean despite unfavourable geopolitical circumstances. Throughout the last decade, significant progress in addressing sustainability issues in the Mediterranean was achieved, to which the Barcelona Convention system has largely contributed. Contracting Parties have adopted common objectives, monitoring and assessment frameworks.
42. Integration and regional system-based approaches are increasingly recognized as the most efficient way to address systemic factors, and combined pressures and impacts. Progress has been made on

integrating the environment into sectoral policies thanks to the Barcelona Convention and the establishment of integrated tools, including the ICZM Protocol, the ecosystem approach, the Mediterranean Strategy for Sustainable Development (MSSD), and the Sustainable Consumption and Production (SCP) Action Plan. Prominently, a Conceptual Framework for Marine Spatial Planning (MSP) was adopted in 2017 for the implementation of the Ecosystem Approach Roadmap, recognising MSP as the main tool for the implementation of ICZM in the marine area of coastal zones.

43. Since 2008, the Contracting Parties to the Barcelona Convention and its Protocols have agreed to gradually apply the ecosystem approach to manage human activities in the Mediterranean, with the ultimate aim of achieving Good Environmental Status (GES) (Decision IG.17/6; 2008). At the same time, Mediterranean countries have adopted common monitoring and assessment frameworks to improve information-based decision-making. An Integrated Monitoring and Assessment Programme (IMAP), as a Mediterranean information system to support data collection, reporting and assessment, is being developed in the context of the MAP system to assess progress towards GES.
44. MPA coverage is in 2021 very close to the 10% Aichi target (9.3% of MPAs and potential OECMs, MAPAMED 2019) at the Mediterranean level, yet weak in effective management for its majority. Recovery of species population and improvement of marine habitats has been recorded, notably in marine protected areas (MPAs) and in the no-take zones (NTZs) that are well managed and enforced.
45. The PSSA and International Marine Park in the Strait of Bonifacio, the Pelagos Sanctuary for Mediterranean marine mammals and the Intercontinental Biosphere Reserve of the Mediterranean are examples of cooperation between neighbouring countries. Transboundary collaboration is increasing around migratory species, NIS/IAS monitoring, MPA management, and fish stock assessments. Multiannual fisheries management plans have also been drawn up between various partners considering the overlap of shared stocks.
46. Based on the Memorandum of Understanding (MoU) between UNEP/MAP and GFCM, collaboration, together with ACCOBAMS, IUCN, Birdlife and MEDASSET, is covering the minimization of discards and incidental catches. GFCM has also collaborated in a strategy to reduce marine litter and underwater noise and put new emphasis on the monitoring of Fishery Restricted Areas (FRAs). A MoU was signed between SPA/RAC and ACCOBAMS for the conservation of cetaceans.
47. All Mediterranean countries have adopted frameworks for ex-ante environmental impact assessment (EIA), whereas 72% have enacted a legal framework for Strategic Environmental Assessment (SEA). Both are also tools for stakeholder information.
48. Stakeholder networks have also expanded and diversified. Programmatic coherence, institutional stimulus, complementarity and coordination have strengthened the role of international non-governmental organizations and stakeholder networks, sharply improving the opportunities for participation and engagement. A growing number of science-based public and citizen organizations actively participate in the implementation of the SPA/BD Protocol and its related programmes and projects, example of which are the Adriatic networks, the MedPAN network; plus the private-public donor trust fund (The MedFund). In addition, a Regional Cooperation Platform on Marine Litter was established in 2016 to exchange best practices, share information and seek solutions.

3.3. Main problems for the conservation of marine biodiversity

49. Despite notable progress, Mediterranean countries are not on track to achieve and fully implement the agreed upon goals, including the Sustainable Development Goals (SDGs) and Ecological Objectives for GES. Most observed trends show developments that are either progressing towards the set targets, but at an insufficient rate or unequally across the countries, or even moving away from the target (SoED 2020). Out of 17 SDGs, 11 remain unachieved in all Mediterranean countries,

including SDG 13 “climate action”, SDG 14 “life below water”. Nine out of the 21 Mediterranean countries had achieved none of the SDG 2030 targets in 2019 and the maximum number of SDGs achieved by a country is two (Sachs et al. 2019).

- 50.** Administrations in charge of the environment often lack the institutional strength to enforce environmental policy integration. Much remains to be done, as ambitious regional and international environmental agreements are rarely fully implemented on the ground, and important gaps persist in enforcing them. Environment ministries remain generally weak and underfunded. In addition, competition between different economic sectors for the use of marine space is strengthening this lack of intersectoral administrative cooperation.
- 51.** The subregional assessments show that even when legislation is fit for purpose, the implementation on the ground is lagging behind. The main short comes underlined are synthesized below.
- 52.** Every country, and subregion, has identified knowledge gaps for implementing IMAP and for the identification of protection measures for the conservation of species. Knowledge, data availability and sharing, are insufficient and very patchy, due to limited financial (national or regional), technical and institutional capacities. National reports note a great disparity between the northern and the southern shores of the Mediterranean in terms of inventories, mapping and ecological monitoring. Particularly the information about deep-water habitats in the southern part of the basin is very incomplete or missing.
- 53.** Marine mammal populations negative trends persist, falling by over 40% in the last 50 years. More than half of the shark and ray species found in the Mediterranean are classified as endangered. Only around 400 monk seals remain in the Mediterranean (Karamanlidis et al 2015).
- 54.** Seagrass meadows and coralligenous assemblages generate a remarkable natural productivity that contributes to climate change mitigation and adaptation, and the maintenance of fisheries resources, but are threatened by destructive fishing gear, boat anchoring, invasive species, pollution, with reported cases on species’ mass mortality events and slower growing rates (e. g. Otero et al 2013). Coastal wetlands and dune areas also continue to decline as Mediterranean countries increase the built-up area within 1 kilometre of the coastline.
- 55.** Climate change, together with a limited success of control for mitigation and adaptation mechanisms, has accelerated the spread of non-indigenous species, leading to a shift in species composition and the functioning of ecosystems. Changes in the marine food-web are registered throughout. The abundance of top predators, including a number of marine mammals, fell by 41% and fish species declined by 34%, including commercial and non-commercial species, while there is an increase of around 23% of the organisms at the bottom of the food web (e. g. jellyfish) (Piroddi et al. 2017).
- 56.** The invasive alien species, a side effect of shipping (by means of ballast waters and hull fouling), corridors, maritime transport and water ways, aquaculture, trade in live marine organisms (aquarium trade and fishing bait) and others (e. g. fishing activities and aquarium exhibits), enhanced by global warming, are today among the main threats to marine biodiversity in the Mediterranean. More than 1,199 non-indigenous marine species have been recorded in the Mediterranean, 618 of which are established (QSR, UNEP/MAP 2017). Particularly in the Levantine basin, some are causing a huge impact, with the decrease or collapse in native species populations. Marine diseases caused by pathogens are regularly reported, e. g. the massive mortality (over 99%) of the endemic and protected large mother-of-pearl *Pinna nobilis*, or the harmful phytoplankton blooms which are fatal for shellfish of socio-economic interest. NIS/IAS are a major issue in the Mediterranean, cooperation by all countries is needed to prevent their introduction and spread, within the principle of sharing responsibility.
- 57.** On top of the growing impacts from climate change and the spread of alien species, new challenges arise such as the leakage of marine litter, particularly plastics; while the incidence of underwater noise and the cumulative impacts from these together with all sources of physical and chemical pollution, are still poorly documented and controlled (UNEP / MAP-Plan Bleu, 2020).

- 58.** The MPA coverage is now very close to the 10% target at the Mediterranean level but the current system is still not connected, nor representative of the Mediterranean ecoregions, as most are located in the northern part of the Mediterranean and in coastal waters, resulting in an under-representation of deeper ecosystems in areas both within and beyond national jurisdiction; while just a tiny 0.06% of the Sea is covered by fully protected areas. The main concern, however, persists in that less than one fourth of the Mediterranean MPAs has a management plan, and less than half of these are effectively implemented (MAPAMED 2019; WWF 2020; UNEP/MAP SPA/RAC 2021). Human, material and financial resources are inadequate, resulting in weak enforcement; regular monitoring activities are almost limited to a few MPAs mainly in some EU countries. The financial gap of marine protected areas in the Mediterranean, as compared to their conservation objectives, is of 700 million euros per year (Binet et al 2016).
- 59.** The 78% of Mediterranean and Black Sea fish stocks are fished at biologically unsustainable levels (FAO/GFCM 2020). The pattern of exploitation and the state of different fish stocks is critical in all Mediterranean subregions. Bycatch of vulnerable marine species threatens the conservation of a variety of marine taxa, including mammals, birds, sea turtles, sharks and rays. Likewise, bycatch of coral, sponge, and other benthic species can also cause damage to important habitats. Illegal, unreported and unregulated fishing (IUU) are still a common factor. Concerns are rising also as related to recreational fisheries, which in some coastal areas exceed in biomass capture to commercial fisheries (e.g. Venturini et al 2017). Annual discards in the Mediterranean are estimated at around 230 000 tonnes (18 percent of the total catch), mainly due to bottom trawl fishery, while small-scale fisheries, by contrast, tend to show discard rates of below 10 percent (FAO/GFCM, 2020). Aquaculture also creates additional pressures on fish stocks, due to the use of wild fish for feed and the transfer of non-indigenous species.
- 60.** Finally, funding sources for marine conservation keeps being a recurring obstacle in all countries, prominently in Southern and Eastern Mediterranean areas. National sources of funding remain largely irregular and insufficient, while development aid levels are falling and donor countries have not lived up to their pledge to ramp up development finance for marine conservation.

4. NEEDS, GAPS AND CHALLENGES

- 61.** The subregional reports concurred in priority needs (Annex I), which have been clustered in the four sections ahead:

4.1. Addressing current pressures and threats

- 62.** All subregional reports underline the need to reach the Good Environmental Status (GES) of the Mediterranean Sea, in contribution to the Ecosystem Approach as an overarching principle. Two key components, consistently underlined, are addressing pressures on biodiversity, and monitoring changes.
- 63.** To ensure that the trends in conservation are reversed by 2030, the patchy knowledge on the distribution and status of protected species and habitats under the SPA/BD Protocol must be improved throughout. There is still strong need to map and inventory habitats, particularly coralligenous, seagrasses, and dark ecosystem to ascertain their status; and to better clarify the status of most sharks, turtles, marine mammals, seabirds, and endangered invertebrates, in order to develop and implement recovery plans for all threatened species, in particular those whose survival depends on such actions, including measures to eliminate all intentional or accidental killing, capture and trade; plus the status of coastal habitats such as wetlands, estuaries and coastal dunes requiring protection measures (Art. 10 of the ICZM Protocol).
- 64.** While countries should hold to their commitment to substantially reduce their CO₂ emissions (55% reduction in the EU by 2030, EU 2021), there is strong need to improve knowledge on the impacts

and consequences of climate change over coastal and marine ecosystems, and to monitor acidification and its effects on sensitive habitats and species, most appropriately through a network of pilot and representative MPAs. Candidate areas for restoration of carbon-rich ecosystems, areas vulnerable to climate change, as well as important fish spawning and nursery areas should be listed, and restoration activities launched between local, regional, and national authorities, together with citizens, businesses, social partners and the research and knowledge community.

65. Invasive alien species and pathways must be regularly identified in all countries, listing priority species to be controlled or eradicated. Together with the ratification and implementation of the Regional Strategy addressing ballast water management, measures must be established to manage pathways to prevent their introduction, and in support of Mediterranean information networks (e. g. MAMIAS) to share data on alien species and to continuously monitor their trends. Given the wide gaps in research efforts across the countries, knowledge sharing in other biodiversity fields (cartography, threatened species and habitats, MPA management) requires the development or reinforcement of platforms and mechanisms for the exchange of information specific to marine and coastal biodiversity across subregions and the entire Mediterranean. Examples are the very active MedPAN network of Mediterranean MPA managers, and the NETCCOBAMS, the ACCOBAMS online database under construction.
66. Chemical pollution topics in general are addressed separately at MAP level through MEDPOL and related planning and management, with which the Post-2020 SAPBIO will keep synergy and alignment. Regarding the direct physical effects of pollution in species and ecosystems, all subregions share the need to minimize and mitigate every form of solid waste pollution from land-based sources and from the activity of the fishing sector, in particular abandoned, lost or otherwise discarded fishing gear, as well as reducing the level of plastic leakage, by changing how waste is collected and managed in cities and touristic destinations around the Mediterranean. Three subregions also seek responses to reduce the impact of maritime traffic (noise and collision) on sensitive marine species (cetaceans, turtles, others) implementing quieter technologies and designating restricted areas, as proposed by ACCOBAMS. Cumulative impacts should be considered as a main operational requirement for the implementation of the ecosystem approach in the Mediterranean.

4.2. Spatial protection measures

67. Aimed to promote the conservation of biodiversity under the ecosystem approach, all subregions prioritize the reduction of conflicts among overlapping uses by developing marine spatial planning (MSP), integrated coastal zone management (ICZM), and the efficient use of natural resources.
68. Marine protected areas (MPAs) are considered as effective means and pilot sites with real experience on improved marine planning and governance, zoning, sustainable small-scale fisheries, stakeholder participation, and long-term research and monitoring. All subregions propose the enlargement of the marine protected area network, setting up ecological corridors to prevent genetic isolation and to allow for species migration, while making it more representative of the Mediterranean Sea ecoregions, particularly extending to the Southern and Eastern coasts, incorporating Other Effective Area Based Conservation Measures (OECMs), in line with the CBD definition and criteria for OECMs (CBD Decision 14/08), such as protected cultural areas, and military zones where appropriate; also expanding into the open seas through Fisheries Restricted Areas (FRAs of GFCM) and candidate areas in Vulnerable Marine Ecosystems (VME of FAO), Particularly Sea Sensitive Areas (PSSAs of IMO), in all cases when ensuring effective management; favouring their setting within Ecologically or Biologically Significant Marine Areas (EBSAs listed in the CBD repository).
69. Every assessment warns about the weak management situation in most of the already established MPAs and underlines the urgent need for a proper management planning ensuring the effective

collaboration between different administrations and stakeholders, the enforcement of regulations, supporting capacity building and the sustainability of human and financial resources for MPAs.

4.3. Mainstreaming biodiversity in other sectors

- 70.** The most recent and comprehensive assessments on the global (UNEP/MCS 2019) and Mediterranean marine biodiversity (MAP/MTS 2020; QSR 2017; SPA/RAC 2019 and 2021; SoED 2020; WWF 2021) identify a series of critical barriers for biodiversity conservation, which are basically consistent across documents, and again with the main gaps and needs identified by the Post-2020 SAPBIO subregional assessments.
- 71.** Although legislation is fit for purpose, implementation on the ground is lagging. The gap between the ambition of international agreements and their implementation at the national and local levels, is sustained because of the insufficient political interest and the limited awareness and engagement in decision-making at the national level where most of the implementation needs to take place.
- 72.** Subregional assessments concur that the administrations in charge of the environment often lack the institutional strength to enforce environmental policy integration. Environment ministries remain generally weak and underfunded. The ambition of specific environmental regulations would benefit from them being upgraded. Beyond marine protected areas, biodiversity conservation needs to share responsibilities with Ministries and socio-economic sectors such as economy, taxation, fisheries, agriculture, tourism, security, energy, academia, coastal cities, and mass communication media.
- 73.** Understanding bycatch and adopting effective measures to reduce its levels represent essential steps towards minimizing discards as well as fisheries' impacts on vulnerable species, and on the marine ecosystem more generally. To support this, mitigation measures and data collection on by-catch for all sensitive species needs to be stepped up. Overfishing should also be urgently phased-out, opposing any illegal, unreported and unregulated fishing. The use of long-lines and of bottom-contacting fishing gear must be reconciled with biodiversity conservation goals. Numerous countries have also expressed concerns about the impacts from the intensive and expanding aquaculture facilities over aquatic health and biosecurity, encouraging the responsible and prudent use of antimicrobials.
- 74.** Inside protected areas, underlining the MPAs recently established, fisheries-management measures must be established, according to conservation objectives incorporating traditional ecological knowledge, to be defined with the local fishers and on the best available scientific advice. Management plans should take into account recreational fisheries, the impacts they generate on resources and ecosystems, and the conflicts arising with professional fishers.
- 75.** The fast expanding coastal and marine tourism activities also need to reduce their footprint and pressure on scarce natural resources, fragile ecosystems and costly environmental infrastructure. Alternative and less seasonal models to mass tourism should be supported, seeking more environmental sustainability and social benefit.

4.4. Enabling tools for marine biodiversity conservation

- 76.** National and subregional assessments underline the necessity to improve coherence and complementarity of all strategies, policies, plans, initiatives, planning processes and funding affecting marine areas. This includes the appropriate coordination between the various authorities competent for both the marine and the land parts of coastal zones in the different administrative services, at all relevant levels, covering the proper participation of all stakeholders, including resource users and civil society, in a transparent decision-making process that would lead to shared and better management decisions.

- 77.** A common need to all the Mediterranean subregions is that of improving the collection of data / information for the regional evaluation of GES and updating the monitoring programmes, so that they are aligned and coherent with the IMAP process, duly harmonized with other UNEP/MAP monitoring frameworks, and avoiding to add another layer of complexity or duplication of efforts in the monitoring requirements. In most of the Mediterranean countries, explicit deadlines and reporting mechanisms on GES are not holding to their commitments and need to be implemented more widely. More particularly, the progress on the implementation of the Post-2020 SAPBIO will also need to be regularly monitored and assessed.
- 78.** Monitoring of coastal and marine biodiversity should cover issues of emerging concern, include drivers, pressures, impacts and responses, and establishing data exchange protocols. At the MPA level, more efficiency can be attained by developing harmonized basic ecological, socio-economic and management descriptors/indicators to obtain comparable MPA monitoring data at the regional scale. National and subregional reports underline the data gaps and their disparity among countries, while critical knowledge is being generated in networks and knowledge hubs, universities, institutions, local assessment or research programmes, or is held by local communities and practitioners, but is insufficiently transmitted to decision makers. Monitoring information should also be accessible to all relevant stakeholders.
- 79.** The effective implementation of the Post-2020 SAPBIO and achieving a good environmental status in the Mediterranean region requires to establish capacity building and awareness frameworks at the national level and also at a regional scale. These should be aimed at policymakers, economic stakeholders involved in marine activities, managers, NGOs or CSOs, universities and researchers, and the media. Particularly underlined was the need to provide capacity building for judiciary and administrative resources along the enforcement chain.
- 80.** Further efforts are required for developing permanent collaboration across specialized stakeholder networks. Multiple innovations have been developed in the last decade and many more are ongoing, with many stakeholders involved often on short-term funding windows. Well-structured capitalization efforts are required to ensure the Post-2020 SAPBIO effectiveness to benefit from the best practices and lessons learned.
- 81.** Most reports suggest the need to improve public access to information, as well as education for sustainable development, particularly in marine conservation matters, including school and universities. At every level the decision-makers, general public, relevant economic sectors and donors must recognize the value of biodiversity. General communications should include simpler messages, new packages, channels and tools, appropriate to reach wider non-biodiversity audiences, decision-makers and donors at all levels.
- 82.** Funding shortages and discontinuity are remarked in every national and subregional biodiversity assessment. Moving beyond the recurring obstacle of funding gaps is essential for the proper implementation of the Post-2020 SAPBIO. A dedicated resource mobilisation strategy is a top priority, calling upon national financial resources and international financial institutions, development partners, public and private actors, to prioritize investment in a more sustainable blue economy. Recurrently mentioned is the importance of reducing or avoiding fiscal instruments and subsidies with a negative impact on the environment, e. g. supporting natural areas destruction (wetlands drainage, dune dumping) or harmful fishing practices.
- 83.** Biodiversity loss threatens our food systems³, putting our food security and nutrition at risk. Globally, the overall cost/benefit ratio of an effective programme for the conservation of remaining wild nature is estimated to be at least 100 to 1⁴. If well protected, the marine resources of the Mediterranean Sea

³ World Economic Forum (2020), [The Global Risks Report 2020](#).

⁴ Balmford et al. (2002), [Economic reasons for conserving wild nature](#).

could deliver assets valued at US\$450 billion per year (WWF 2021). An overall Mediterranean cost/benefit analysis is needed; today we know that less than a 15% of the financing needs for effective MPA management in the Mediterranean is being covered (Binet et al 2016), however, the national overall contributions to biodiversity conservation are yet to be assessed.

- 84.** Ministers in the Union for the Mediterranean (UfM 2021) have called upon International Financial Institutions, development partners, public and private actors to prioritize investment in the sustainable blue economy, notably in the domain of preservation of the marine environment. The UNFCCC commitment in response to SDG-13a aims at mobilizing through the Green Climate Fund, US\$100 billion annually from all sources to address the needs of developing countries in the context of climate change mitigation actions. The EU Biodiversity Strategy for 2030 calls on unlocking 20 billion EUR/year for biodiversity conservation through various sources, including EU, national and private funding, and integrating biodiversity considerations into business practices. In the last decade, the EU and its Member States also collectively upheld their commitment to double financial flows to developing countries for biodiversity⁵.
- 85.** Resources from all origins for the implementation of the Post-2020 SAPBIO need to increase substantially and consistently, with greater cooperation among partners, and growing flows towards developing countries. The subregional assessments underline how North-South cross-border collaboration is underdeveloped, and remains dependent on one-off actions within the framework of projects (particularly thanks to European programmes: LIFE, Interreg, H2020, etc.).
- 86.** Other than funding, the main needs identified relate to cross-border projects around priority themes, such as the invasive alien species, the coordination of monitoring systems to facilitate the comparability of data, the identification and recognition of MPAs and OECMs outside national jurisdictions, particularly on high seas in synergy with the ongoing BBNJ processes, and their coordinated management.

5. VISION, GOALS, and TARGETS

5.1. Vision and Mission

- 87.** The Post-2020 SAPBIO Vision 2050 is adapted to Mediterranean context from that of the new CBD Framework:
- 88.** “By 2050, marine and coastal biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy Mediterranean Sea and coast, and delivering benefits essential for nature and people”.
- 89.** The Mission defines what is the strategy’s usefulness, its purpose and approach to reach the Vision: “By 2030 start to reverse the loss of biodiversity and put the Mediterranean marine and coastal biodiversity on the path to recovery for the benefit of nature and people”.
- 90.** The Post-2020 SAPBIO follows a hierarchical pattern and terminology analogous to that proposed by the CBD Framework:

Vision (to 2050) → Mission (to 2030) → Goals (to 2030) → Targets → Actions

5.2. Goals 2030 for the Post-2020 SAPBIO

⁵ Including international financing where biodiversity is the principal objective and where it is a significant secondary objective, in line with [CBD COP11 Decision XI/4](#) and EU and Member States financial reports submitted to the Convention on Biological Diversity in 2015 and 2018.

- 91.** The Post-2020 SAPBIO subregional assessments, based on the priority needs expressed by the countries, put forward actions under 10 headings (Annex I) that accurately capture the Mediterranean most critical needs. These inspire the Post-2020 SAPBIO headings and targets, which significantly match those of the CBD/GBF, and with all the main and most recent Mediterranean biodiversity agreements (correspondences in Table 4 in Annex II). The 10 headings are clustered under 3 overarching Goals, adapted from those of the CBD/GBF because of their thematic balance and global relevance:
- 92.** Goal 1. Reduce the threats to biodiversity
- 93.** Goal 2. Ensure that biodiversity is preserved and maintained or enhanced in order to meet people's needs
- 94.** Goal 3. Enable the necessary transformative change, putting in place tools and -solutions for implementation and mainstreaming

5.3. Targets

- 95.** The Post-2020 SAPBIO aims at accomplishing a short number of action Targets (outputs) which add up to achieve the Goals and the Mission (outcome).
- 96.** Targets are, as possible, specific, measurable, achievable, relevant and time-bound (SMART). In total there are 27 Targets, addressing the accessible, direct drivers of biodiversity loss. The Post-2020 SAPBIO is not aimed at coping with general drivers of unsustainability⁶, although its Targets and Actions consider those that can be readily influenced by the Strategy.
- 97.** Targets are flexible enough to allow that implementation takes into account the precise conditions and opportunities of each country; their indicators may adapt as needed to each national context, as the *CBD/GBF* suggests, it will be the “*Countries to establish their national targets/indicators aligned with this framework*”.
- 98.** Some target components and monitoring elements are difficult to measure due to the current availability of indicators and data. Whilst there may initially be gaps in indicators for new and important subjects in the framework, through specific Actions (see section 6) it should be possible to develop suitable baseline indicators and data over time.
- 99.** The targets (T) are selected based on criteria of high regional significance, responding to the main priorities and opportunities identified in the Post-2020 SAPBIO Subregional reports, adding-up to achieve the Goals, framed within the CBD Framework and its draft Targets and thus, to the SDGs, and harmonized (Annex II) with those proposed/adopted by the other main Mediterranean biodiversity frameworks⁷
- 100.** For each of the three Goals, Targets are grouped under headings⁸ that stem from the priority axes identified by the Subregional Post-2020 SAPBIO analyses and consultation process undertaken within the framework of the elaboration of the Post-2020 SAPBIO conducted following a bottom-up approach.

Goal 1 Reduce the threats to biodiversity

⁶ Such as e. g. trade and financial principles, circular economy, sustainable production and consumption, business models, mitigation of greenhouse gases, chemical pollution...

⁷ EU: *MSFD, WFD, MSP, BD Strategy 2030, Habitats Directive; Birds Directive; GFCM Strategy draft 2030; UNEP Marine and Coastal strategy (2019) and reviewed in Nov.2020; MAP/UNEP MTS 2022-2027; IMAP; Barcelona Convention ICZM-CRF (2016), MCPAs & OECMs Strategy (under-preparation); ACCOBAMS Strategy 2014-2025; and considering targets proposed/adopted by other relevant regional organizations such as IUCN, MedPAN, and WWF.*

⁸ Headings have no relevance for the contents or structure of the Post-2020 SAPBIO, they just allow to ease the flow of the reading

ADDRESS PRESSURES

- T 1.1. on specific pressures:

By 2030 the specific anthropogenic pressures on all habitats and species protected under the SPA/BD Protocol have been minimized, in particular for those whose resilience or survival depends on such actions, including from oil and gas activities and seabed mining, ensuring no deterioration in their conservation trends and status.

- T 1.2 on NIS/IAS:

By 2030, prevent, manage and control NIS and in particular invasive non-indigenous species and their introduction pathways to minimize/reduce their impact on ecosystem integrity, including inter-alia, by (i) protecting most vulnerable ecosystems (ii) implementing the Regional strategy addressing ship's ballast water management and invasive species in all countries around the Mediterranean Sea and (iii) manage other pathways of introduction.

- T 1.3 on pollution control

By 2030 all types of pollution are prevented, controlled and significantly reduced to levels that are not detrimental to ecosystem function and biodiversity, including through the significant reduction of plastic and nutrient leakage into the environment, and the significant reduction of light and noise pollution and the amounts of biocides used.

101. MARINE AND COASTAL PROTECTED AREAS⁹

- T 1.4. on effective systems of MCPAs and OECMs

By 2030, at least 30 per cent of the Mediterranean Sea is protected and conserved through well connected, ecologically representative and effective (¹⁰) systems of marine and coastal protected areas and other effective area-based conservation measures, ensuring adequate geographical balance, with the focus on areas particularly important for biodiversity.

- T 1.5. on areas with enhanced protection levels

By 2030, the number and coverage of marine and coastal protected areas with enhanced protection levels is increased, contributing to the recovery of marine ecosystems

102. ECOSYSTEM HEALTH

- T 1.6. on ecosystem restoration

⁹ These targets are itemized under the proposed Post-2020 regional strategy on MCPA and OECM. A detailed monitoring framework with specific indicators and milestone on MPAs and OECMs will be developed under the Post 2020 regional MPA strategy, and will be proposed for adoption by the COP 23

¹⁰ Effective systems are understood to comprise the four components identified by the IUCN Green List standards: Good governance; sound design and planning, management effectiveness and achieving conservation outcomes. <https://iucngreenlist.org>

By 2027 develop the full inventory of ecosystems with the highest ecological relevance and/or regeneration potential (as nursery areas and/or carbon stocks), and by 2030 complete the restoration of most of those selected.

- T 1.7. on the achievement of GES¹¹

Related to the biodiversity Ecological Objectives within the framework of the Ecosystem Approach EcAp/IMAP, by 2027 the Mediterranean Sea is on track to achieving the Good Environmental Status, and 100% countries have identified, and in case needed received support, to fill the gaps that hinder good GES evaluation, so that by 2030 most of the countries have reached appropriate GES in an effective implementation of the Ecosystem Approach and its roadmap.

- T 1.8. on climate change

By 2030, all countries have adopted and started implementing short- and medium-term measures for climate change mitigation and adaptation, particularly to warming, acidification and contributing to disaster risk reduction, through reducing emissions, nature-based solutions, ecosystem-based approaches, and restoration as appropriate, ensuring resilience and minimizing any negative impacts on biodiversity, thereby also contributing to halt global warming and acidification.

Goal 2 Ensure that biodiversity is preserved and maintained or enhanced in order to meet people's needs

103. IMPROVE KNOWLEDGE

- T 2.1. Improve knowledge on threatened species

The georeferenced distribution, values and status of marine species protected under the SPA/BD Protocol is established, and information gaps have been filled to improve the conservation status of all marine and coastal species covered by Mediterranean Regional Action Plans.

- T 2.2. Improve knowledge on threatened habitats

By 2030 the sea-floor integrity is maintained, especially in priority benthic and dark habitats, together with critical habitats for species listed in Annex II of the SPA/BD Protocol, and the status, distribution, trends, and functional aspects of habitats protected under the SPA/BD Protocol is established and mapped at highest feasible resolution for all MPAs and OECMs, continuously monitored and shared through a biodiversity platform.

- T 2.3. on knowledge sharing

By 2027 georeferenced Information on Mediterranean Biodiversity key components is centralized in an open access platform.

104. SUSTAINABLE FISHERIES

¹¹ Good Environmental Status for the Mediterranean is understood as described in annex I of “Decision IG.21/3 on the Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets”, adopted at the 18th Ordinary Meeting of the Contracting Parties to the Barcelona Convention, available online: https://www.rac-spa.org/sites/default/files/ecap/ig21_3_eng.pdf

- T 2.4. on fishing gears, by-catch, IUU

By 2027 start in all countries the implementation of science-based management plans to effectively regulate sustainable harvesting and to end overfishing, illegal, unreported and unregulated fishing, including measures to minimize discards and to eliminate all intentional or accidental killing, capture and trade of protected species, so by 2030 all ecologically destructive and unsustainable fishing practices have been halted by limiting the use of fishing gears most harmful to biodiversity, including on the seabed, as appropriate according to the impact of each specific fishery on marine ecosystems and/or vulnerable species.

- T 2.5. on small-scale fisheries (artisanal, recreational)

Promote shared responsibility and strong participatory management practices in professional small-scale fisheries, advised by traditional ecological knowledge and the best available science, by 2027 in all MPAs, with controlled IUU and recreational fishing, and by 2030 in all fishing grounds within OECMs.

- T.2.6. on sustainable and biodiversity-friendly aquaculture

By developing the Post-2020 GFCM Aquaculture and Fisheries strategy, and in synergy with the relevant work on pollution from aquaculture led by MEDPOL, in 2027 the best practices in aquaculture, such as innovation, improving aquatic health and biosecurity, encouraging the responsible use of antimicrobials, supported by certification, traceability and nature-based solutions, have been promoted across the Mediterranean countries, so that by 2030 the Mediterranean aquaculture industry is transformed in line with the ecosystem approach, through science-based solutions and marine spatial planning tools.

105. MAINSTREAMING BIODIVERSITY

- T.2.7. on the ecosystem approach and marine and coastal spatial planning

By 2030, 100% of MPAs and as appropriate OECMs, and 50% of the remaining marine areas are sustainably managed by applying ecosystem-based approaches including biodiversity and climate change-informed marine spatial planning, and by conducting environmental impact assessments and strategic environmental assessments.

- T 2.8. on cross-sectoral integration and biodiversity accounts

By 2030, biodiversity values and related targets have been integrated into national and local development strategies and planning processes and are being incorporated into national policies, national accounting as appropriate, and reporting systems, ensuring that biodiversity values are mainstreamed across all sectors and integrated into the assessment of environmental impacts.

- T 2.9. on governance and stakeholder participation

By 2030 the ratification of all protocols of the Barcelona Convention and their enactment in national legislation has significantly advanced, enhancing the necessary political will to apply all processes of the Barcelona Convention, a governance framework ensuring co-responsibility and co-ownership by all relevant actors in meeting the Post-2020 SAPBIO commitments has been developed, including raising the profile of environmental administrations, supporting cross-sectorial and multi-level institutional coordination, administrative transparency, stakeholder dialogue, and participatory governance at different levels.

Goal 3 Enable the necessary transformative change, putting in place tools and nature-based solutions for implementation and mainstreaming

106. IMPLEMENTATION, MONITORING AND REPORTING

- T 3.1. on the IMAP compliance

By 2027 most countries conduct baseline conservation, monitoring and assessment studies, update national monitoring programmes in light of the new elements of IMAP, and report regularly quality assured data, with a 100% of countries by 2030.

- T 3.2. on the SAPBIO assessment and reporting

By 2025, countries have identified their national contributions and targets for the implementation of the Post-2020 SAPBIO, enacting national legislation and updating their NBSAPs as appropriate, reporting and reviewing periodically the status of implementation of the Post-2020 SAPBIO at the COP of the Barcelona Convention.

- T 3.3. Means for the assessment mechanisms

By 2025, the necessary means for running the regional Post-2020 SAPBIO follow-up and assessment mechanisms, are in place within the MAP system, allowing the timely analysis of progress based on objective/numerical elements of targets towards the Post-2020 SAPBIO goals and targets.

107. CAPACITY BUILDING AND NETWORKING

- T 3.4. on capacity development

By 2030, key officers, managers, field technicians, and local authorities responsible for the environment, fisheries, and enforcement, are sufficiently trained for the implementation of the Post-2020 SAPBIO in their respective professional environments.

- T 3.5. on networking and knowledge sharing

By 2025 assess the knowledge sharing and networking needs and opportunities, inter alia on topics as NIS/IAS, migratory species, MPA management, GES, monitoring, law enforcement, and other relevant activities related to the Post-2020 SAPBIO, so that by 2030 any needed human networks at national, sub-regional and regional level have been developed and strengthened to ensure the enhancement of capacities, knowledge, good practices, experience sharing, and the development of joint actions.

108. OUTREACH AND AWARENESS

- T 3.6. on public awareness

By 2025 outline a communications and awareness strategy, including the development of any necessary indicators to follow-up the extent and reach of awareness, so that by 2030 quality information is available for the effective management of biodiversity, and significant progress has been made to increase awareness, understanding and appreciating of the values and threats to the marine environment, of the responses and good practices, by targeting decision-makers and the general public, through reinforced and renewed mechanisms, including mass communications.

- T 3.7. on outreach and education

Contracting parties, with the assistance of SPA/RAC, should help integrate marine biodiversity and ecosystems into school, higher education and professional training, incorporating the biodiversity

conservation and related strategies and tools into the curricula in as many countries as possible, and by 2030, supporting multidisciplinary scientific research, strengthening citizen science, ensuring that best practices and innovative technologies are more accessible, and replicable, within policy makers, industry and civil society.

109. MOBILIZING SUFFICIENT RESOURCES

- T 3.8. on employment

By 2030, employment in direct relation to biodiversity conservation, particularly in the public sector (or redirecting the existing one) has increased by 300%.

- T 3.9. on sustainable funding sources

By 2027 at the Mediterranean level, and at the national level in most countries, sustainable funding strategies have been developed, with innovative approaches to mobilize alternative financial sources, covering fiscal incomes that could be redistributed, and relevant actions to fund, including regional funds and other type of national or local financing mechanisms, so that by 2030 there is a significant increase of financial and non-financial resources from all international and domestic sources, including governmental, non-governmental, and private actors from different sectors.

- T 3.10. on cooperation

Increase cooperation both north/south and between governmental and non-governmental actors at different levels, to support national plans particularly in southern Mediterranean countries and non-EU countries, identifying potential donors and by 2023 organise a conference of donors for the implementation of the Post-2020 SAPBIO, achieving by 2030 a significant increase in the international financial flows on biodiversity conservation towards developing countries.

6. PROPOSAL FOR ACTIONS

110. The Post-2020 SAPBIO addresses clear actions that countries can reasonably achieve with the coordination of relevant international organizations and the support of donors and funding agencies.

111. The number of Actions is kept short as possible. The main criteria for their selection are:

- Concrete Actions building on the main needs expressed by the Mediterranean countries at national and sub-regional levels (Annex I).
- Supporting the needs of the less advanced countries, optimizing the north/south collaboration opportunities, trying to narrow the gap between subregions.
- Cross-cutting Actions which serve different Targets¹²

112. The Actions try to be ambitious and transformational, but realistic, relevant, focused and timely to achieve the Targets.

113. The proposed Actions provide a thematic and geographical balance, and try to avoid additional layers of institutional requirements, engaging other actors, seeking for complementary,

¹² For example, some Targets need several Actions, e. g. "MPA management" has Actions in governance, monitoring, capacity building, funding...

building as possible on existing plans and strategies¹³ and on what already works, as identified in the subregional and national reports.

- 114.** Timelines and indicators are set to 2027 and to 2030 (Annex III); trying to consider not only what needs to be done, but how to achieve it, each Action includes a start-up, preparatory activity, e. g. setting the baseline to assess progress.
- 115.** The Post-2020 SAPBIO is a Mediterranean framework (saving any clear subregional specificities), providing the setting to which only minor adjustments will be done at the national level. A large part of the Actions is recommended for the National level, where most of the implementation takes place on issues as e. g. pressures on biodiversity, monitoring, MPA coverage/management, enforcement, integration of non-conservation sectors. Actions expressed by all 4 sub-regions are considered as a priority at the Mediterranean level, without reducing the importance of others which may be relevant for a given subregion or for a part of the Mediterranean Sea. Some Actions may have both a Regional and National scope; and taking account of specificities, other Actions have a sub-regional or transboundary character.
- 116.** Each Action presents timelines to 2027 and to 2030, in which progress of measures taken will be assessed. Given the strict selection criteria and the relatively short number of Actions, their relevance is defined in just 2 levels of priority: High, or Very High.
- 117.** The table in Annex III presents 42 Actions and their expected results for 2027 and 2030, also recommending their start-up activities, on the following subjects:

118. GOAL 1

1. SPECIES PLANS
2. URGENT SPECIES RECOVERY
3. MARITIME TRAFFIC
4. NIS/IAS COMMITMENT
5. NIS/IAS CAPACITY
6. NIS/IAS CONTROL AND MONITORING
7. LITTER
8. EIA/SEA
9. WIND ENERGY
10. MINERALS
11. SPATIAL PLANNING
12. RESTORATION
13. CLIMATE CHANGE
14. GOOD ENVIRONMENTAL STATUS
15. EFFECTIVE SYSTEMS OF MCPAs AND OECMs

119. GOAL 2

16. BIODIVERSITY PLATFORM
17. INVERTEBRATES (status)
18. VERTEBRATES (status)
19. HABITATS
20. NIS/IAS (data bases)
21. OVERFISHING and IUU

¹³ NAPs, IMAP and data sharing, NIS/IAS and migratory species, expanding EIA/SEA, GES, MSP, Natura 2000, FRAs and other tools; GFCM Strategy, EU Third country incentives, regional and subregional initiatives from specialized NGOs, networks, academia...

22. BY-CATCH AND FISHERIES PLANNING
23. SMALL SCALE FISHERIES (incl. recreational)
24. AQUACULTURE
25. TOURISM
26. INTEGRATING BIODIVERSITY
27. STREAMLINE Post-2020 SAPBIO
28. POLITICAL WILL AND COORDINATION
29. STAKEHOLDER PARTICIPATION
30. UP-DOWN BOTTOM-UP INTERNATIONAL COMMITMENTS
31. COMPLIANCE AND ENFORCEMENT

120. GOAL3

32. IMAP REFINEMENT
33. IMAP IMPLEMENTATION
34. Post-2020 SAPBIO MONITORING
35. SUPPORT TO RUN the Post-2020 SAPBIO
36. CAPACITY BUILDING FOR THE Post-2020 SAPBIO AT NATIONAL LEVEL
37. NETWORKING AND COMMON KNOWLEDGE
38. AWARENESS
39. OUTREACH AND EDUCATION
40. EMPLOYMENT
41. SUSTAINABLE FUNDING
42. COOPERATION

7. SAPBIO IMPLEMENTATION AND MONITORING PROGRESS

121. The success of the Post-2020 SAPBIO largely relies on the cooperation among Contracting Parties supported by international organisations, institutions and fora. A strong and effective implementation mechanism promoting responsibility, accountability and transparency from all actors involved in its implementation is proposed to ensure that Mediterranean countries define national contributions that add up to the regional Goals and Targets.

122. Targets and Actions which are quantified will serve as indicators of implementation progress. By 2022 a Table on monitoring tools will be distributed so that by 2025 countries will have identified their national contributions and targets for the implementation of the Strategy, updated their NBSAPs as appropriate, reviewed their national monitoring programmes in light of the new elements, duly harmonized with IMAP and other UNEP/MAP monitoring frameworks, avoiding duplication of efforts for reporting and reviewing periodically the status of implementation of the Post-2020 SAPBIO at the COP of the Barcelona Convention. Also, by 2025, the necessary means for running the regional Post-2020 SAPBIO assessment mechanisms should be in place within the MAP system, allowing the timely analysis of progress based on objective/numerical elements of targets towards the Strategy Goals.

123. The Strategy will be monitored as an alive/dynamic document, so the monitoring framework will need flexibility to allow adaptation. The Post-2020 SAPBIO implementation status will be periodically reviewed at the Conference of the Parties of the Barcelona Convention, through systematic national reporting of progress, facilitated by the relevant Regional Activity Centres. The reports will include progress with regards to the implementation of the national contributions to the Post-2020 SAPBIO, and data on the Common Indicators of the Integrated Monitoring and

Assessment Programme (IMAP) to monitor the effectiveness of the actions put in place¹⁴, altogether building the basis of a Mediterranean assessment on the collective implementation of the SAP BIO, to ensure that by 2030 the regional targets are achieved through the compilation of national and regional actions.

124. The Barcelona Convention provides a two-fold mechanism to ensure enforcement of its provisions, which have yet to be fully enacted: (i) the Compliance Committee and (ii) reports by the Contracting Parties on the measures implemented and their effectiveness (Article 26 of the SPA/BD Protocol), reviewed by the Conference of the Parties to recommend potential corrective measures (Article 27 of the SPA/BD Protocol).

Post-2020 SAPBIO National Correspondents:

125. SPA/RAC has, as institutional governance body, a network of Post-2020 SAPBIO National Correspondents, with a member from each state that is Party to the Convention, appointed by the country's authorities. The National Correspondent is for several Mediterranean countries the same person as the SPA / BD Focal Point. She/he ensures liaison with SPA/RAC on the technical and scientific aspects of implementing the Post-2020 SAPBIO in her/his country, in particular, but also at the Mediterranean level.

126. Post-2020 SAPBIO National Correspondents will assess the progress made in implementing the Strategic Action Programme and update the work and projects scheduled. In close consultation with the SPA/BD Focal Points they will act on:

- Identifying and establishing appropriate contacts with the national institutions/bodies concerned with the implementation of Post-2020 SAP BIO Programme;
- Organizing, with the support and assistance of SPA/RAC, the national consultation process/workshop, eventual updating, needed for the implementation of the Post-2020 SAPBIO and in particular the preparation of projects and the implementation of NAPs;
- Passing on information and communication regarding SAPBIO from the national side to SPA/RAC and to the Network, and vice-versa;

127. In the light of this assessment, the Meeting of Post-2020 SAPBIO National Correspondents suggests recommendations to be submitted to SPA/BD Focal Points Meeting and, where necessary, proposes amendments to the work schedule. Meetings of the Post-2020 SAPBIO National Correspondents, if not decided otherwise, would be convened once a year.

128. The National Correspondent, to carry out her/his tasks, must necessarily be supported by resource persons, to be identified at national level, including by NGOs and the National Focal Points of the organizations that are members of the Advisory Committee.

Post-2020 Advisory Committee:

¹⁴ The validity of the IMAP will be reviewed once at the end of every ecosystem approach six-year cycle, and in addition it should be updated and revised as necessary on a biennial basis, based on lessons learnt of the implementation of the IMAP and on new scientific and policy developments.

- 129.** The SAPBIO Advisory Committee is a regional institutional governance body envisaged since the first SAPBIO adopted in December 2003, to act as advisory, not steering, character.
- 130.** The Advisory Committee includes nominated representatives by international and Mediterranean regional bodies with technical and scientific expertise in marine and coastal Mediterranean biodiversity issues and policies.
- 131.** To promote coordination and avoid duplication, the Post-2020 SAP BIO takes due account of what already has been developed at the national and regional levels, so it is established to (I) ensure co-ordination with the relevant organisations and (II) provide SPA/RAC with technical and scientific advice in the process of the Post-2020 SAPBIO elaboration and implementation.
- 132.** In particular, the Committee will provide for:
- Technical and scientific advice concerning the process of elaboration and implementation of Post - 2020 SAPBIO;
 - Periodic inventory of relevant activities already realised in the region. For that aim, each member organisation will provide the committee with lists of its activities and outputs done in connection with the Post -2020 SAPBIO;
 - Flow and exchange of relevant information on activities implemented, on-going or planned by the member organizations, within the Committee membership and with SPA/RAC;
 - Harmonization, as appropriate, of activities and results of member organizations concerning issues of relevance for Post -2020 SAPBIO.
- 133.** It is understood that member organizations, besides their participation in the activities directly related to the Advisory Committee itself, may be involved in some national and/or regional activities of Post-2020 SAPBIO.
- 134.** Membership of the Post-2020 SAP BIO Advisory Committee can be updated every two years. Each member organisation is invited to keep the same representative in the Advisory Committee and to ensure continuity, through appropriate transfer of files, in case of a necessary change.
- 135.** Meetings, if not decided otherwise, would be convened once a year.

List of ANNEXES

- Annex I. Needs, gaps and challenges identified by the subregional assessments
- Annex II. Correspondences of the Post-2020 SAPBIO Targets with the international biodiversity-related frameworks
- Annex III. Post-2020 SAPBIO Actions table
- Annex IV. References in the text

List of ACHRONYMS

ABNJ	Areas Beyond National Jurisdiction
ACCOBAMS	Agreement for the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area
BC	Barcelona Convention
BD	Biodiversity
BWM	The International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004
CBD	Convention on Biological Diversity
CBD/GBF	Convention on Biological Diversity/Global Biodiversity Framework (<i>draft</i>)
CC	Climate Change
COP	Conference of the Parties
EBSAs	Ecologically or Biologically Significant Marine Areas (from CBD)
EIA	Environmental Impact Assessment
EO	Ecological Objective
EU	European Union
EWS	Early Warning System (for climate change)
FAO	UN Food and Agriculture Organization
FVGSS	Voluntary Guidelines for Securing Small Scale Fisheries
FRA	Fisheries Restricted Area (designated by the GFCM)
GEF	Global Environment Facility
GES	Good Environmental Status
GNI	Gross National Income
GFCM	General Fisheries Commission for the Mediterranean (FAO)
ICZM	Integrated Coastal Zone Management
ICZM/CRF	ICZM Common Regional Framework (2016)
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast
IMO	International Maritime Organization
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated Fisheries
MAMIAS	Marine Mediterranean Invasive Alien Species Database

MAP	Mediterranean Action Plan
MAP/MTS	MAP Mid-term Strategy 2022-2027
OECM	Other Effective areas-based Conservation Measures
MAPAMED	Marine Protected Areas in the Mediterranean
MedECC	Mediterranean Experts on Climate and Environmental Change
MedFund	Environmental Fund for Mediterranean Marine Protected Areas
MedPAN	Mediterranean MPA managers' network
MED POL	Programme for the Assessment and Control of Marine Pollution in the Mediterranean
MoU	Memorandum of Understanding
MPAs	Marine Protected Areas
MSFD	EU Marine Strategy Framework Directive
MSP	Marine Spatial Planning
MSSD	Mediterranean Strategy for Sustainable Development 2016-2025
NB SAPs	National Biodiversity Strategies and Action Plans
NETCCOBAMS	Network on the Conservation of Cetaceans of the Black Sea, the Mediterranean and the Adjacent Atlantic Area
NGOs	Non-governmental Organizations
NIS/IAS	Non-Indigenous Species / Invasive Alien Species
NTZs	No-take zones
ODA	Official Development Assistance
OECMs	Other Effective Conservation Measures
PSSAs	Particularly Sensitive Sea Areas (of IMO)
QSR	Quality Status Report in the Mediterranean (UNEP/MAP 2017)
RSP	Regional Seas Programme (UNEP)
SAPBIO	Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (2004-2018)
SCP	Sustainable Consumption and Production
SDGs	United Nations Agenda 2030 Sustainable Development Goals
SEA	Strategic Environmental Assessment
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SoED	State of the Environment and Development in the Mediterranean (2020)
SPA/BD	Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Protocol to the Barcelona Convention)
SPA/RAC	Specially Protected Areas Regional Activity Centre
SPAMI	Specially Protected Area of Mediterranean Importance

SSF	Small-scale Fisheries
ToRs	Terms of reference
UfM	Union for the Mediterranean
UN	United Nations
UNEP	United Nations Environment Programme
UNEP/MCS	UNEP Marine and Coastal Strategy (2019)
UNWTO	UN World Tourism Organization
VME	Vulnerable Marine Ecosystems (of FAO)
WWF	World Wide Fund for Nature

ANNEX I

Needs, gaps and challenges identified by the subregional assessments

ANNEX I

Needs, gaps and challenges identified by the subregional assessments

	<i>ADRIATIC</i>	<i>AEGEAN- LEVANTINE</i>	<i>IONIAN – CENTRAL</i>	<i>WESTERN</i>
1. Addressing current pressures and threats	-NIS/IAS -Climate changes -Maritime traffic	-NIS/IAS -Climate changes -Maritime traffic	-NIS/IAS identify GES Thresholds and control	-NIS/IAS -Pollution, noise -Cumulative effects and restoration of disturbed habitats
2. Spatial protection measures	-New MPAs -Improvement of MPA management -Coastal Wetland management	-New MPAs -Improvement of MPA management -Coastal Wetland management	-Adaptive management approach in MPAs	-New MPAs and OECM -Increase strictly protected areas -Effective management
3. Ecosystem health	-Adopt the EcAp to achieve GES. -CC stressors and impacts	-Adopt the Ecosystem Approach (EcAp) to achieve the GES. -Fully understand effects of CC	-Include habitat restoration in national legislations. -Value ecosystem services, assess impacts and consequences of climate change	-CC monitoring of impacts over BD. Improve data collection for the evaluation of GES -Promote restoration of disturbed habitats
4. Improve knowledge on biodiversity	-Inventorying, mapping and monitoring of priority habitats and status of species	-Habitats -Biodiversity components -Adequate knowledge on NIS and IAS	-Filling important gaps -Harmonized monitoring	-Inventories, mapping of habitats and species -Synergies in data collection and monitoring (Improve data through IMAP)
5. Sustainable fisheries	-Improved surveillance of IUU fisheries, and fisheries interactions with BD	-Improved surveillance of IUU fisheries -focus on by-catch and fisheries interactions with BD	-Overexploitation of fish stocks, assess bycatch of non-target species, and discards. Assess and control recreational fisheries	-Stocks overexploited. -Establish effective mechanisms to limit IUU fishing - Assess recreational fisheries
6. Mainstreaming biodiversity in other sectors	-Improvement of cooperation between different sectors and stakeholders involvement	-Cooperation between sectors, ministries responsible for nature conservation/fisheries	-Integration of biodiversity protection tools with relevant economic and social policies and sectoral or intersectoral plans -Identification of ecosystem services	-MSP /ICZM -Integration of biodiversity at the country's local levels -Citizen science -Promote gender and equity concepts
	<i>ADRIATIC</i>	<i>AEGEAN- LEVANTINE</i>	<i>IONIAN – CENTRAL</i>	<i>WESTERN</i>

7. Legislation framework /Conservation Policies	-Improvement of legislative framework -Development of national action plans for marine species and habitats	-Development of new National Biodiversity Strategies. -Address CC in legal frameworks	-Harmonise legislations and foster sub-regional collaboration to implement them	-Improve legal frameworks for OECMs
8. Capacity building	-Improvement of institutional and human capacities, and expertise for GES assessment under IMAP or MSFD	-Improvement of institutional and human capacities, and expertise for GES assessment under IMAP or MSFD	-Map and assess the human and institutional capacities to define capacity-building needs	-Capacity building for managers, field technicians, local authorities
9. Outreach and awareness raising	-General public specific marine sectors	-General public or specific marine sectors	-Training and awareness to reduce mortality deriving from bycatch -	-For the involvement and support of civil society in the objectives of MPAs
10. Financing	-Stable financial resources for monitoring, MPAs and conservation actions	-Stable financial resources for monitoring, MPAs and conservation actions	-Funding using existing sources at national, regional and international levels	-Strengthening the capacity of MPAs to develop long-term financial mechanisms to support their management

ANNEX II

Correspondences of the Post- 2020 SAPBIO Targets with the international biodiversity-related frameworks

ANNEX II

a) Coincidences among the Needs identified at the subregional level,
and the objectives in the main marine biodiversity frameworks

	SDGs	CBD/GBF	EU BD Strategy for 2030	UNEP/MCS	MAP/MTS 2022-2027	ACCOBAMS Str.2014-25
1. Addressing current pressures & threats	G.14	T.3 /T.5 /T.6 /T.14	Key Commitment	Obj.2	Progr.2, EO 1,2,5	Chapter B2
2. Spatial protection measures	G.14.5	T.1 / T.2	MSP, MPAs, OECM	Strat.Obj.3	Pr.2, Output	B5.1
3. Ecosystem health	G.13 / G.14.1	T.6 /T.7/T.10	Key Commitment.	Objs.2 and 4	Pr.2, EO 6	B2.2 & B.2.3
4. Improve knowledge on BD	G.14.2	T.19	Enabling condition	Expected Outcome	Progr.2	Ch.B1
5. Sustainable fisheries	G.14.4, 14.6	T.4 /T.17	Key Commitment.	Obj.3	Pr.2, EO 3 & 4	Ch.B2
6. Mainstreaming BD in other sectors	G.17	T.13 /T.14 /T.17	Key Commitment.	Obj.1	Progr.2	Ch.A2
7. Legislat. Framewk / Conservat.Policies	G.14.c	T.20	Enabling condition	Obj.3	Progr.2	Ch.A4
8. Capacity building	G.13.3	T.19	Key Commitment.	Obj.3	Progr.2	Ch.B4
9. Outreach and awareness raising	G.13.3	T.19	Key Commitment.	Expected Outcome	Progr.2	Ch.B3
10. Financing	G.17/1.4.6.9.	T.18	Key Commitment.	Strat.Obj. 4.a	Core Prod.7	Ch. A3

b) Contribution of the Post-2020 SAPBIO Targets to the main frameworks of relevance for biodiversity

Post-2020 SAPBIO TARGET	UN SDG	CBD/GBF (draft) Target	EU Biodiversity Strat. 2030 Commitments	UNEP/MCS Strategic Objectives & Outcomes	MAP/MTS 2022-2027 Prog., EOs, & Core Prod.	GFCM Str. 2030 (draft)
GOAL 1						
1.1. Specific pressures	G.14.2	T.3	Key Commitment.	Str.Obj.2	Progr.2, EO 1,2,5	Target 1
1.2. NIS/IAS	G.14.2	T.5	Action 2.2.10		Progr.2 EO.2	
1.3. Pollution	G.14.1	T.6	Action 2.2.9	Str.Obj. 2.1	Pr.2, EO 6	Target 1.4
1.4. MPCA/OECM effective systems	G.14.5	T.1 / T.2	Specific Commitment & Key Action	Str.Obj.3.d	Pr.2 Output	Target 1FRAs
1.5. MPCA/OECM enhanced protection	G.14.2	T.2	Key Commitment & Key Action	Str.Obj.3.d	Pr.2 Output	
1.6. Restoration	G.13.1.	T.6/T.7/T.10	Specific Commitment	Str.Obj.3c & 4	Key deliverable	
1.7. GES	G.13 / G.14	T.6 / T.10	MSFD Directive		Several EOs	
1.8. Climate change	G.13 / G.14.1	T.7/T.10	Specific and Key Commitment	Str.Obj.4	Progr.3 & Core Prod. 9	Target 1.4
GOAL 2						
2.1. Species	G.14.2	T.3	Key Commitment		Progr.2 EO.1	
2.2. Habitats	G.14.2	T.3	Key Commitment		Progr.2 EO.1, 5	
2.3. Knowledge	G.14.2, 14.a	T.19	Enabling condition	Expected Outcome	Progr.2 Core Prod.10	
2.4. By-catch, IUU	G.14.4, 14.6	T.4 /T.17	Key Commitment.	Str.Obj.3.e	Pr.2, EO 3 & 4	Target 2
2.5. SSF	G.14.b	T.3 /T.8 /T.9		Str.Obj.2.c		Target 4.4
2.6. Aquaculture	G.14.c	T.9, T.14	Aquacult. Strategic Guidelines (2021)	Str.Obj. 2.b	Core Prod. 8	Target 3
2.7. EcAp/MSP	G.14.5	T.1 / T.2	MSP Directive	Str.Obj.3	Pr.2, Output	
2.8. Biodiversity Integration	G.13.2., G.17	T.13 / T.17	Key Commitment.	Str.Obj.1 & 2	Progr.2	
2.9. Governance	G.14.c	T.20	Specific Commitment	Str.Obj.3.a	Progr.2	Target 2
GOAL 3						
3.1. IMAP, monit	G.14a	T.19, T(iii)	MSFD Directive	Exp. Outcome	Core Prod. 7	
3.2. SAPBIO assessment	G.17.1	T(i) (iii)		Exp. Outcome	Core Prod. 1	
3.3. SAPBIO running	G.17.6 17.9	T.18		Exp. Outcome	Core. Prod. 1	
3.4. Capacity building	G.13.3 G.17.9	T.19	Key Commitment	Str.Obj.3	Progr.2	Target 5.1
3.5. Networking	G.14.3 /G.17.6	T(ii)	Enabling Condit. 3.3.4	Exp. Outcome	Core Prod. 12	
3.6. Awareness	G.13.3	T.15, T.19		Exp. Outcome	Progr.6 & 7	
3.7. Outreach	G.13.3	T.19	Key Commitment.	Exp. Outcome	Progr.7, Core Prod. 11	
3.8. Employment on biodiversity		T.18		Exp. Outcome		
3.9. Funding	G.17.1.4.6.9.	T.18	Specific Commitment	Str.Obj. 4.a	Core Prod.7	
3.10. Cooperation	G.17.2, 17.4	T.18	Enabling condition	Str.Obj. 3.1.		Target 5.2

ANNEX III

Post-2020 SAPBIO Actions Table

ANNEX III

Post-2020 SAPBIO Actions Table

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
GOAL 1							
1. SPECIES AND HABITATS PLANS Update Mediterranean action plans for selected species and habitats listed under the SPA/BD Protocol	T1.1. T2.1. T2.2.	Establish the list of priority habitats and species which are not in GES category, including recent updates to Annexes II and III of the SPA / BD Protocol, and the new 2019 habitat classification	The updated regional action plans for the selected priority habitats and species are adopted and passed on to national planning and implementation processes in most Mediterranean countries	At least 30% of species and habitats which were not in favourable status in 2020, are in GES category or show a strong positive trend, especially in priority benthic habitats, where the decline of coralligenous habitats and marine vegetation has been halted and sea-floor integrity is maintained	High	REGIONAL	<i>CBD/GBF</i> T.3 SGD 14A. & 17.6. Aichi T5. & T12 UNEP/MTS EO5 EU/2030 ACCOB/2025 IUCN(2020) WWF(2021)
2. SPECIES RECOVERY Develop recovery plans and implement emergency actions for endangered and threatened species whose continued survival depends on such actions, including their habitats	T1.1. T2.1. T2.2.	Recovery plans are developed in <i>several countries</i> , including measures to eliminate all intentional or accidental killing or capture	Recovery plans are developed and emergency actions implemented, both <i>in situ</i> and <i>ex situ</i> as required, for species whose continued survival depends on such actions, including when relevant an agreement to establish a functional stranding network for at least two Mediterranean ecological subregions	All Mediterranean countries are implementing recovery plans and emergency actions, as appropriate, for threatened and endangered species, including, when relevant, a Mediterranean network of stranding centres	Very High	NATIONAL and REGIONAL	<i>CBD/GBF</i> T.3 SGD 14A. & 17.6. Aichi T5. & T12 UNEP/MTS EO5 EU/2030 ACCOB/2025 IUCN(2020) WWF(2021)
3. MARITIME TRAFFIC Reduce the impact of maritime traffic (noise & collision) on sensitive marine	T1.1. T1.5. T1.7. T2.7. T2.9.	Identify noise pollution and collision hotspots where there is a strong interaction with cetaceans, sea turtles and other affected species, and approach	Protection measures against noise and collision have been developed <i>and</i> adopted as by IMO guidelines (2014) in most Mediterranean countries, and	The impact of noise and collision from maritime traffic, is considerably reduced in most of the identified	High	REGIONAL and NATIONAL	<i>CBD/GBF</i> T.6. EU/2030 UNEP/MAP 2017

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
species (Cetaceans, Turtles, others)	T3.4.	the main sources and administrations in order to develop adequate protection measures in these areas	basic monitoring systems are in place in the most vulnerable areas	vulnerable areas, through appropriate regulation reducing noise levels and collision events.			IMAP/EO 11 ACCOB/2025 IUCN(2020) WWF(2021)
4.NIS/IAS COMMITMENT Ratification of the International Convention for the Control and Management of Ballast Water and Sediments from Ships (BWM Convention), and adoption of the Regional strategy addressing ship's ballast water management and invasive species (2022-2027)	T1.2. T3.2. T6.3. T7.1.	Countries have started the necessary steps to express in national laws the provisions of the IMO Convention on the management of ballast waters and the BWM Biofouling Guidelines	Most Mediterranean countries have taken the necessary steps to express in their national laws the provisions of the IMO Convention on the management of ballast waters and the BWM Biofouling Guidelines	All Mediterranean countries collaborate in the enforcement of the Mediterranean Ballast Water Management Strategy (2022-2027) implementing the guidelines to minimize the transfer of invasive aquatic species	High	NATIONAL	CBD/GBF T.5 Aichi T.9 MAP/UNEP (2017) EU/2030 IUCN (2020) SoED 2020 REMPEC/2031 CSO.5 WWF(2021)
5. NIS/IAS CAPACITY Strengthen the capacity of the Mediterranean countries to deal with alien marine species	T1.2. T1.7. T3.4.	Countries have started baseline studies, (year of first record, pathway of introduction and its level of certainty (direct evidence, most likely, possible), and the status of the population	Most countries have conducted baseline studies, plus dated and georeferenced records of NIS presence; and have designed, and are implementing monitoring and assessment programmes for data collection, within the framework of IMAP	All countries have conducted a baseline study, and are collecting data and monitoring within the framework of IMAP, on the presence of alien marine species, the pathways of their introduction, and the state of their population trends, including those used in aquaculture	Very High	REGIONAL and NATIONAL	CBD/GBF T.5 UNEP/MAP (2017) UNEP/MAP (2021) EU/2030 IUCN (2020) SoED 2020 REMPEC/2031 CSO.5 WWF(2021)
6. NIS/IAS CONTROL Take the necessary field actions to mitigate the impact from NIS/IAS	T1.1. T1.2. T1.7. T3.1. T3.4.	Most countries have identified the vulnerable areas and priority sites for urgent mitigation action, and initiated monitoring of non-indigenous species, with particular attention to the main port enclosures and entry pathways	At the Mediterranean level, a <i>significant</i> reduction in the rate of new introductions has been achieved, and control or eradication actions are implemented for the selected, most problematic IAS, including in at least 50% of priority sites	The introduction and spread of the most harmful invasive alien species is regulated, preventing their impacts in 100% of the most vulnerable areas and/or priority sites, decreasing the number of protected species they threaten by 50%, and effectively managing 50% of	High	NATIONAL	CBD/GBF T.5 UNEP/MAP (2017) UNEP/MAP (2021) EU/2030 IUCN (2020) SoED 2020

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
				the most significant pathways of introduction			REMPEC/2031 CSO.5 WWF(2021)
<p>7. LITTER Prevent leakage and remove marine litter to mitigate its impact on the ecosystem</p>	<p>T1.1. T1.2. T1.3. T1.7. T2.4. T2.8. T2.9. T3.4. T3.7.</p>	<p>Undertake an updated assessment of marine litter, as provided by the Regional Plan on Marine Litter (2014), Art.11, including baseline indicators to monitor progress, covering the lost fishing gears and other sources</p>	<p>In most Mediterranean countries new technologies to prevent and remove marine litter have been tested, <i>inter alia</i> through a full ban on plastic bags and/or changing how waste is collected and managed in cities and touristic destinations, captured in rivers and dams, and by the fishing and aquaculture sectors where appropriate, so abandonment of fishing gear and the leakage of plastic to the sea is already decreasing</p>	<p>All countries report the effective prevention and removal of marine litter, so the leakage of plastic to the sea has significantly and the removal from the sea and beaches has increased compared to 2027.</p>	<p>High</p>	<p>REGIONAL and NATIONAL</p>	<p>SDG 14.1. Aichi T.8. CBD/GBF T.6. BC/COP21 BC/ LBS Protocol (1996) EU/2030 GFCM/2020 T.1. UNEP/MAP 2017 IMAP/EO 11 UfM (2021) ICZM/CRF (2016) ACCOB/2025 WWF(2021)</p>
<p>8. EIA/SEA Implement environmental assessments, considering cumulative impacts on the coastal zones and their carrying capacity.</p>	<p>T1.1. T1.3. T.1.5. T2.6. T3.4.</p>	<p>Guidelines for EIA/SEA on the integration of biodiversity values in coastal and marine economic activities, based on the use of EcAp EOs and related indicators, are ready for submission to the next COP</p>	<p>Several countries adopted within the national EIA/SEA procedures, a framework of specific measures and indicators for addressing the values of biodiversity and the impact from tourism, aquaculture, and maritime traffic</p>	<p>Most Mediterranean countries adopted within the national EIA/SEA procedures, a framework of specific measures and indicators for addressing the impact on biodiversity and of specific measures favouring nature-based solutions</p>	<p>Very High</p>	<p>NATIONAL</p>	<p>SDG 14.2. UNEP/MCS – 3.5 & 6.1. MAP/MTS (2020) ICZM/CRF (2016)</p>
<p>9. WIND ENERGY Advocate that wind farms, are regulated in MCPAs, and cannot be developed elsewhere before their effects on the marine environment,</p>	<p>T1.1. T1.3. T1.7. T1.8. T2.7. T2.8. T2.9.</p>		<p>A proposal for the regulation and impact assessment of the installation of wind farms within areas identified as important for marine and coastal biodiversity, is presented to consideration of</p>	<p>The Barcelona Convention, has adopted the proposal</p>	<p>High</p>	<p>REGIONAL and NATIONAL</p>	<p>SDG 13 RFCCA Str.Dir. 1.2. ICZM/CRF (2016) EU/2030 - EIAs</p>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
biodiversity and human activities have been sufficiently researched, the risks are understood and alternatives assessed			the Barcelona Convention Contracting Parties				<i>IUCN (2020)</i> <i>WWF (20021)</i>
10. MINERALS In line with the precautionary principle, the exploitation of minerals should not be authorised until the effect on the marine environment, biodiversity and related human activities have been sufficiently researched and the risks are understood and alternatives assessed.	T1.1. T1.3. T1.7. T1.8. T2.7. T2.8. T2.9.		A proposal to regulate prospection or exploitation of inorganic minerals over or under the seabed, is presented to consideration of the Barcelona Convention Contracting Parties	The Barcelona Convention, <i>has adopted the regulation of</i> the prospection or exploitation of inorganic minerals in or under the seabed	High	REGIONAL and NATIONAL	<i>SDG 13</i> <i>RFCCA Str. Dir. 1.2.</i> <i>ICZM/CRF (2016)</i> <i>EU/2030 - EIAs</i> <i>IUCN (2020)</i> <i>WWF (20021)</i>
11. SPATIAL PLANNING Support countries for the development of systematic conservation planning taking into account ICZM, land use/marine use planning and management aspects in the context of MSP	T1.4. T1.6. T1.7. T2.6. T2.7. T2.8.	Developed a baseline of indicators to assess the implementation of maritime and of coastal spatial plans, covering all coastal and maritime sectors and activities with area-based conservation-management measures	50% of coastal length and marine surface, and 100% of SPAMIs, is included within formulated maritime and coastal spatial plans, covering biodiversity values in all coastal and maritime sectors and activities	100% of MPAs, and as appropriate OECMs, and 50% of the remaining marine areas are sustainably managed by applying ecosystem-based approaches including biodiversity and climate change-informed marine spatial planning	Very High	NATIONAL	<i>SDG 14.2</i> <i>CBD/GBF T.1</i> <i>UNEP (MCS SO.3</i> <i>EU/2030 SPA/RAC (2021)</i> <i>BC/ICZM Protocol (2016)</i> <i>MPA Forum Roadmap post-2020</i> <i>WWF (2021)</i>
12. RESTORATION Support restoration of ecosystems providing key services, those degraded and	T1.6. T1.8. T3.5. T3.7.	Countries have developed the inventory of ecosystems with the highest ecological relevance and/or regeneration	Most Mediterranean countries have completed the inventory of ecosystems with the highest ecological relevance and/or	All Mediterranean countries have developed inventory of ecosystems with the highest ecological relevance and/or	<i>High</i>		<i>SDG 14.2.</i> <i>Aichi T.15</i> <i>CBD/GBF T.1</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
expected to become increasingly critical in a changing climate, such as wetlands and shallow seashore habitats among others		potential (as nursery areas, carbon stocks, avoiding coastal erosion, preventing or reducing the impact of natural disasters) such as Posidonia beds, coralligenous assemblages, wetlands, and dune systems, among others	highest regeneration potential, and have started restoration activities on 30% of those selected, favouring nature-based solutions	regeneration potential, and most Mediterranean countries have completed restoration activities on most of those selected between the identified priority areas		REGIONAL and NATIONAL	EU/2030 MAP/MTS 9 & 15 P BC/ICZM Protocol (2016)
13. CLIMATE CHANGE Increase climate change impacts monitoring and contributions to mitigation and adaptation, particularly to warming, acidification, and to disaster risk reduction, through nature-based solutions and ecosystem-based approaches	T1.3. T1.7. T1.8. T2.8. T3.10.	A working group has agreed on factsheets for baseline indicators follow up on the effects of CC on marine environment, based in SPA/RAC developed ones; particularly in a pilot network of SPAMIs	SPAMIs are coordinated into a climate change monitoring network and most countries have developed Early Warning Systems (EWS), mapping, risk assessment and reduction strategies, by which adaptation plans, based on nature-based solutions, are integrated into planning and budgeting processes	All Countries have developed EWS, mapping, risk assessment and reduction strategies over nature-based solutions, and a climate change monitoring network in MPAs representative of the Mediterranean conditions is fully operational	High	REGIONAL and NATIONAL	SDG 14.2 Aichi T.14 CBD/GBF T.7 EU/2030 UNEP/MCS 2019 SO.3 MAP/MTS CP-9 BC/ICZM Protocol (2016) MPA Forum Roadmap post-2020
14. GOOD ENVIRONMENTAL STATUS Promote actions, including scientific research, with the view of achieving GES for all biodiversity-related ecological objectives within the Ecosystem Approach EcAp/IMAP	T1.7. T2.1. T2.2. T3.1. T3.4. T3.5.	Promote scientific research, particularly on trophic networks and the functioning of ecosystems in general, to consolidate science base for the evaluation of GES within the Ecosystem Approach EcAp/IMAP	Related to the biodiversity-relevant ecological objectives within the IMAP framework, Mediterranean countries have reached the Good Environmental Status and all countries have identified, and in case needed received support, to fill the gaps that hinder good GES evaluation	All the biodiversity-related ecological objectives of GES show positive trends, being verifiable by scientific knowledge, and most Mediterranean countries have reached GES in an effective implementation of the Ecosystem Approach and its roadmap	Very High	NATIONAL	IMAP EU MSFD AP/MTS EO4 ACCOB/2025
15. MCPAs and OECMs Assist countries in the implementation of the Post-	T1.4. T1.5. T2.7. T2.9.	SPA/RAC, assisted by the Mediterranean ad-hoc group of experts for Marine Protected Areas in the Mediterranean	The Post-2020 Regional Strategy on MCPAs and OECMs is being effectively implemented; including specific actions on:	The Post-2020 Regional Strategy on MCPAs and OECMs has been implemented by the	Very High		UNEP/MCS (2019) - 61

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
2020 Regional Strategy for MCPAs and OECMs	T3.5.	(AGEM) has prepared relevant guidelines to support the implementation of the Strategy, including on ecological representativity and , connectivity and effectiveness of MPA systems; identifying, recognizing and reporting OECMs	enhancing improving governance arrangements of MCPAs and OECMs, expanding soundly-designed, ecologically representative and well-connecting systems of MCPAs, identifying, recognizing and reporting marine and coastal OECMs, management effectiveness of MCPAs, mobilizing actions and support for MCPAs and OECMs	Contracting Parties, resulting in expanded and effective systems of MCPAs and OECMs that successfully deliver biodiversity conservation outcomes		REGIONAL and NATIONAL	GFCM (2020) MAP/MTS-3, 11, 61 SPA/RAC(2021) ACCOB/2025 MPA Forum Roadmap post-2020
16. BIODIVERSITY PLATFORM Establish an open access Mediterranean Biodiversity Platform	T2.1. T2.2. T2.3. T3.2. T3.5. T3.7.	Update manuals of priority habitats and species identified under the BC, including recent updates to the list of species in Annexes II and III of the SPA /BD protocol, and the new 2019 habitat classification	By 2027 georeferenced Information on Mediterranean Biodiversity key components is centralized in an open access Mediterranean Biodiversity Platform		High	REGIONAL	CBD/GBF-IPBES UNEP(MCS-IPBES MAP/MTS (2020) EU/2030 – IPBES
17. INVERTEBRATES Survey distribution and abundance, and assess status and main anthropogenic pressures, over priority invertebrate species with focus on <i>C.rubrum</i>, <i>P.nobilis</i>, and vermetid platforms	T1.1. T1.2. T1.6. T2.1. T2.2. T2.3.	Research projects are launched in countries which had not yet started their relevant marine invertebrate studies	The distribution, abundance, and status assessment studies are progressing in most Mediterranean countries and research projects are prepared for the rest of the countries	The distribution, abundance, and status assessment are finished in all countries, at least for <i>C. rubrum</i> , <i>P. nobilis</i> , and vermetid platforms	High	NATIONAL	CBD/GBF T.3 SGD 14A. & 17.6. Aichi T5. & T12 UNEP/MTS EO5 EU/2030 IUCN(2020) WWF(2021)
18. VERTEBRATES Establish the distribution, status, and the main anthropogenic pressures of species listed under Annex II to the SPA/BD Protocol	T1.6. T1.7. T2.1. T2.3. T3.2.		Ready in most Mediterranean countries	Ready in all Mediterranean countries	High	REGIONAL and NATIONAL	CBD/GBF T.3 SGD 14A. & 17.6. Aichi T5. & T12

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
							UNEP/MTS EO5 EU/2030 ACCOB/2025 IUCN (2020) WWF (2021)
<p>19. HABITATS In coastal and offshore waters, inventory and cartography key Mediterranean habitats, and assess their status and main anthropogenic pressures</p>	<p>T1.2. T1.4. T1.6. T2.2. T2.3. T2.7. T3.2. T3.10</p>	<p>Using the updated SPA/RAC repository, prioritize areas to map</p>	<p>Start mapping key habitats, at the highest possible resolution, including those for vulnerable vertebrates, seabed and dark habitats, in all the SPAMIs, MPAs and OECMs</p>	<p>Achieved cartography of key habitats in the identified priority areas, covering 100% protected areas, and also including FRAs and OECM, and their status and responses to threats and impacts have been assessed</p>	<p>Very High</p>	<p>REGIONAL and NATIONAL</p>	<p><i>CBD/GBF</i> T.3 SGD 14A. & 17.6. Aichi T5. & T12 UNEP/MTS EO5 EU/2030 ACCOB/2025 BC/ICZM Protocol (2016) IUCN (2020) WWF (2021)</p>
<p>20. NIS/IAS Database Develop the shared georeferenced database (MAMIAS), user-friendly platform, to continuously monitor the status and pathways of non-indigenous species and support early warning</p>	<p>T.1.2. T2.1. T2.2. T2.3. T3.1. T3.2. T3.5. T3.7.</p>	<p>National level baseline values and early warning systems established and data on NIS/IAS are started to be shared with the georeferenced online platform MAMIAS covering national lists of alien species, their habitats, introduction pathways, and impacts on biodiversity, human health, and ecosystem services</p>	<p>Data on NIS/IAS are shared with the georeferenced user-friendly database web site, with online tools and web services for searching and extracting data (MAMIAS)</p>	<p>All Mediterranean countries continuously monitor the status and pathways of non-indigenous species and share it within the MAMIAS platform, aiding to mitigate detrimental effects of NIS/IAS</p>	<p>Very High</p>	<p>REGIONAL</p>	<p><i>CBD/GBF</i> T.5 MAP/UNEP (2017) EU/2030 IUCN (2020) SoED 2020 REMPEC/2031 CSO.5 WWF (2021)</p>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
21. OVERFISHING and IUU Implement science-based management plans to effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing, including phasing out harmful fisheries subsidies which contribute to overcapacity and overfishing	T1.1. T2.4. T2.5. T2.8. T3.1. T3.4. T3.5.	Identify all forms of fisheries subsidies which contribute to overcapacity and overfishing. Based on the MoU GFCM/UNEP-MAP, develop an efficient and standardized data collection and discharge control system, and make available guidelines covering measures, tools and best practice to eliminate IUU	The reform of fisheries subsidies is promoted at the regional/country levels and in the World Trade Organisation (WTO). Science-based management plans to regulating harvest and to end overfishing, and a standardized data collection and discharge control system are in process of adoption in most Mediterranean countries. The stretch of IUU in the Mediterranean is assessed and monitored	In the Mediterranean, the data-collection system and discharge control are standardized and adopted, there is zero-tolerance for illegal practices, overfishing has drastically dropped compared to 2020 levels so that marine resources are harvested sustainably.	Very High	NATIONAL	SDG 14.4 & 14.6 <i>CBD/GBF</i> T.17 Aichi T.3 and T.6 EU/2030 GFCM (2020) T.1 UNEP/MCS (2019) MAP/MTS EO3 - CP-8 IUCN(2020)
22. BY-CATCH Develop a national mechanism and implement agreed and scientifically tested by-catch mitigation measures, to eliminate all intentional or accidental killing of threatened or endangered species and/or in bad conservation status	T1.1. T2.1. T2.4. T2.5. T2.8. T3.1. T3.4. T3.5.	Data collection and assessment of the bycatch effect on non-targeted species; and develop guidelines to adapt or ban the use of fishing gear most harmful to the seabed, to sharks and rays, marine turtles, seabirds, and cetaceans, in support to countries to develop a mechanism for by-catch mitigation strategies	Most Mediterranean countries are implementing guidelines and are developing a By-catch mitigation mechanism to adapt or ban the fishing gear most harmful to biodiversity, including on the seabed, and their implementation started in <i>several countries</i> so that the by-catch of species in bad conservation status is reduced to a level that allows full recovery	All countries have developed a mechanism to deal with By-catch mitigation including the adaptation and/or ban of fishing gears most harmful to biodiversity, including on the seabed; their implementation is undertaken in all Mediterranean countries so that fishing gears have no significant adverse impacts on endangered and threatened species and vulnerable ecosystems	Very High	REGIONAL and NATIONAL	SDG 14.4 <i>CBD/GBF</i> T.19 EU/2030 FAO (2021) GFCM (2020) T.2 UNEP/MCS (2019) MAP/MTS CP-8 ACCOB/2025 IUCN (2020)
23. SMALL SCALE FISHERIES Promote the FAO Voluntary Guidelines for Securing Small Scale Fisheries (VGSSF) and co-management practices in professional small-scale fisheries, advised by	T1.1. T2.4. T2.5. T2.8. T2.9. T3.1. T3.4. T3.5.	Based on the MoU GFCM/UNEP-MAP, promote the FAO-VGSSF in every country, and assess, in a selected sample of MPAs, the opportunities for SSF co-management, and to control illegal practices in marine recreational fishing (MRF)	In MPAs and OECMs the capacity of small-scale fisher organizations has been enhanced to engage and partner to institute co-management models, and the practice of IUU fishing, including recreational fishing, is controlled with full participation from the respective sectors involved	In MPAs and OECMs, and in fishing grounds, the capacity of small-scale fisher organizations has been enhanced to engage and partner co-management models, and the practice of IUU fishing, including recreational fishing, is controlled with full	High	NATIONAL	SDG 14.7 <i>CBD/GBF</i> T.4 & T.18 Aichi T.14 UNEP/MCS (2019) SO.2 FAO (2021) GFCM (2020) T.4 IUCN (2020)

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
traditional ecological knowledge and the best available science				participation from the respective sectors involved			WWF (2021) <i>MPA Forum Roadmap post-2020</i>
24. AQUACULTURE Support developing the Post-2020 GFCM Aquaculture and Fisheries strategy and Fisheries strategy - transforming the aquaculture industry through science-based solutions and marine spatial planning (MSP) tools	T1.1. T1.2. T1.3. T1.61. T1.7. T2.6. T2.7. T2.8. T2.9. T3.4. T3.5. T3.7.	Collaborate in the development of the Post 2020 GFCM Aquaculture and fisheries strategy, including guidelines on best practices to improve aquatic health and biosecurity	Best practices in aquaculture, such as innovation, improving aquatic health and biosecurity, encouraging the responsible use of antimicrobials, supported by certification, traceability and nature-based solutions, have been promoted across the Mediterranean countries, and adopted in most Mediterranean countries	The Mediterranean aquaculture industry is fully transformed in line with the ecosystem approach, through science-based solutions and marine spatial planning tools	High	REGIONAL and NATIONAL	<i>FAO (2021) GFCM (2020) UNEP/MCS (2019) SO.3 BC/ICZM Protocol (2016) IUCN (2020) WWF (2021)</i>
25. TOURISM Develop a framework of specific indicators for assessing the impact of marine and coastal tourism on destinations and for promoting ecotourism	T1.3. T1.5. T1.8. T2.8. T2.9. T3.4. T3.7. T3.9.	Identify preliminary indicators and hotspots of pressure from the tourism industry in marine and coastal biodiversity (including habitat disruption, noise, light, water quality, garbage) , in coordination with the PAP/RAC and Plan Bleu/RAC, as appropriate	A framework of specific indicators for assessing the impact of marine and coastal tourism on destinations and for promoting ecotourism is adopted within environmental assessments in tourism hotspots in several Mediterranean countries	Environmental assessments including the framework of specific tourism indicators, taking into consideration the cumulative impacts on the coastal zones and their carrying capacity, is in process of adoption in all countries and implemented in most Mediterranean countries	High	REGIONAL	<i>MAP/MTS-D82 SPA/RAC (2021) PAP/RAC ICZM (2016) ACCOB/2025 UfM (2021) IUCN (2020) WWF (2021)</i>
26. INTEGRATING BIODIVERSITY Integrate biodiversity values into national and local development planning processes, into the strategies and planning processes of marine-related economic sectors, into national accounting as appropriate, reporting systems, and into	T1.3. T1.7. T2.8. T2.9. T3.4. T3.6. T3.7. T3.9.	Establish a common classification of economic activities that substantially contribute to protecting and restoring biodiversity and ecosystems and assess opportunities to redirect, repurpose, reform or eliminate harmful incentives	The level of consideration of biodiversity conservation concerns in the strategies and planning processes of MSP, including fisheries, aquaculture, agriculture, coastal tourism, ports, maritime transportation, wind farms, and also in EIA/SEA frameworks, has been assessed in every country, and proposals are being drafted to include them, to	In most Mediterranean countries biodiversity conservation is mainstreamed in the strategies and planning processes of MSP, including fisheries, aquaculture, agriculture, coastal tourism, ports, maritime transportation, education, and also in EIA/SEA frameworks	High	NATIONAL	SDG 14.2., 14.4 & 14.6 <i>CBD/GBF T.13. & T.17 Aichi T.2, T.3. and T.6 EU/2030 UNEP/MCS (2019) MAP/MTS - 2</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
the assessment of environmental impacts			enhance economic activities that substantially contribute to protecting and restoring biodiversity				BC/ICZM Protocol (2016) UfM (2021) MPA Forum Roadmap post-2020
27. STREAMLINE Post-2020 SAPBIO Streamline the Post-2020 SAPBIO and Regional strategies and action plans, developed in the framework of the SPA/BD Protocol, into national strategies, action plans and legal frameworks	All targets	Adoption of the Post-2020 SAPBIO by the Contracting parties to the Barcelona Convention and assistance provided, as necessary, to countries for its integration within national biodiversity conservation and development frameworks; Mediterranean countries are integrating and streamlining the Post-2020 SAPBIO in national biodiversity conservation and development frameworks		All Mediterranean countries have integrated and streamlined the Post-2020 SAPBIO in national biodiversity conservation and development frameworks	Very High	NATIONAL	MAP/MTS (2020)
28. POLITICAL WILL AND COORDINATION Ensure political will and recognition at the highest levels of Government or State, to develop appropriate governance schemes, in particular cross-sectorial and multi-level institutional coordination	T1.5. T1.6. T1.7. T1.8. T2.4. T2.6. T2.7. T2.8. T2.9. T3.6. T3.8. T3.9.	Prepare an executive document in the appropriate fora, presenting the socio-economic and cost/benefit profit and the urgency of the Post-2020 SAPBIO, its significant input to SDGs, CBD and UNEP-related commitments, and the cross-sectorial and multi-level institutional coordination needs	Most Mediterranean countries are promoting appropriate coordination between the various competent authorities for both the marine areas and the land parts of coastal zones, in the different administrative services, at all relevant levels	Each Party has incorporated Post-2020 SAPBIO in its national biodiversity strategy and action plan	Very High	NATIONAL	SDG 14 Aichi T.17 CBD/GBF g) k) UNEP/MCS MAP/MTS (2020) EU/2030 BC/ICZM Protocol (2016) ACCOB/202 5 WWF (2021)

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
29. STAKEHOLDER PARTICIPATION Facilitate stakeholder engagement to address conflict between users, build capacity to contribute to the SAPBIO enforcement, particularly in MPA planning and management, through proper participation of all stakeholders in a transparent decision-making process	T1.1. T1.2. T1.3. T1.5. T1.6. T2.3. T2.4. T2.5. T2.6. T2.8. T2.9. T3.4. T3.5.	All countries have identified the relevant sectors and stakeholders to participate in the effective implementation of the Post-2020 SAPBIO Actions, and started the relevant contacts particularly in priority fields, e. g. MPAs, fisheries, and enforcement means	In most Mediterranean countries, formal and informal platforms to ensure the participation of the relevant sectors and stakeholders in priority sectors (e. g. MPAs, fisheries, and enforcement means) are established and operative, including local and subnational authorities, the private sector, civil society, women, youth, academia and scientific institutions	In all countries, formal and informal platforms to ensure the participation of the relevant sectors and stakeholders in priority sectors are established and operative, including local and subnational authorities, the private sector, civil society, women, youth, academia and scientific institutions, in a whole-of-society approach	Very High	NATIONAL	<i>CBD/GBF T.20</i> <i>UNEP/MCS EU/2030 P BC/ICZM Protocol (2016)</i> <i>ACCOB/2025</i> <i>MPA Forum Roadmap post-2020</i> <i>WWF (2021)</i>
30. TOP-DOWN AND BOTTOM-UP SCALING OF INTERNATIONAL COMMITMENTS Scale down international commitments into national plans and to local level, streamlining the approach, targets and actions of the Post-2020 into national strategies and into local planning processes, while facilitating the bottom-up feeding of local proposals into future planning processes at the national and Mediterranean levels	All targets	Parties identify the sub-national and local plans related to the Post-2020 SAPBIO implementation and to set up mechanisms to mainstream its provisions into local planning and action, updating their NBSAPs and Action Plans as appropriate, through coordination between local administrations and central and decentralized sectoral technical services	In most Mediterranean countries, active alliances of governments, businesses, scientists and opinion leaders are built to implement the Goals of the Post-2020 SAPBIO, ensuring co-responsibility and co-ownership by all relevant actors, through administrative transparency, stakeholder dialogue, and participatory governance at different levels, adapting the proposed Actions to local context while recuperating any relevant proposals from the local level to feed future Mediterranean planning processes	All countries can present positive results in implementing the updated 1995 Specially Protected Areas and Biological Diversity (SPA/BD) Protocol, and in effectively scaling-down and adapting the proposed SAPBIO Actions to the local context, while recuperating any relevant proposals from the local level to feed future Mediterranean planning processes	High	NATIONAL	<i>CBD/GBF T.15 & T.20</i> <i>MAP/MTS (2020)</i> <i>SPA/RAC (2021)</i> <i>BC/ICZM Protocol (2016)</i> <i>MedPAN Strategy 2019-2023</i>
31. COMPLIANCE AND ENFORCEMENT	T1.1. T1.2. T1.3.	Prepare practical guidelines for the enforcement of the SAPBIO provisions	Several countries have started capacity building for judiciary and administrative	Most Mediterranean countries have completed capacity building for judiciary and			<i>SGD 14</i> <i>EU/2030</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
Enable the compliance of the provisions of the SPA/BD and the ICZM Protocols and related Action Plans at national level by strengthening capacities and cooperation between judiciary and administrative bodies	T1.5. T1.7. T2.4. T2.8. T2.9. T3.1. T3.4. T3.7. T3.8.	through appropriate capacity building, and coordination between the various authorities competent for both the marine and the land parts of coastal zones in the different administrative services, at all relevant levels	resources along the enforcement chain, on environmental legal frameworks, including environmental agencies, inspectors, auditors, police, prosecutors and judges	administrative resources along the enforcement chain, on environmental legal frameworks, including environmental agencies, inspectors, auditors, police, prosecutors and judges	<i>Very High</i>	<i>REGIONAL and NATIONAL</i>	<i>GFCM (2020) MAP/MTS 41.8 SPA/RAC (2021) BC/ICZM Protocol (2016) MPA Forum Roadmap post-2020</i>
GOAL 3							
32. IMAP REFINEMENT Identification of the gaps that hinder the good environmental status evaluation, and in case needed, support countries to fill them out	T2.1. T2.2. T2.3. T3.1. T3.2. T3.5.	Support the identification and assessment of the data gaps - identified in the MED QSR- that hinder evaluation of the good environmental status in each country, especially in relation to scales of assessment, specification, and further quantification of GES	Most Mediterranean countries have refined their ecological objectives in relation to scales of assessment, specification and further quantification of GES, and have further developed the candidate indicators, expanding monitoring to also cover drivers, pressures on biodiversity, and adequate responses	All countries have refined their ecological objectives in relation to scales of assessment, specification and further quantification of GES,	Very High	REGIONAL and NATIONAL	IMAP EU-MSFD MAP/MTS CP.7 MAP/NIS- IAS (2017) BC/ICZM Protocol (2016)
33. IMAP IMPLEMENTATION Update national monitoring programmes in light of the new elements of IMAP, and achieve regular reporting	T2.1. T2.2. T2.3. T3.1. T3.2. T3.5.	Start developing region-wide, electronic, common indicator-based reporting formats and up-to-date tools for data exchange, based on the structure of the Common Indicator Fact Sheets	Based on harmonized reporting formats in synergy with other reports such as CBD reports, most Mediterranean countries are reporting on common indicators for the biodiversity-related ecological objectives of GES	All countries are reporting on common indicators for the biodiversity-related ecological objectives of GES	High	NATIONAL	<i>CBD/GBF 15 (ii) (iii) EU-MSFD MAP/MTS CP.7 MAP/NIS- IAS (2017) BC/ICZM Protocol (2016)</i>
34. Post-2020 SAPBIO MONITORING	T3.1. T3.2.	Based on a simplified monitoring table developed by SPA/RAC, considering	The implementation and monitoring process of the Post-2020 SAPBIO is set in every	In all countries a reporting schedule is consistently used by all institutions	Very High	REGIONAL and	<i>CBD/GBF H (i) (iii) EU/2030</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
Allow the Contracting Parties to periodically review and report, harmonized with IMAP and UNEP/MAP monitoring frameworks, on the status of implementation of the Post-2020 SAPBIO	And all Targets	harmonization with other monitoring frameworks and with input, as appropriate, from the SAPBIO governance bodies, in synergy with other bodies and GBF, the Countries identify their monitoring needs for the Post-2020 SAP BIO targets, requesting regional support as appropriate, to update their national monitoring programmes in light of the new elements, harmonized with other MAP frameworks, and ensuring quality data and reporting	country, duly harmonized with IMAP and other UNEP/MAP monitoring frameworks, and most Mediterranean countries have started recording biennial progress towards these targets and report to the Barcelona Convention system. The possibility of performing collective assessments may be considered	involved, recording biennial progress in the implementation of the Post-2020 SAPBIO, and report to the Barcelona Convention system, supported when appropriate by the Secretariat and/or by voluntary in-depth peer review by experts including from other parties		NATIONAL	UNEP/MCS (2019) MAP/MTS KD.90 ACCOB/2025
35. SUPPORT TO RUN THE SAPBIO Provide sufficient human and financial resources to the MAP system in order to efficiently run the implementation, follow-up and assessment mechanisms for the Post-2020 SAPBIO	T3.2. T3.3And all Targets	Approach international and EU funding sources and appoint one project to resource countries and the Secretariat for the Post-2020 SAPBIO implementation, run the assessment and reporting mechanisms	The regional Post-2020 SAPBIO follow-up and assessment mechanisms, are in place and resourced within the MAP system, allowing the timely analysis of progress based on objective/numerical elements of targets towards the Post-2020 SAPBIO goals and targets	The MAP system is sufficiently resourced to efficiently run the Post-2020 SAPBIO at national and regional levels and to formulate a Post-2020 SAPBIO update for beyond 2030	Very High	REGIONAL	UNEP MAP system and All Contracting Parties
36. CAPACITY BUILDING FOR THE Post-2020 SAPBIO AT NATIONAL LEVEL Enhance the national capacities to implement the Post-2020 SAPBIO, to manage MPAs and vulnerable marine and coastal habitats and species within and across national	T3.4. T3.5. And all Targets	Map and assess the human and institutional capacities to define the capacity-building needs, gaps and priorities in the next future, targeting managers and field technicians, and national and local authorities responsible for the environment, fisheries and enforcement, and design a regular and interactive training programme	In all national and subnational administrations, particularly in developing countries, the capacity to address the needs and priorities of marine conservation objectives has been assessed. Impacting training modules have been designed, and tested by groups of countries and user networks, reinforcing the capacity of national administrations to monitor and	In every country key officers, MPA managers, field technicians, and local authorities responsible for the environment, fisheries, and enforcement, are sufficiently trained and remain in close coordination with Mediterranean partners, for the implementation of the Post-2020 SAPBIO in their	High	REGIONAL and NATIONAL	<i>SDG 13b</i> <i>CBD/GBF (ii)</i> <i>FAO (2021)</i> <i>MAP/MTS (2020)</i> <i>SPA/RAC (2021)</i> <i>BC/ICZM Protocol (2016)</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
jurisdictions, with particular attention to less developed countries, and towards reducing the gender and the digital divide			improve management effectiveness	respective professional environments			<i>MedPAN Strategy 2019-2023</i>
37. NETWORKING Support existing regional, subregional and/or transboundary networks, or develop new ones as needed, to enhance capacities, knowledge, experience and opportunity sharing, <i>inter alia</i>, on topics as NIS/IAS, migratory species, MPA management, habitat restoration, reduced by-catch, harmonized monitoring, compliance with law and regulations, and other subjects relevant to the Post-2020 SAPBIO	T1.1. T1.2. T2.2. T1.6. T2.3. T2.4. T2.5. T2.6. T2.9. T3.2. T3.4. T3.5. T3.9. T3.10.	Taskforces including scientists, experts, and managers on priority issues may be called to design new, or reinforce existing, human networks to improve dialogue, networking, capitalizing and making accessible the existing scientific, practical, and traditional knowledge, best practices and local innovations	Human networks participated by most countries in several priority themes have been established either at regional, or sub-regional or national levels as appropriate, and sufficiently resourced to keep a hub, a user-friendly website, and to regularly meet and exchange knowledge and practice, particularly to cover the capacity building needs in the less developed countries, in recently established MPAs, and in all SPAMIs	Human networks at national, sub-regional and regional level - <i>inter alia</i> on NIS/IAS, migratory species, MPA management, habitat restoration, reduced by-catch, harmonized monitoring, compliance with law and regulations- have been developed and strengthened to ensure the enhancement of capacities, knowledge, good practices, experience sharing, and the development of joint actions	Very High	REGIONAL	<i>CBD/GBF (ii)</i> <i>UNEP/MCS (2019)</i> <i>MAP/MTS (2022-2027)</i> <i>IMAP ACCOB/2025</i> <i>PAP/RAC ICZM/CRF (2016)</i> <i>IUCN (2020)</i> <i>WWF (2021)</i> <i>MedPAN Strategy 2019-2023</i> <i>MPA Forum Roadmap post-2020</i>
38. AWARENESS Increase awareness, understanding and appreciating of the values and threats to the marine environment, stimulating improved behaviour, and of the responses and good practices, by targeting decision-makers and the general public, through reinforced and renewed	T1.1. T1.2. T1.3. T1.5. T1.7. T2.4. T2.8. T2.9. T3.6. T3.9.	Call on a task-force to outline a communication and awareness strategy, assessing the needs, gaps and opportunities of biodiversity communication, including the development of any necessary indicators to follow-up the extent and reach of awareness, in order to target decision makers from different administrations and economic sectors, and the general public	A Mediterranean communication and awareness strategy, with recommendations for each national level context, has been presented to the NFPs and its implementation started in several countries, regularly storytelling and informing the media about cetacean, turtle and other flagship species conservation activities, raising awareness on negative impacts of plastic waste, ghost nets, the added values of MPAs, the risks	The Mediterranean communication and awareness strategy is being adopted by all Parties, targeting mass media, policymakers, economic stakeholders involved in land and marine activities, associations, universities and researchers, and civil society. A marine biodiversity day on mass media and schools has been introduced and its annual celebration promoted	High	REGIONAL and NATIONAL	<i>SDG 23</i> <i>Aichi T.1</i> <i>CBD/GBF T.19, c)</i> <i>EU/2030</i> <i>UNEP (MCS (2019)</i> <i>ACCOB/2025</i> <i>SPA/RAC (2021)</i> <i>PAP/RAC ICZM/CRF (2016)</i>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
mechanisms, including mass communications			of introducing alien marine species, and other aspects of SPA/RAC work				IUCN (2020) WWF (2021) <i>MPA Forum Roadmap post-2020</i>
39. OUTREACH AND EDUCATION Promote the integration of marine biodiversity and ecosystems conservation concerns into school, higher education, professional training, and citizen science, so that best practices and innovative technologies to protect marine and coastal ecosystems are more accessible and replicable	T1.3. T2.8. T3.4. T3.7.	Elaboration by the Contracting Parties, with the support of relevant regional organisations of the definition of the contents of bachelor and master (pre- and post-graduate) curricula, including practicum and field training about marine ecosystem and biodiversity conservation and its relevant strategies Identify a network of pilot universities in Southern and Eastern countries or other universities targeting students from all over the Mediterranean	The marine biodiversity conservation and its relevant strategies/tools are included in the curricula of schools and universities in several countries, and at least several multi-national or bilateral network (North-South and South-South exchanges) among Mediterranean universities is established, a training of trainers has been developed, and at least several MPAs are used as a framework for education and awareness activities, involving NGOs and citizen science	The marine biodiversity conservation and its relevant strategies/tools are included in the curricula of schools and universities in as many countries as possible, where universities are networking in North-South and South-South exchanges, and many MPAs are used as a framework for education and awareness activities, involving NGOs and citizen science	High	REGIONAL and NATIONAL	<i>SDG 23</i> <i>CBD/GBF T.2. T.19</i> <i>EU/2030</i> <i>UNEP/MCS (2019)</i> <i>MAP/MTS CP.11</i> <i>ACCOB/2025</i> <i>UfM (2021)</i> <i>SPA/RAC (2021)</i> <i>PAP/RAC</i> <i>ICZM (2016)</i> <i>IUCN (2020)</i> <i>WWF (2021)</i> <i>MPA Forum Roadmap post-2020</i>
40. EMPLOYMENT Adequately increase the employment, notably public employment in direct relation to marine biodiversity conservation (and eventually include redirecting existing one) as basic component for future blue economy wise development	All Targets	Contracting Parties identify their present baseline of employment, notably public employment in direct relation to marine biodiversity conservation (human resources at different technical and institutional levels), and assess (considering women, youth, and local communities) employment needs to implement the Post-2020 SAPBIO	As related to the baseline, the employment, notably public employment in direct relation to marine biodiversity conservation, has grown in most Mediterranean countries	As related to the baseline, the employment, notably public employment, in direct relation to marine biodiversity conservation has significantly grown in the region, and not less than doubled in any country	Very High	NATIONAL	<i>CBD/GBF F.a) 1 UE/2030 3.2.</i> <i>UNEP/MCS (2019)</i> All Parties

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
<p>41. SUSTAINABLE FUNDING Develop sustainable funding strategies with, as appropriate, innovative approaches to mobilize alternative financial sources, covering fiscal incomes that could be redistributed, and relevant actions to fund, including The MedFund and other types of national or local financing mechanisms</p>	<p>All Targets</p>	<p>Develop an overall Mediterranean cost/benefit analysis, including the economic value of ecosystem services, particularly blue carbon sinks, prevention of coastal erosion, fisheries breeding ground, and assessing the national contributions to marine biodiversity conservation. Foster countries to develop a strategy and action plan for long term funding of nature conservation needs, or similar instruments, considering all the necessary components</p>	<p>At the Mediterranean level, and at the national level in most Mediterranean countries, sustainable funding strategies have been drafted, and have been adopted in several countries including, as appropriate, the establishment of national or local trust funds, fed <i>inter alia</i> by tolls on tourism, fishing licences, plastic bags, EIA compensations and other, and made available to local environmental budgets- so that the financial resources from all international and domestic sources, including governmental, non-governmental, and private actors has significantly increased as appropriate.</p>	<p>Sustainable funding strategies are being implemented, so there is a significant increase of financial and non-financial resources from all international and domestic sources, including governmental, non-governmental, and private actors from different sectors.</p>	<p>Very High</p>	<p>REGIONAL AND NATIONAL</p>	<p><i>SDG 17.1</i> <i>Aichi T.20</i> <i>CBD/GBF T.18</i> <i>CBD/GBF 5 EU/2030</i> <i>UfM (2021)</i> <i>UNEP/MCS (2019)</i> <i>MAP/MTS (2020)</i> <i>ACCOB/2025</i> <i>SPA/RAC (2021)</i> <i>PAP/RAC ICZM (2016)</i> <i>IUCN (2020)</i> <i>MedPAN Strategy 2019-2023</i> <i>MPA Forum Roadmap post-2020</i> <i>WWF (2021)</i></p>
<p>42. COOPERATION Increase cooperation both north/south, south-south, and between governmental and non-governmental actors at different levels, to support the Post-2020 SAPBIO, particularly in the less developed countries</p>	<p>All targets</p>	<p>Call an international donor conference in support of the Post-2020 SAPBIO, including environmental funds such as GEF, Green Climate Fund, and bilateral agencies to fulfil their official development assistance commitments, and prepare broad Mediterranean projects backed with official country requests , inviting ODA agencies to consider MPAs as live</p>	<p>Parties are regularly informed about project call of proposals and other funding possibilities. Three broad Mediterranean projects with official country backing have started and other 3 are being prepared for international and bilateral environmental and development funds and agencies, covering priority subjects in the less developed countries, <i>inter alia</i> implementing the national action plans, developing</p>	<p>Significant increase of international financial flows towards developing countries takes place, in order to meet the needs for the effective implementation of the Post-2020 SAPBIO</p>	<p>Very High</p>	<p>REGIONAL and EU Countries</p>	<p><i>SDG 17</i> <i>CBD/GBF 18, 14.e</i> <i>Aichi T.20</i> <i>EU/2030</i> <i>UfM (2021)</i> <i>UNEP/MCS (2019)</i> <i>MAP/MTS (2020)</i> <i>ACCOB/2025</i> <i>SPA/RAC (2021)</i></p>

ACTION	Contributes to SAPBIO Targets	Start-up activities	Expected Results for 2027	Expected Results for 2030	Priority Level	Scope	Links to relevant Strategies
		examples of nature-based solutions for food security, long-term planning and participatory management, all in the interest of poverty alleviation and the SDGs	environmental funds at the national levels, restoration and disaster risk reduction arising from climate change on coasts and at sea, supporting research, management, and monitoring networks.				<i>PAP/RAC ICZM (2016) IUCN (2020) MedPAN Strategy 2019-2023 MPA Forum Roadmap post-2020 WWF (2021)</i>

ANNEX IV

References in the text

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References in the text

ACCOBAMS Strategy (2014-2025). *Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, and the Mid-term revision of the ACCOBAMS Strategy 2014-2025*. https://www.accobams.org/wp-content/uploads/2016/06/ACCOBAMS_Strategy.pdf

Boucher, J. & Bilard, G. (2020). *The Mediterranean: Mare plasticum*. Gland, Switzerland: IUCN. x+62 pp

CBD/SBSTTA (2021). *Post-2020 global biodiversity framework: Scientific and technical information to support the review of the updated goals and targets, and related indicators and baselines. Scientific and technical information to support the review of the proposed goals and targets in the updated zero draft of the post-2020 global biodiversity framework*. CBD/SBSTTA/24/3/Add.2. 05 Febr.2021

EU (2020). *Biodiversity Strategy for 2030: Bringing nature back into our lives*. COM (2020) 380 Final, 20 May 2020; Annex on the Communication of the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en

EU (2021). European Union Climate Law Agreement, April 2021. aPR https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1828

GFCM (2020). *(DRAFT Strategy) "Mid-term strategy (2017–2020) towards the sustainability of Mediterranean and Black Sea fisheries"*. Unpublished.

Gomei M., Abdulla A., Schröder C., Yadav S., Sánchez A., Rodríguez D., Abdul Malak D. (2019). *Towards 2020: how Mediterranean countries are performing to protect their sea*. 38 pages.

IMO (2014). *Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life* (MEPC.1/Circ.833). International Maritime Organization.

IUCN (2019). *Thematic Report – Conservation Overview of Mediterranean Deep-Sea Biodiversity: A Strategic Assessment*. 122 pages. IUCN Gland, Switzerland and Malaga, Spain.

IUCN (2019). *Recognising and reporting other effective area-based conservation measures*. <https://portals.iucn.org/library/node/48773>

IUCN (2020). [Nature 2030 IUCN Programme](https://www.iucn.org/node/34250) approved by the World Conservation Congress (Feb 2021) - <https://www.iucn.org/node/34250>

Karamanlidis, A. A., P. Dendrinou, P. Fernandez de Larrinoa, A. C. Gücü, W. M. Johnson, C. O. Kıraç and R. Pires. (2015). *The Mediterranean monk seal *Monachus monachus*: status, biology, threats, and conservation priorities*. Mammal Review 46:92-105.

[MAPAMED \(2019\)](#). Database of Marine Protected Areas in the Mediterranean. Developed and jointly administered by the MedPAN association and [SPA/RAC](#).

MedECC (2020). *Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment. Report* Cramer, W., Guiot, J., Marini, K. (eds.) Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 600pp, in press

MedPAN (2019). *2019-2023 and beyond MedPAN strategy*. Mediterranean Network of MPA managers, Marseille.

MPA Forum Roadmap 2030 (2021) draft, SPA/RAC and MedPAN

Otero, M., Garrabou, J., Vargas, M. (2013). *Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities*. Malaga, Spain: IUCN. 52 pages

PAP/RAC (2016). *Common Regional Framework for Integrated Coastal Zone Management (CRF-ICZM)*, UNEP/MED IG.24/22.
https://wedocs.unep.org/bitstream/handle/20.500.11822/31703/19ig24_22_2405_eng.pdf

Piroddi et al. (2017). *Historical changes of the Mediterranean Sea ecosystem: modelling the role and impact of primary productivity and fisheries changes over time*. Scientific Reports, 7 DOI:[10.1038/srep44491](https://doi.org/10.1038/srep44491)

REMPEC (2021). *Draft ballast water management strategy for the Mediterranean Sea (2022-2027)*. in cooperation with the Regional Activity Centre for Specially Protected Areas (SPA/RAC). REMPEC/WG.51/6 (May 21st, 2021).

Sachs et al. (2019). *Sustainable Development Report 2019*. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN)

SoED (2020). See UNEP/MAP Plan Bleu

SAPBIO (2003). Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAPBIO). http://www.rac-spa.org/sites/default/files/doc_spabio/sapbioeng.pdf

UfM (2021). *Ministerial Declaration on Blue Economy, Union for the Mediterranean, 02 February 2021*. <https://ufmsecretariat.org/wp-content/uploads/2021/02/Declaration-UfM-Blue-Economy-EN-1.pdf>

UNEP (2019). Proposal for a new Marine and Coastal Strategy of UN Environment Programme for 2020-2030. Version 15.5. UNEP/CPR/145/5. Nairobi, 19 February 2019

UNEP (2020) Update on the implementation of UNEP's Marine and Coastal Strategy 2020-2030. 152nd Meeting of the Committee of Permanent Representatives. United Nations Environment Programme, 20 November 2020.

UNEP/MAP (2017). *Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea (MAMIAS)*. UN Environment/MAP Athens, Greece 2017.

UNEP/MAP - IMAP (2016). *Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria*. UNEP(DEPI)/MED IG.22/28. Decision IG.22/7

UNEP/MAP QSR (2017). Mediterranean Quality Status Report.
https://www.medqsr.org/sites/default/files/inline-files/2017MedQSR_Online_0.pdf

UNEP/MAP/MTS (2020). *UNEP/MAP Medium-term Strategy 2022-2027: A Medium-term Strategy contributing to the Decade of Action for the SDGs*.
https://wedocs.unep.org/bitstream/handle/20.500.11822/28201/19wg469_10_eng.pdf?sequence=1&isAllowed=y

UNEP/MAP PAP/RAC (2016). *Common Regional Framework for Integrated Coastal Zone Management (CRF-ICZM)*, UNEP/MED IG.24/22.
https://wedocs.unep.org/bitstream/handle/20.500.11822/31703/19ig24_22_2405_eng.pdf

UNEP/MAP SPA/RAC (2019). *Report on the Evaluation of the Implementation of the Roadmap for a Comprehensive coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean*. As reviewed by the Fourteenth Meeting of the SPA/BD Thematic Focal Points. UNEP/MED WG.468/Inf.12. 53pp.

UNEP/MAP Plan Bleu -SoED (2020). *State of the Environment and Development in the Mediterranean (SoED)*. <https://planbleu.org/en/soed-2020-state-of-environment-and-development-in-mediterranean/>

UNEP/MAP SPA RAC (2021). *Post-2020 Strategy for Marine Protected Areas (MPAs) and Other Effective Area-based Conservation Measures (OECM) in the Mediterranean* (draft unpublished).

Venturini S, Campodonico P, Cappanera V, Fanciulli G, Cattaneo Vietti R (2017). Recreational fisheries in Portofino Marine Protected Area, Italy: Some implications for the management. *Fisheries Management and Ecology* 24:382-391

WWF (2020). See Gomei et al 2019

WWF (2021). *Post-2020 SAP BIO Non-paper*. WWF Mediterranean Marine Initiative, Rome.

Other references reviewed but not cited in the last version of the text

AFS Convention (2001). *The International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001*.

Balmford et al. (2002). *Economic reasons for conserving wild nature*. <https://science.sciencemag.org/content/297/5583/950/tab-pdf>

Barbier et al. (2018). *How to pay for saving biodiversity*. <https://science.sciencemag.org/content/360/6388/486>

Barcelona Convention (2008). *Implementation of the Ecosystem Approach in the Mediterranean: For A Healthy Mediterranean with Marine and Biological Ecosystems that are Productive and Biologically Diverse for the Benefit of Present and Future Generations*. https://www.rac-spa.org/sites/default/files/ecap/ecap2015_eng.pdf

Barcelona Convention (2016). *Roadmap for a Comprehensive Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean*. https://www.rac-spa.org/sites/default/files/action_plans/fdr_en.pdf

Barcelona Convention (2013). *Regional Plan on Marine Litter (Decision IG.21/7)*. https://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/decision_21_7_marine_litter_mediterranien.pdf

Behnam, A. (2013). *Tracing the Blue Economy*. Fondation de Malte. Malta.

Biofouling Guidelines (2011). *Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species*. International Maritime Organization (IMO), MEPC 62/24/Add.1.

Brander et al. (2015). *The benefits to people of expanding Marine Protected Areas*. <https://www.sciencedirect.com/science/article/abs/pii/S0308597X19302386>

BWM Convention (2004). *The International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*. [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-\(BWM\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx)

CBD (2020). *Update of the zero draft of the post-2020 global biodiversity framework - CBD/POST2020/PREP/2/1, 17 August 2020, and CBD/WG2020/2/3*. <https://www.cbd.int/conferences/post2020/wg2020-02/documents>

CBD-SBSTTA (2020). *Indicators for the post-2020 global biodiversity framework. Information Document prepared for SBSTTA24 over CBD/SBSTTA/24/3/Add.1*. UNEP-WCMC in collaboration with the Biodiversity Indicators Partnership. 107 pp

CBD/SBSTTA (2021). *Report on regional seas biodiversity under the post-2020 global biodiversity framework*. David E. Johnson, Maria Adelaide Ferreira and Christopher Barrio Froján. CBD/SBSTTA/24/INF/24, 23 febr.2021.

CBD/SBSTTA (2021). *Post-2020 global biodiversity framework: Scientific and technical information to support the review of the updated goals and targets, and related indicators and baselines. Scientific and technical information to support the review of the proposed goals and targets in the updated zero draft of the post-2020 global biodiversity framework*. CBD/SBSTTA/24/3/Add.2. 05 Febr.2021

Chassanite, A., Marinesque, S., Claudet, J. (2012). *Etats des lieux des programmes de suivis multidisciplinaires visant les AMP de Méditerranée*. MedPAN. 64 pp. + annexes

Coll, M., Piroddi, C., Steenbeek, J., Kaschner, K., Ben Rais Lasram, F. et al. (2010) *The Biodiversity of the Mediterranean Sea: Estimates, Patterns, and Threats*. PLoS ONE 5(8): e11842. doi:10.1371/journal.pone.0011842.

Culhane et al. (2020). *Assessing the capacity of European regional seas to supply ecosystem services using marine status assessments*. Ocean and Coastal Management 190: 105154.

Di Franco, A., Bodilis, P., Piante, C., Di Carlo, G., Thiriet, P., Francour, P., Guidetti, P. (2014). *Fishermen engagement, a key element to the success of artisanal fisheries management in Mediterranean marine protected areas*. MedPAN North Project. WWF France. 135 pp

Duarte, C.M., Agusti, S., Barbier, E. et al. (2020). *Rebuilding marine life*. Nature 580, 39 51

Edelist, D., Rilov, G., Golani, D., Carlton, J. T. and Spanier, E. (2012). *Restructuring the Sea: profound shifts in the world's most invaded marine ecosystem*. Diversity and Distributions 19: 69-77.

EEA (2015). *The European Environment: State and outlook 2015: Countries and Regions: The Mediterranean Region*. <http://www.eea.europa.eu/soer-2015/countries/mediterranean>

EEA, UNEP/MAP (2014). *Horizon 2020 Mediterranean report: Toward shared environmental information systems*. EEA-UNEP/ MAP joint report

Essl et al. (2020). *Drivers for future alien species impacts: An expert-based assessment*. Global Change Biology 26:4880-4893. <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15199>

EU (2019). *Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure*. SWD, 2019, pp193.

European Court of Auditors (2020). *Special Report. Marine environment: EU protection is wide but not deep*. Publication Office of the European Union. <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=57066>

FAO (2013). *State of Mediterranean Forests 2013*. FAO, Rome, Italy, <http://www.fao.org/docrep/017/i3226e/i3226e.pdf>

FAO (2015). *Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition*. <http://www.fao.org/3/i5248e/i5248e.pdf>

FAO-GFCM (2020). *The State of Mediterranean and Black Sea Fisheries 2020*. General Fisheries Commission for the Mediterranean. Rome.

FAO (2021). *COFI Declaration for sustainable fisheries and aquaculture*. <http://www.fao.org/3/ne472en/ne472en.pdf#page=2>

Font, T. and J. Lloret. (2015). *Improving the efficiency of MPAs as fisheries management tools and benefits from involving the small-scale fisheries sector*. MedPAN Background Report for Panel 3,

FAO/GFCM Regional Conference for Building a Future for Small Scale Fisheries in the Mediterranean and Black Seas (Algers, Algeria). MedPAN/GFCM

Frost, R. (2020). *Ambitious' measures needed to stop 200,000 tonnes of plastic polluting the Mediterranean*. In IUCN newsletter, Feb 2021.

Galil, B. S., Boero, F., Campbell, M. L., Carlton, J. T., Cook, E., Frascchetti, S., Gollasch, S., Hewitt, C. L., Jelmert, A. and Macpherson, E. (2015). *'Double trouble': the expansion of the Suez Canal and marine bioinvasions in the Mediterranean Sea*. Biological Invasions 17: 973-976.

Giakoumi, S., Scianna, C., Plass-Johnson, J. *et al* (2017). *Ecological effects of full and partial protection in the crowded Mediterranean Sea: a regional meta-analysis*. Sci Rep 7, 8940. <https://doi.org/10.1038/s41598-017-08850-w>

Giullo Malorgio (2004). *New Medit* n°2.

http://www.iamb.it/share/img_new_medit_articoli/343_02malorgio.pdf

Goren, M., Galil, B. S., Diamant, A., Gayer, K. and Stern, N. (2009). *First record of the Indo-Pacific cardinal fish Apogon fasciatus (White, 1790) in the Mediterranean Sea*. Aquatic Invasions 4: 409-411.

Goren, M., Stern, N., Galil, B.S. and Diamant, A. (2010). *First record of the Indo-Pacific Arrow bulleye Priacanthus sagittarius Starnes, 1988 in the Mediterranean Sea*. Aquatic Invasions 5: S45-S47.

Goren, M., Stern, N., Galil, B. S. and Diamant, A. (2011). *On the occurrence of the Indo-Pacific Champsodon nudivittis (Ogilby, 1895) (Perciformes, Champsodontidae) from the Mediterranean coast of Israel, and the presence of the species in the Red Sea*. Aquatic Invasions 6: S115-S117., https://portals.iucn.org/library/sites/library/files/styles/publication/public/book_covers/BC-2016-079-v.1.JPG 52 pp.

Haase, D., Larondelle, N., Andersson, E., Artmann, M., Borgström, S., Breuste, J., Elmqvist, T. (2014). *A quantitative review of urban ecosystem service assessments: concepts, models, and implementation*. Ambio, 43(4), 413–33. doi:10.1007/s13280-014-0504-0

Hassoun et al. (2015). *Acidification of the Mediterranean Sea from anthropogenic carbon penetration, Deep Sea Research Part I*. Oceanographic Research Papers, Volume 102, August 2015, Pages 1-15

Herut, B. and all scientific group of IOLR, National Institute of Oceanography (2016). *The National Monitoring Program of Israel's Mediterranean waters – Scientific Report for 2015*. IOLR Report H42/2016.

IPCC (2020). *Special Report on the Ocean and Cryosphere in a Changing Climate* H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, M. Nicolai, A. Okem, J. Petzold, B. Rama, N. Weyer (eds.). In press.in 2020

IUCN (2018). *The IUCN Red List of Threatened Species*. Version 2018-2. 51

IUCN (2020). *IUCN's views on the preparation, scope and content of the post-2020 global biodiversity framework*.

https://www.iucn.org/sites/dev/files/iucn_views_on_post_2020_biodiversity_framework_-_august_2018.pdf

IUCN (2020). *Zero Draft of the Post-2020 Global Biodiversity Framework. Position paper*

IUCN-Med (2020). *Conservation of marine turtles in the Mediterranean Sea*. <https://www.researchgate.net/publication/343627212> Conservation of Marine Turtles in the Mediterranean Sea

IUCN (2021) *On Pinna nobilis*

<https://www.uicnmed.org/newsletter/2021/primerareuniondesociosmediterraneospararesponderalacrisisdepinna-nobilis.htm>

Kletou, D., Hall-Spencer, J. M. and Kleitou, P. (2016). *A lionfish (Pterois miles) invasion has begun in the Mediterranean Sea*. Marine Biodiversity Records 9: 1-7.

Levitt, Y. (2012). *The impact of depth gradient on the status of alien species along the Mediterranean Sea coast of Israel*. M.Sc. thesis, Tel Aviv University, pp 1-90 (in Hebrew).

Michailidis et al. (2020). *Recreational fisheries can be of the same magnitude as commercial fisheries: The case of Cyprus*. Fisheries Research <https://doi.org/10.1016/j.fishres.2020.105711>

Micheli, F., Halpern, B.S., Walbridge, S., Ciriaco, S., Ferretti, F., Fraschetti, S., et al. (2013). *Cumulative Human Impacts on Mediterranean and Black Sea Marine Ecosystems: Assessing Current Pressures and Opportunities*. PLoS ONE 8(12): e79889. <https://doi.org/10.1371/journal.pone.0079889>

Najib Saab (2015). *Keynote speech at the Conference on the MSSD Review, Floriana, Malta, 2015* (Non edited meeting report).

Pelorosso, R., Gobattoni, F., Lopez, N., & Leone, A. (2013). *Verde urbano e processi ambientali: per una progettazione di paesaggio multifunzionale*. Journal of Land Use, Mobility and Environment, 6(1), 95–111. doi:10.6092/1970-9870/1418

Plan Bleu (2013). *Mediterranean Strategy for Sustainable Development Follow-up - Main Indicators Update 2013*. <https://planbleu.org/en/publications/mediterranean-strategy-for-sustainable-development-follow-up-main-indicators-2013-update/>

Prado et al. (2020). *Pinna nobilis in suboptimal environments are more tolerant to disease but more vulnerable to severe weather phenomena*. Marine Environmental Research 163: 105220.

Ramírez et al. (2018). *Spatial congruence between multiple stressors in the Mediterranean Sea may reduce its resilience to climate impacts*. Sci. Rep. 8, 14871. <https://doi.org/10.1038/s41598-018-33237-w>

Reimer et al. (2020). *Benefits and gaps in area-based management tools for the ocean sustainable development goal*. Nature Sustainability doi: 10.1038/s41893-020-00659-2

Spalding et al. (2007). *Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas*. BioScience 57(7), pp. 573.

Stern, N. (2010). *The impact of invasive species on the soft bottom fish communities in the eastern Mediterranean*. M.Sc. thesis, Tel Aviv University, pp 1-101.

Stern, N., Levitt, Y., Galil, B., Diamant, A., Yokeş, M. and Goren, M. (2014). *Distribution and population structure of the alien Indo-Pacific Randall's threadfin bream *Nemipterus randalli* in the eastern Mediterranean Sea*. Journal of fish biology 85: 394-406.

Stern, N., Rinkevich, B. and Goren, M. (2015). *First record of the Goldstripe sardinella - *Sardinella gibbosa* (Bleeker, 1849) in the Mediterranean Sea and confirmation for its presence in the Red Sea*. BioInvasions Records 4: 47-51.

Stern, N. (2016). *The reproduction seasonality of the commercial marine fauna at the Israeli coasts - its temporal and spatial distribution*. Scientific report, The Society for the Protection of Nature in Israel, pp 1-34 (in Hebrew).

Tsikliras et al. (2015). *The Mediterranean and Black Sea Fisheries at Risk from Overexploitation*. doi:10.1371/journal.pone.0121188

UN-SDG (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. <https://sustainabledevelopment.un.org/post2015/transformingourworld>

UN-SDG (2016). *Proposal of Indicators for the SDG Goal 14*. UN Economic and Social Council - 08/11 March 2016. E/CN.3/2016/2/Rev.1 -<http://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-SDGs-Rev1-E.pdf>

UN-WTO (2011). *Tourism towards 2030: global overview*. UN-WTO, Madrid. eISBN: 978-92-844-1402-4

UNEP (2009). *Marine and Coastal Strategy: the other 70%*. UNEP (DEPI)/RS.11 / <https://www.unep.org/resources/report/other-70-uneps-marine-coastal-strategy-biodiversity-unep>

UNEP (2017). *Implementation of the EcAp in the Mediterranean Sea: For A Healthy Mediterranean With Marine And Biological Ecosystems That Are Productive And Biologically Diverse For The Benefit Of Present And Future Generations*. https://www.rac-spa.org/sites/default/files/ecap/ecap2015_eng.pdf

UNEP/MAP (2017). *Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas* UN Environment/MAP Athens, Greece.

UNEP/MAP (2020). *United Nations Environment Programme/Mediterranean Action Plan and Plan Bleu (2020). State of the Environment and Development in the Mediterranean (SoED)*. Nairobi. <https://planbleu.org/en/soed-2020-state-of-environment-and-development-in-mediterranean/>

UNEP/MAP (2021). *Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)*. <https://www.unep.org/unepmap/news/news/towards-post-2020-strategy-curb-marine-pollution-ships-mediterranean>

UNEP/MAP (2021). *Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol*. <https://www.cbd.int/doc/meetings/mar/mcbem-2014-03/other/mcbem-2014-03-120-en.pdf>

UNEP/MAP (2021). *The Mediterranean Offshore Action Plan in the framework of the Protocol for the Protection of the Mediterranean Sea against Pollution resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Decision IG.22/3)*. <https://www.unep.org/unepmap/meetings/cop-decisions/cop19-outcome-documents>

UNEP/MAP REMPEC (2021). *Mediterranean Strategy for the Prevention of, and Response to, Marine Pollution from Ships (2022-2031) and its Action Plan, notably its Common Strategic Objective 5: Eliminate the introduction of non-indigenous species by shipping activities*. MAP/REMPEC.

UNEP/MAP RFCCA (2017). *Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas*. UN Environment/MAP Athens, Greece.

UNEP/MAP SPA/RAC (2017). *Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea*. UN Environment/MAP Athens, Greece 2017

UNEP/MAP SPA/RAC (2018). *Practical guide on gap analysis and MPA system planning for the Mediterranean area*. https://www.rac-spa.org/sites/default/files/doc_spa/gap_analysis_and_mpa_system_planning.pdf

UNEP/MAP SPA/RAC (2020). *Guidance elements for the design and orientations of the process for the elaboration of the "post-2020 strategic action programme for the conservation of biodiversity and sustainable management of natural resources in the Mediterranean region" (post-2020 SAPBIO)*. https://www.rac-spa.org/sites/default/files/doc_spabio/guide_doc_post_2020_sapbio.pdf

Weinberg, K., Wilkins, M., Lauth, R. and Raymore Jr, P. (1994). *The 1989 Pacific west coast bottom trawl survey of groundfish resources: estimates of distribution, abundance, and length and age composition*. Alaska fisheries science center, National marine fisheries service, NOAA. <https://repository.library.noaa.gov/view/noaa/6170>

White et al. (2020). *Analysis of fish population size distributions confirms cessation of fishing in marine protected areas*. Conservation Letters DOI: 10.1111/conl.12775

WWF (2021). *Scenarios to recover biodiversity and rebuild fish stocks in the Mediterranean Sea*. <https://www.wwf.eu/?uNewsID=2248641>

Zdruli P. (2014). *Land resources of the Mediterranean: status, pressures, trends, and impacts on future regional development*. Land Degrad. Develop. 25: 373–384

Draft Decision IG.25/12

Protecting and conserving the Mediterranean through well connected and effective systems of marine and coastal protected areas and other effective area-based conservation measures, including Specially Protected Areas and Specially Protected Areas of Mediterranean Importance

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res.10 of 15 March 2019, entitled “Innovation on biodiversity and land degradation”,

Mindful of the ongoing work on the Post-2020 Global Biodiversity Framework to be adopted by the 15th Meeting of the Conference of the Parties to the Convention on Biological Diversity (Kunming, China),

Having regard to the Barcelona, in particular Article 10 thereof, whereby Contracting Parties shall, individually or jointly, take all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats, in the Mediterranean Sea Area,

Having also regard to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, hereinafter referred to as “the SPA/BD Protocol”, in particular Article 5 thereof on the establishment of specially protected areas, and Article 8 thereof, on the establishment of the List of Specially Protected Areas of Mediterranean Importance,

Recalling Decision IG.17/12 on the Procedure for the Revision of the Areas included in the Specially Protected Areas of Mediterranean Importance (SPAMI) List, adopted by the Contracting Parties at their 15th Meeting (COP 15) (Almeria, Spain, 15-18 January 2008),

Recalling also Decision IG.24/6 on the Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Recalling further the mandate of the Regional Activity Centre for Specially Protected Areas (SPA/RAC), as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Considering Decision IG.24/2 on governance, adopted by the Contracting Parties at their 21st (COP 21) (Naples, Italy, 2-5 December 2019) Meeting and *noting with appreciation* work undertaken by the Secretariat in strengthening linkages with other Secretariats in relation to spatial-based management and conservation in the Mediterranean, as a key component of the governance mechanisms in the region,

Appreciating the support of donors and Contracting Parties and contribution of relevant partner organizations in the establishment and management of Specially Protected Areas and Specially Protected Areas of Mediterranean Importance,

Appreciating also the support provided by the Ad hoc group of Experts for Marine Protected Areas in the Mediterranean to the Secretariat and the Contracting Parties during the current biennium,

Having considered the report of the Fifteenth Meeting of the Focal Points for Specially Protected Areas and Biological Diversity (SPA/BD Focal Points) (Teleconference, 23-25 June 2021),

1. *Adopt* the Post-2020 Regional Strategy for marine and coastal protected areas and other effective area-based conservation measures in the Mediterranean, hereinafter referred as to “the Post-2020 Regional Strategy”, set out in Annex I to this Decision;

2. *Call upon* the Contracting Parties to take effective measures to implement the Post-2020 Regional Strategy, thus enhancing the implementation of the SPA/BD Protocol in the Mediterranean region;

3. *Request* the Secretariat (SPA/RAC) in coordination with other regional and international organizations, to support the Contracting Parties with technical and, where possible, financial assistance to undertake the activities indicated in the Post-2020 Regional Strategy with the aim to effectively achieve its strategic outcomes and targets;

4. *Request* the Secretariat (SPA/RAC) to develop an evaluation and monitoring framework for the Post-2020 Regional Strategy, with the technical support of the Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean, using to the extent possible existing monitoring tools in the region in particular those established under UNEP/MAP Barcelona Convention as well as in the framework of SDG, Post-2020 Biodiversity and related target monitoring;

5. *Adopt* the Concepts to set up the Specially Protected Areas of Mediterranean Importance Day and the Specially Protected Areas of Mediterranean Importance Certificate, set out in Annex II to this Decision;

6. *Invite* the Secretariat (SPA/RAC) to organize the first edition of the Specially Protected Areas of Mediterranean Importance Day in 2022 and encourage all Contracting Parties to support and contribute to these celebrations;

7. *Request* the Secretariat (SPA/RAC) to work with the relevant designated national authorities in Albania, Algeria, France and Italy to carry out the ordinary periodic review for the five Specially Protected Areas of Mediterranean Importance listed below, and bring the outcome of that review process to the attention of the Contracting Parties at their 23rd Meeting (COP 23):

- Karaburun Sazan National Marine Park (Albania) in 2022,
- Banc des Kabyles Marine Reserve (Algeria) in 2023,
- Habibas Islands (Algeria) in 2023,
- Les Calanques National Park (France) in 2023, and
- Portofino Marine Protected Area (Italy) in 2023;

8. *Adopt* the Criteria for inclusion of Specially Protected Areas in the Directory of Mediterranean Specially Protected Areas, including the associated updates in the MAP Barcelona Convention Reporting System (BCRS), set out in Annex III to this Decision;

9. *Call upon* the Contracting Parties to report on the Specially Protected Areas to the Directory of Mediterranean Specially Protected Areas based on the adopted Criteria, at the time of submitting their national implementation reports under Article 26 of the Barcelona Convention, starting with the national implementation reports for the biennium 2020-2021 to be submitted by December 2022; To this aim also encourage the Contracting Parties to report on other effective area-based conservation measures;

10. *Request* the Secretariat (SPA/RAC) to:

- a) provide an analysis of the reports on Specially Protected Areas and as appropriate on other effective area-based conservation measures, at every meeting of the SPA/BD Focal Points, and
- b) maximize synergies and foster closer cooperation with relevant regional and international organizations to assess potential other effective area-based conservation measures under their mandate;

11. *Welcome* the progress made in relation to synergies with other Secretariats in spatial-based protection and management measures for marine biodiversity in the Mediterranean Area, and request the Secretariat to continue to strengthen these synergies with the objectives to ensure the conservation and the sustainable use of the marine biodiversity in the Mediterranean through the application of the Ecosystem Approach.

Annex I

Post-2020 Regional Strategy for marine and coastal protected areas and other effective area-based conservation measures in the Mediterranean

Executive Summary

In December 2019, the Conference of Parties to the Barcelona Convention (COP 21) requested the Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP) Secretariat, through the Specially Protected Areas Regional Activity Centre (SPA/RAC), to elaborate a post-2020 strategic document to further advance and strengthen the network of marine and coastal protected areas (MCPAs) and other effective area-based conservation measures (OECMs) in the Mediterranean. It was further recognized that to achieve comprehensive and coherent systems of well-managed MCPAs/OECMs, the strategy should be ambitious, transformational, and in line with the Post-2020 Global Biodiversity Framework of the Convention on Biological Diversity (CBD) and other regional and global processes. Central to the transformative approach will be the incorporation and integration of recognized OECMs in the region to help achieve the ambitious Post-2020 Global Biodiversity Framework relevant targets.

Through a series of consultations and workshops, this Post-2020 Strategy for MCPAs and OECMs in the Mediterranean was developed under the leadership of the Specially Protected Areas Regional Activity Centre, (SPA/RAC) the guidance of its Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM), and in consultation with Contracting Parties Focal Points and Regional and International Organizations active in the Mediterranean. The strategy is aligned with a number of international, regional and sub-regional relevant strategies and ongoing programmes.

POST-2020 TARGETS

It is recognized that each individual country will have its own specific MCPA and OECM coverage targets, however in keeping with global targets for protected areas, regional marine conservation community recommendations, and sub-regional targets for enhanced levels of protection. Two post-2020 targets have been identified for the Mediterranean Sea as a whole; these are:-

- i) **By 2030, at least 30 per cent of the Mediterranean Sea is protected and conserved through well connected, ecologically representative and effective systems of marine and coastal protected areas and other effective area-based conservation measures, ensuring adequate geographical balance, with the focus on areas particularly important for biodiversity.**
- ii) **By 2030, the number and coverage of marine and coastal protected areas with enhanced protection levels is increased, contributing to the recovery of marine ecosystems.**

STRATEGY

To help achieve these ambitious targets, the strategy has identified five strategic pillars:-

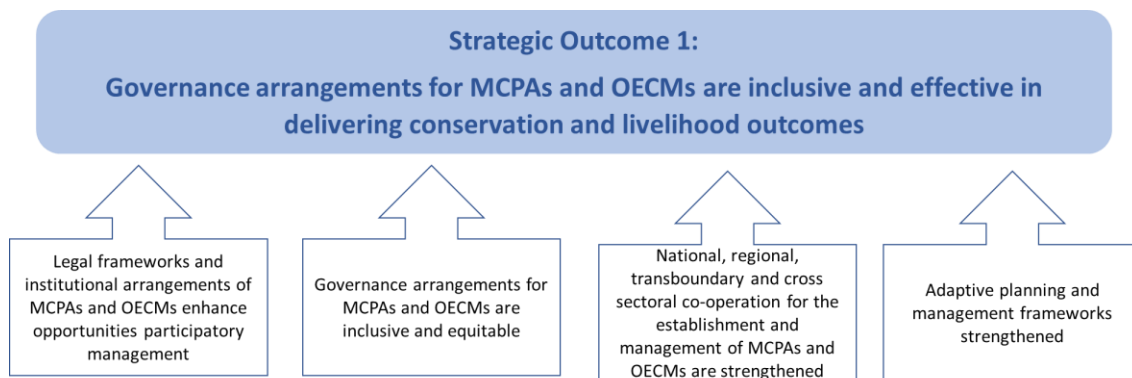
1. **Governance-** Inclusive governance is essential to ensure effective systems of MCPAs and OECMs. This pillar promotes the participation of all levels of stakeholders in both the decision-making processes and management of these systems.
2. **MCPA coverage-** There is a clear need to establish and expand the MCPA network to achieve the ambitious post-2020 target for the Mediterranean. The design of these systems, however, requires a greater balance across countries, sub-regions and habitats coverage to achieve a greater ecological representation across the region and to consider enhanced levels of protection for MCPAs or parts of MCPAs.
3. **OECMs-** A relatively new concept for the region, recognizing marine OECMs, in addition to **increasing** MCPA coverage, will be critical to help advance towards the 30% coverage target for the region.
4. **MCPA effectiveness-** Increasing the management effectiveness of MCPAs is necessary to achieve conservation outcomes and is essential to avoid MCPA existence on paper only. As the coverage of MCPAs increases over the coming years, it is essential to mitigate barriers to effective management

ensuring these new MCPAs and those already established, are managed effectively to enhance their conservation outcomes.

5. Government and stakeholder action and support- A cross-cutting pillar essential to all other pillars identified. Government and stakeholder action and support will be the foundation of achieving all other outcomes and outputs.

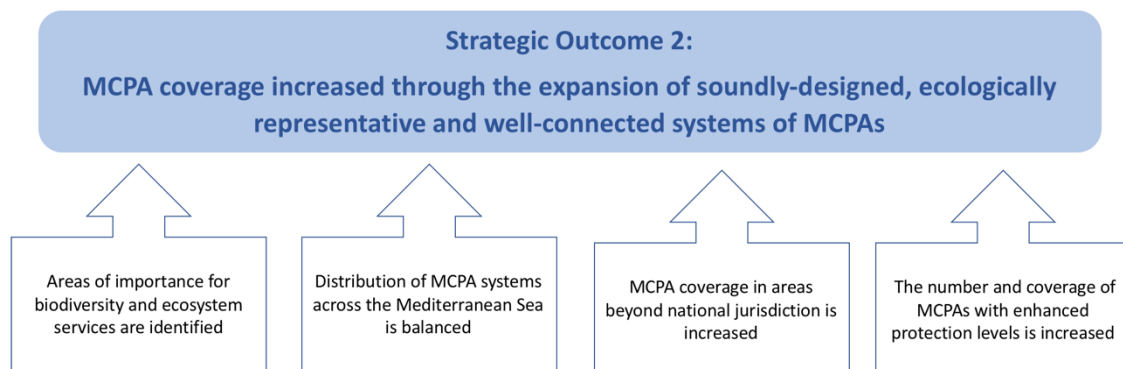
Under each of these pillars, a clear strategic outcome, with corresponding outputs have been identified. Recognizing that countries are at different stages with regard to the establishment and management of their MCPAs, a number of indicative, rather than prescriptive, actions are also proposed at both, Contracting Parties and Regional and International Organization levels. Below summarizes the main aspects for each of the five pillars identified.

Pillar 1: Governance



To meet post-2020 targets for the region, it is essential that governance and co-operation among other sectors and stakeholders, including transboundary co-operation, is strengthened for the establishment and management of MCPAs and OECMs. Effective and inclusive governance is a core element for achieving effective systems of MCPAs and OECMs. It is necessary therefore to ensure that enabling legislation and best practices are applied, that promote the effective and equitable involvement of key stakeholders of all levels in decision-making processes and the management of MPCAs and OECMs, and that their respective planning and management frameworks can adapt to any changes in political, social and environmental conditions that arise. Appropriate governance models are critical for creating and maintaining the necessary conditions for efficient management. Participatory, inclusive and adaptive decision-making, therefore, is critical to the overall success of MCPAs and OECMs.

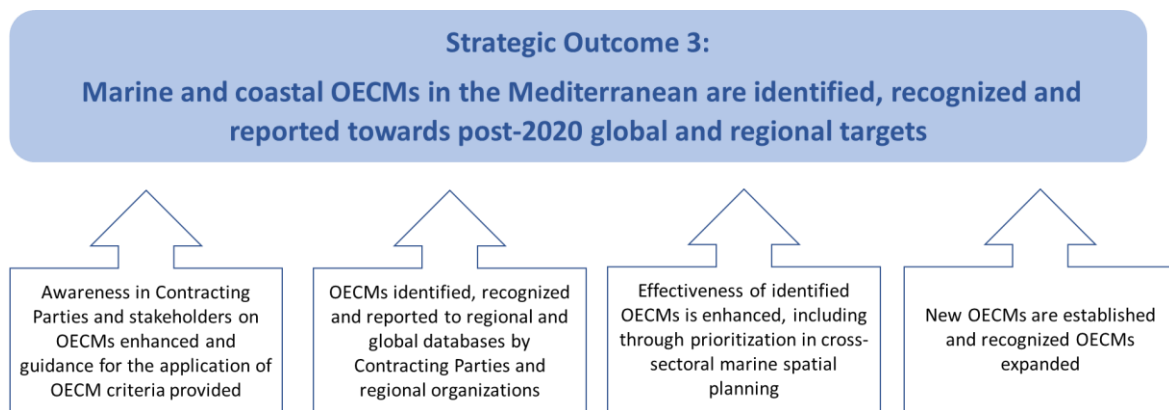
Pillar 2: MCPA coverage



MPCA coverage in the Mediterranean currently stands at 8.3%, there is clear need therefore to establish new MCPAs and to expand existing networks if the region is to advance towards meeting this ambitious

post-2020 target. It is further essential that this increase in coverage coincides with a more balanced representation across countries, sub-regions and depths and includes areas beyond national jurisdiction. In addition, and in keeping with regional and sub-regional targets, there is a need where appropriate to enhance the protection measures of MCPAs and to consider identifying or establishing MCPAs or core zones within MCPAs with enhanced protection measures, for example, no-entry, no-take and no-fishing zones. Identifying important areas for protection, documenting and sharing knowledge between Contracting Parties and enhanced transboundary co-operation, will be essential actions under this pillar if outputs and outcomes are to be achieved.

Pillar 3: OECMs



In addition to expanding MCPA coverage, OECMs will play an increasingly important role in progressing the region towards its post-2020 target. As a relatively new concept for the region, creating awareness on OECMs, providing guidance for applying screening tools and assessments against criteria, and supporting their subsequent reporting to the relevant databases will be key elements under this pillar. Effective inter-sectoral and multi-stakeholder cooperation and engagement, and documenting and sharing experiences, will be critical for the success of this outcome. Since the responsibility for OECMs will generally fall under other sectors, marine spatial planning processes will be an important avenue to help prioritize and promote the identification and recognition of OECMs and to enhance their biodiversity conservation measures. This strategy focuses on the identification, recognition and reporting of OECMs only, and not their subsequent management and monitoring, which are likely to fall under other sectors’ mandates.

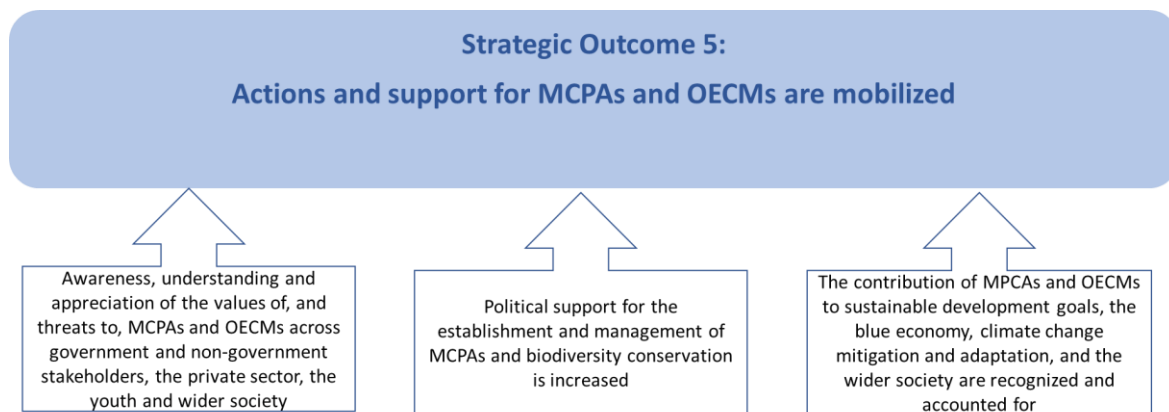
Pillar 4: MCPA Management Effectiveness



Global Biodiversity targets for MCPAs recognize that increasing their coverage is not sufficient on its own and once established, MCPAs must be effectively managed. Identifying desired conservation outcomes, developing frameworks for their management, and ensuring management effectiveness is

routinely evaluated are critical steps for ensuring adaptive and effective management of MCPAs. Plans alone however will not safeguard the biodiversity and socio-economic values of MCPAs, such plans need to be implemented effectively. To do so, it is critical that sufficient and sustainable funds are available to MCPA managers across the region and that institutions and their staff have the relevant capacity for management plan implementation. Increasing funds will also be necessary to support all actions under this strategy including the establishment of MCPAs. As part of management plan implementation and assessing conservation outcomes, strengthening surveillance and enforcement of MCPA rules and regulations, fostering good co-operation with relevant law enforcement agencies, and monitoring ecosystem health, threats and socio-economic indicators will be essential to achieve this outcome.

Pillar 5: Government and stakeholder action and support



To move away from business-as-usual, it is necessary to ensure that across all stakeholder groups, including the wider society, MCPAs and potential OECMs are valued and appreciated for their functional and supportive role in helping to achieve other non-biodiversity related national agendas and their role as nature-based solutions. Enhancing political support is particularly crucial as without political will, the Region cannot meet the relevant post 2020 targets. Key to increasing political support will be advancing their recognition of the value and importance of MPAs and OECMs in achieving national and international commitments, particularly as they related to Sustainable Development Goals and Nationally Determined Contributions, as well as their contribution to the national economy. The development and implementation of effective and targeted communication and awareness strategies will be essential for mobilizing action in government and non-government stakeholders.

STRATEGY IMPLEMENTATION

Implementation

The implementation of this strategy should be a co-operative process and as such places the effective participation and collaboration of local, national, sub-regional, and regional stakeholders, encompassing inter-governmental agencies, local communities, civil society, private sector, research/academic community, MCPA networks, and relevant Regional and International Organizations at its core for successful implementation.

Contracting Parties will be responsible for the delivery of relevant indicative actions at the national and local levels and creating the enabling conditions for fostering the effective collaboration and active participation of national and local stakeholders and other sectors. SPA/RAC will undertake a central role in co-ordinating and facilitating the delivery of the strategic outcomes through technical, logistical and financial support to the Contracting Parties and fostering regional collaboration between Contracting Parties, and Regional and International Organizations. Regional and International Organizations will

also play a supportive role in delivering the outcomes of this strategy through sharing best practices, building capacity, co-financing activities and advising on new tools and approaches.

Financing

Additional and substantial financing will be necessary to support the implementation of national and regional actions identified under this strategy. This will be achieved through the identification and implementation of innovative and diversified financing mechanisms across Contracting Parties and the region, and through the support of Regional and International Organizations and donors.

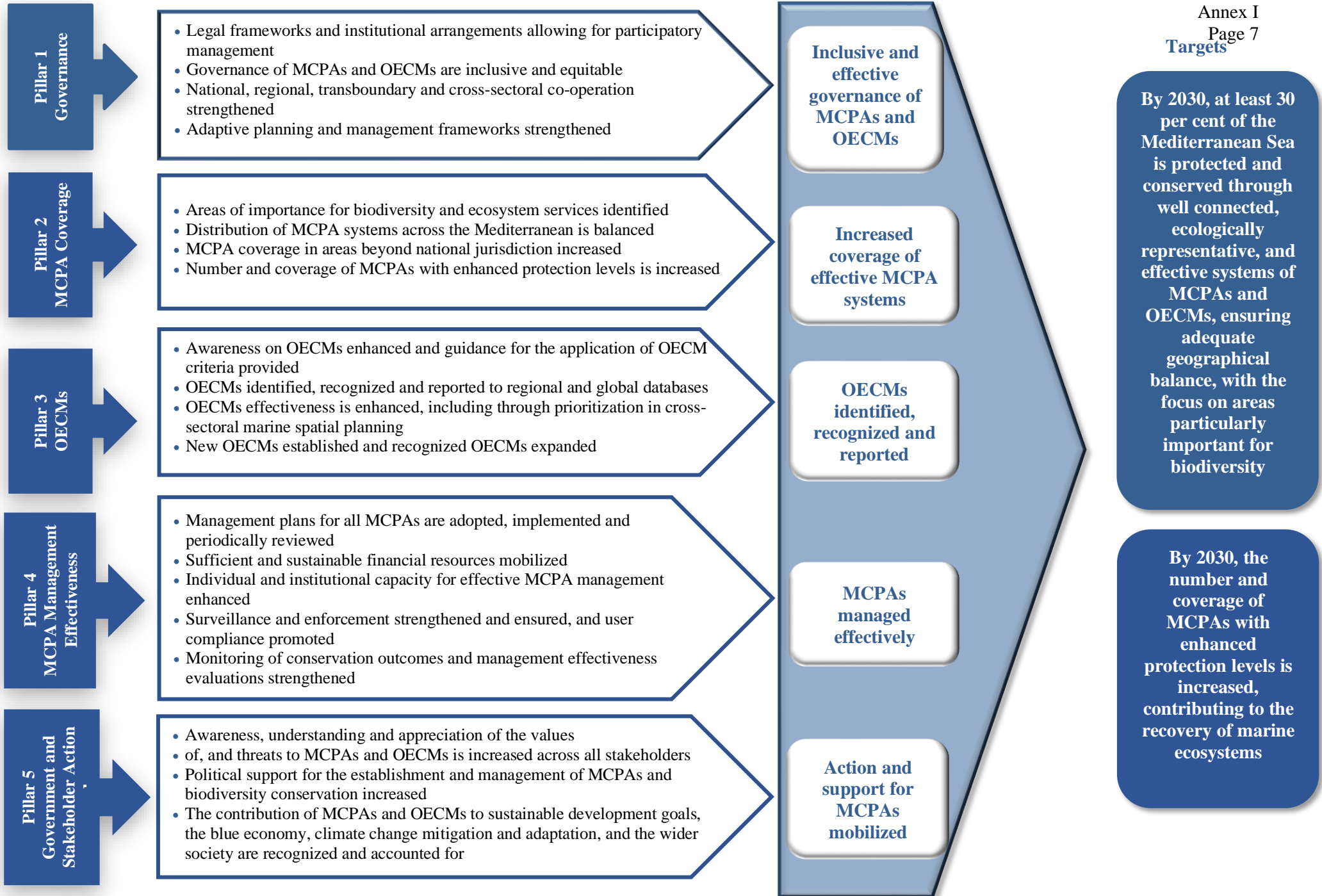
Monitoring and evaluation

The timeframe for the implementation of this strategy is 2021-2030. A full review of the strategy should occur at its mid-point (2026) and at the end of its timeframe (2030). Once adopted, a detailed monitoring and evaluation framework, with associated indicators and targets will be developed. As a living document, progress towards output and outcome indicators and targets should be periodically reviewed and the strategy and its actions revised as required.

A schematic representation of the strategy is provided on the following page.

OUTPUTS

OUTCOMES



Acronyms

ABNJ	Areas Beyond National Jurisdiction
AGEM	Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean
CBD	Convention on Biological Diversity
CCH	Cetacean Critical Habitat
COP	Conference of Parties
CP	Contracting Party
EBSA	Ecologically or Biologically Significant Marine Area
EcAp	Ecosystem Approach
EEZ	Exclusive Economic Zone
EU	European Union
FRA	Fisheries Reserve Area
GBF	Global Biodiversity Framework
GFCM	General Fisheries Commission for the Mediterranean
IBA	Important Bird Area
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and related Assessment Criteria
IMMA	Important Marine Mammal Area
MAP	Mediterranean Action Plan
MAPAME	Database on marine protected areas in the Mediterranean
D	
MedPAN	Network of Marine Protected Areas Managers in the Mediterranean
MAP CU	Mediterranean Action Plan Coordinating Unit
MCPA	Marine and Coastal Protected Areas
MPA	Marine Protected Area
MSP	Marine Spatial Planning
NbS	Nature-based Solution
NDC	Nationally Determined Contribution
NIS	Non-indigenous Species
OECM	Other effective area-based conservation measures
PA	Protected Area
PR	Public Relations
SDG	Sustainable Development Goal
SPA	Specially Protected Area
SPA/BD	Specially protected areas and biological diversity
SPAMI	Specially Protected Area of Mediterranean Importance
SPA/RAC	Specially Protected Areas Regional Activity Centre
PSSA	Particularly Sensitive Sea Areas
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WD	World Database

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Post-2020 Regional Strategy for marine and coastal protected areas (MCPAs) and other effective area-based conservation measures (OECMs) in the Mediterranean

I. Introduction

I.1. Background

1. The Protocol concerning Specially Protected Areas and Biological Diversity (SPA/BD) in the Mediterranean was adopted in 1995 under the Barcelona Convention, to provide a regional framework for the conservation and sustainable use of marine and coastal biological diversity in the Mediterranean. Since its adoption a number of strategies, programmes, action plans and roadmaps have been developed to help the Contracting Parties meet their obligations under the Protocol. In 2016, at COP 16, a Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas to achieve Aichi Target 11 in the Mediterranean was adopted, and in 2019, a final evaluation of this roadmap was made, where findings and priority actions for marine and coastal protected areas (MCPAs) and other effective area-based conservation measures (OECMs) post-2020 were presented at COP 21. In response to this, and noting the shortcomings of the region in meeting global 2020 targets for MCPAs, the geographical imbalance, the strong bias regarding the type of ecosystems protected, and the weak management and enforcement, Contracting Parties requested the Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP)-Barcelona Convention Secretariat, through its Specially Protected Areas Regional Activity Centre (SPA/RAC), to elaborate an ambitious and transformational post-2020 strategy that would further advance and strengthen the network of MCPAs and OECMs in the Mediterranean, and that is in line with the Post-2020 Global Biodiversity Framework and other regional and global processes (Decision IG.24/6). Central to the transformative approach will be the incorporation and integration of recognized OECMs as a means to achieve the ambitious Post-2020 Global Biodiversity Framework relevant targets.

I.2. Strategy Development

2. This strategy was developed under the leadership of the Specially Protected Areas Regional Activity Centre, the guidance of its Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM), and in consultation with the Contracting Parties SPA/BD Focal Points and Regional and International Organizations active in the Mediterranean over a period of 5 months.
3. A draft strategic framework (strategic pillars, outcomes and outputs), developed in consultation with SPA/RAC and the AGEM members, was presented in a 2-day remote workshop with 51 participants representing National, Regional and International Organizations, as well as Focal Points, individual experts and representatives from academic institutions. During this 2-day workshop the framework was finalized, and a number of key actions identified for each output. Actions were identified at two levels: Contracting Parties level and Regional and International Organization level. Workshop outputs were incorporated into the strategy with participants provided a further opportunity for review.
4. The revised strategy was then presented to the second meeting of AGEM, then to the SPA/BD Focal Points in a remote consultation workshop where comments were incorporated.
5. A second draft Post-2020 Strategy was presented at the Fifteenth Meeting of the SPA/BD Focal Points in June 2021, and subsequently revised.
6. This strategy intends to be further submitted to the Meeting of MAP Focal Points (Teleconference, 10-17 September 2021) and eventually to COP 22 (Antalya, Turkey, 7-10 December 2021) for consideration.

I.3. Context

7. The Mediterranean Sea is the world largest semi-enclosed sea. It is considered a biodiversity hotspot, representing just 0.3% of the global ocean volume while hosting 4 to 18 % of identified global marine species¹. In addition to its biodiversity value, the Mediterranean has significant historical, cultural and socio-economic value. The Mediterranean comprises 20% of the global marine product despite representing only 1% of all global oceans², is among the world's leading tourism destination³ and encompasses three major maritime crossings. In addition, fisheries and aquaculture, another very important sector in the Mediterranean's blue economy, is thought to provide direct and indirect employment for at least one million people⁴.
8. As a semi-enclosed sea, the Mediterranean is more susceptible to human impacts than more open waters and is one of the world's biomes that shows strong negative responses to land use and climate change pressures⁵. The Mediterranean Sea is already being impacted by climate change at rates exceeding global averages, with more rapid warming during all seasons and a trend towards drier conditions⁶. The Adriatic, Aegean, Levantine and north-east Ionian Seas in particular are amongst the areas currently most impacted by climate change⁷.
9. Approximately 80% of marine pollution comes from land-based sources, mainly agriculture, industry, and municipal waste⁸. Marine litter, largely comprising macro and microplastics, is considered one of the main sources of pollution in the Mediterranean Sea. Commercial fishing however has also been recognized as a significant source of litter, particularly discarded fishing gear, such as nets, and fish stock waste⁹. As a major shipping hub, underwater noise and accidental discharges from oil spills and other hazardous substances are also sources of pollution in the region. The high shipping traffic in the Sea presents a further hazard to many marine mammals and the risk of collision between ships and marine mammals is high¹⁰.
10. The Mediterranean is among the most overfished seas in the world¹¹ with bottom trawling and gill nets extensively used in the region. Bottom trawling is the main pressure facing coralligenous assemblages and accidental bycatch is having a profound impact on a number of species, such as marine turtles and seabirds. Non-indigenous and invasive species (NIS) are also increasingly present in the Mediterranean Sea, with a total of more than 1,199 non-indigenous marine species

¹ Bianchi, C. and Morri, C. 2000. Marine Biodiversity of the Mediterranean Sea: Situation, Problems and Prospects for Future Research. *Marine Pollution Bulletin*, 40 (5): 367-376. [https://doi.org/10.1016/S0025-326X\(00\)00027-8](https://doi.org/10.1016/S0025-326X(00)00027-8).

² Randone et al. 2017. Reviving the economy of the Mediterranean Sea: Actions for a Sustainable Future. WWF Marine Initiative, Rome, Italy

³ UNWTO 2015. Mediterranean trends. 2015 edition

⁴ UNEP/MAP and Plan Bleu 2020. State of the Environment and Development in the Mediterranean. Nairobi

⁵ Newbold, T., Oppenheimer, P., Etard, A. et al. 2020. Tropical and Mediterranean biodiversity is disproportionately sensitive to land-use and climate change. *Natural Ecology and Evolution*, 4: 1630–1638. <https://doi.org/10.1038/s41559-020-01303-0>

⁶ UNEP/MAP and Plan Bleu 2020. State of the Environment and Development in the Mediterranean. Nairobi

⁷ MedECC 2020. Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report [Cramer, W., Guiot, J., Marini, K. (eds.)] Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 600pp, in press

⁸ Hilderling, A., Keessen, A.M. & van Rijswijk, F.M.W. 2009. Tackling pollution of the Mediterranean Sea from land-based sources by an integrated ecosystem approach and the use of the combined international and European legal regimes. *Utrecht Law Review*, 5(1), 80.

⁹ UNEP-MAP-RAC/SPA. 2015. Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea. Dark Habitats Action Plan. Ed. RAC/SPA, Tunis

¹⁰ IUCN 2012. Marine Mammals and Sea Turtles of the Mediterranean and Black Seas. Gland, Switzerland and Malaga, Spain: IUCN

¹¹ FAO. 2020. The State of Mediterranean and Black Sea Fisheries 2020. General Fisheries Commission for the Mediterranean. Rome

recorded, of which more than 107 are invasive¹². The main introduction of non-indigenous species to the Mediterranean, excluding natural migration or in response to climate change impacts, are largely from the shipping industry through ballast water and hull biofouling.

11. MCPAs are widely considered to be one of the key tools to preserving and restoring biodiversity and regular functioning of marine ecosystems¹³. A healthy and functioning marine ecosystem is essential to provide food security, jobs, climate regulation and human wellbeing, and therefore for achieving the Sustainable Development Goals (SDGs). The important role MCPAs play in helping Contracting Parties to meet national, regional and global commitments is well recognized. Mediterranean countries propose the enlargement of the marine protected area network, setting up ecological corridors to prevent genetic isolation and to allow for species migration, while making it more representative of the Mediterranean Sea ecoregions, particularly extending to the Southern and Eastern coasts. Incorporating Other Effective Area Based Conservation Measures (OECMs), in line with the CBD criteria, such as protected cultural areas, and military zones and expanding into the open seas through Fisheries Restricted Areas (FRAs of GFCM) and candidate areas in Vulnerable Marine Ecosystems (VME of FAO), Particularly Sea Sensitive Areas (PSSAs of IMO) while favouring their setting within Ecologically or Biologically Significant Marine Areas (EBSAs listed in the CBD repository), are also proposed.

I.4. The value of MCPAs and OECMs

12. Biodiversity loss and environmental degradation are considered two of the most significant threats to the global economy over the next decade¹⁴. Nature-based Solutions (NbS) are defined as “*actions that protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively simultaneously providing human well-being and biodiversity benefits*”¹⁵. MCPAs and OECMs offer nature-based solutions to support global efforts towards climate change adaptation and mitigation. They preserve marine biodiversity, enable marine ecosystems to act as heat and carbon pumps, strengthen their resilience to global warming and help to combat acidification. *Posidonia oceanica* meadows in particular, are an important carbon sink and buffer against sea acidification and MCPAs play a very important role in protecting this vulnerable habitat. MCPAs can also protect important coastal habitats by acting as natural barriers to the impacts of climatic hazards through ensuring the effective functioning of the land-sea interface, and by being nature-based solutions for mitigating extreme events, thereby reducing coastal erosion and flood regulation.
13. MCPAs and OECMs also play a critical role in sustainable blue economic growth by restoring and enhancing the value of the Mediterranean’s natural capital on which many sectors depend. Strategically designed MCPAs have shown to increase fish yield via spillover of larvae and adults¹⁶. It is thought that if 30% of the Mediterranean is effectively conserved, the biomass of predatory and large pelagic fish species will show a noticeable increase¹⁷. In addition, MCPAs with high levels of enforcement, among other attributes, have demonstrated healthier fish stocks in their buffer zones, and as a result the incomes of fishers were higher¹⁸. Well-managed MCPAs and OECMs that maintain healthy biodiversity and ecosystems are also an important driver of tourism demand - another significant industry in the region.

¹² UNEP/MAP, 2020, Status of NIS in the Mediterranean and Roadmap for the Elaboration of Baseline at National and Regional Levels. Integrated Meetings of the Ecosystem Approach Correspondence Groups on IMAP Implementation (CORMONs), Videoconference, 1-3 December 2020. UNEP/MED WG.482/Inf.6. 8 p

¹³ Claudet, J., Loiseau, C., Sostres, M. & Zupan, M. 2020, Underprotected Marine Protected Areas in a Global Biodiversity Hotspot. *One Earth* 2, 380–384

¹⁴ World Economic Forum 2021. Global risk report 2021 16th edition

¹⁵ WCC-2016-Res-069-EN. Defining Nature-based Solutions. IUCN, World Conservation Congress Hawaii

¹⁶ Cabral et al. 2020. A global network of marine protected areas for food. *PNAS* 117 (45).

¹⁷ WWF 2021. 30 BY 30: Scenarios to recover biodiversity and rebuild fish stocks in the Mediterranean

¹⁸ Di Franco et al. 2016. Five key attributes can increase marine protected areas performance for small-scale fisheries management. *Scientific Reports*, volume 6, Article number: 38135

I.5. Current status of MCPAs and OECMs in the region

14. There are currently 1,126 MCPAs in the Mediterranean Sea covering 209 303 km² (8.3%), including only 0.06% of strictly protected areas. There are no OECMs reported for the Mediterranean to date, however combining areas that could be potential OECMs (i.e. 1 Particularly Sensitive Sea Area and 8 Fisheries Restricted Areas) the total MCPA and potential OECM coverage currently stands at 9.3% of the Mediterranean Sea. Although good progress has been made, with some countries exceeding, meeting, or very close to the 10% by 2020 (Aichi target 11), the region as a whole fell short. Figure 1 clearly shows a large disparity in MCPA coverage between countries, with the majority of MCPAs occurring in the western Mediterranean Sea and 90.05% occurring in in the northern part of the Mediterranean¹⁹. In addition to geographical representation, there is also uneven distribution of MPAs according to sea depth, with less than 4% of depths greater than 1000 m covered by MPAs. As the region now faces new targets, not only is coverage expected to increase, but it is essential that coverage is more equitably represented across Contracting Parties and the different ecosystems.

MPAs, potential OECMs and other sites of conservation interest in the Mediterranean

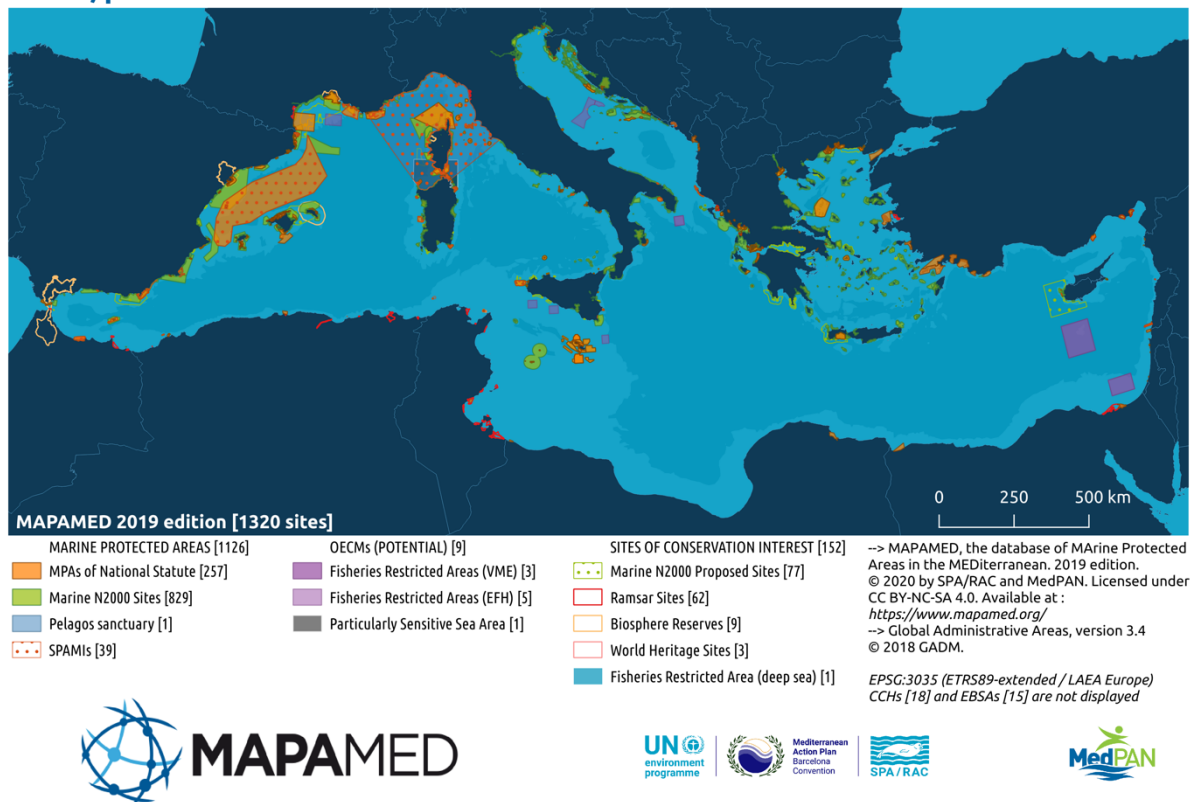


Figure 1. Map showing MPA coverage in the Mediterranean²⁰

15. In addition to coverage, previous and current targets (Post-2020 Global Biodiversity Framework) for protected areas stipulate that systems of protected areas (PAs) and OECMs must be effectively managed. Several surveys have been conducted over the years²¹ to assess management

¹⁹ <https://medpan.org/marine-protected-areas/mediterranean-mpas/>

²⁰ MAPAMED, the database of MARine Protected Areas in the MEDiterranean. 2019 edition. © 2020 by SPA/RAC and MedPAN. Licensed under CC BY-NC-SA 4.0

²¹ A survey launched by SPA/RAC and MedPAN, in 2015, for the 2016 MPA status report (MedPAN and SPA/RAC, 2019). The 2016 status of Marine Protected Areas in the Mediterranean. By Meola B. and Webster C. Ed SPA/RAC & MedPAN.

effectiveness and to identify barriers and limiting factors for the establishment and management of MCPAs, however few MCPAs and systems of MCPAs complete regular evaluations of management effectiveness. The surveys and country assessments revealed a number of cross-cutting barriers to the effective management of MCPAs (table 1). Ensuring political will and support for the establishment and management of MCPAs and OECMs is one of the most crucial elements to overcome the remaining barriers in order to meet 2030 targets for MCPAs and OECMs in the region.

Table 1: Main Barriers to effective MCPA management

▪ **Lack of Political Will and Support**

For MPA establishment and management

▪ **Insufficient Financing**

Not enough, not sustainable, heavy reliance on external funds

▪ **Inadequate Human Resources**

Not enough MPA staff, where staff are occurring, many do not have the necessary technical skills for MPA management

▪ **Lack of Sectoral and Stakeholder Involvement, Cooperation and Support**

Poor coherence and harmonization of policies plans and actions

▪ **Insufficient Knowledge**

Knowledge gaps for effective decision-making

▪ **Lack of Management Plans**

▪ **Inadequate Surveillance and Enforcement**

Unclear procedures in legislation, lack of by-laws, poor cooperation with enforcement agencies, irregular routine patrols, unclear mandates and responsibilities for enforcement

▪ **Insufficient Monitoring and Evaluation**

Insufficient and inadequate monitoring of management effectiveness, insufficient biodiversity and biological monitoring

I.6. Other Effective Area-based Conservation Measures

16. As mentioned previously, the Mediterranean Sea does not currently have any formally recognized OECMs. OECMs will be an essential tool to help Contracting Parties achieve their global and also regional targets for biodiversity conservation under the Barcelona Convention, and to recognize the effort of other sectors in mainstreaming biodiversity conservation into sustainable development. As an increasingly important tool to help Contracting Parties meet these targets and, given the lack of experience across the region in recognizing OECMs in the marine and coastal environment, it is necessary to provide clear guidance and to harmonize the recognition of OECMs across the Contracting Parties. As such, OECMs have been identified as a key strategic pillar (chapter 2) to

Tunis 222 pages.); a survey launched by MedPAN, in 2019, about MPA management and enforcement; and a survey launched by SPA/RAC, MedPAN and WWF, in 2020, to prioritise the limiting factors hindering the achievement of MPA objectives, in the framework of the 2020 MPA Forum process and its related post-2020 MPA roadmap development.

help Contracting Parties achieve relevant targets of the Global Biodiversity Framework in the Mediterranean Sea. OECMs are defined as-:

A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the *in situ* conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values. (CBD 2018).

17. OECMs provide a means for more formal recognition of important areas for biodiversity beyond MCPAs. A key difference between MCPAs and OECMs is that protected areas have a primary conservation objective, whereas OECMs deliver effective conservation of biodiversity regardless of their objectives and their types of governance²². In 2018, at their 14th Conference, Contracting Parties to the CBD agreed on a definition, guiding principles, common characteristics, and criteria for the identification of OECMs (Decision 14/8). The CBD decision however highlights that the criteria should be applied “*in a flexible way and on a case-by-case basis*”.
18. The adoption of the definition and the criteria creates opportunities for Contracting Parties to the Barcelona Convention to begin to recognize and report on OECMs, which, as mentioned, will likely be necessary if the region is to meet the ambitious Post-2020 Global Biodiversity Framework. Further, the process of identifying OECMs also provides opportunities to bring together the Fisheries and Conservation sectors, both at national and regional levels, with the possibility of fishery-related OECMs helping to achieve both General Fisheries Commission for the Mediterranean (GFCM) and Barcelona Convention objectives. Although no marine OECMs are currently reported for the region, terrestrial OECMs have been recognized and reported in countries within and outside the Mediterranean region. This presents an opportunity for Contracting Parties to learn from the experience gained by these countries in applying the CBD criteria. The following provides a non-exhaustive list of the types of areas that could be potential OECMs in the Mediterranean:
 - Fisheries Restricted Areas (FRAs)²³, in particular those that host critical species, and those that are permanently restricted so as to enhance the long-term conservation outcomes
 - Marine or coastal military closure areas, as some are often no go-areas and can have good conservation outcomes²⁴
 - Archaeological and cultural heritage²⁵ (sunken ships, archaeological shipwrecks, underwater ancient remains, cities, etc.)
 - Areas with oil and gas restrictions
 - Areas managed for navigation purposes such as IMO Particularly Sensitive Sea Areas.

II. Strategy

19. Protected areas are considered the cornerstone of biodiversity conservation. Marine and coastal protected areas (MCPAs) are being increasingly recognized as one of the most effective management and conservation tools to help mitigate the global trends in marine and coastal ecosystem degradation and biodiversity loss. In addition to providing biodiversity and ecosystem service benefits, MCPAs and OECMs are also critical tools in helping countries meet their Sustainable Development Goals (SGDs) and Nationally Determined Contributions (NDCs) through the protection and restoration of natural capital. Despite this, their immense socio-economic and

²² IUCN/WCPA 2020. Potential contribution of “Other-effective area-based conservation measures” to achieving Aichi Target 11 in Southern and Eastern Mediterranean countries. IUCN Gland, Switzerland and Malaga, Spain. IUCN 20 pp

²³ A Fisheries Restricted Area (FRA) is a geographically defined area in which some specific fishing activities are temporarily or permanently banned or restricted in order to improve the exploitation patterns and conservation of specific stocks as well as of habitats and deep-sea ecosystems

²⁴ Note: some areas may be for weapon testing and could have impacts on ecosystems.

²⁵ Note: the location of these areas may be sensitive to share publicly due to risks of looting and illegal trade.

cultural values, as well as their role as nature-based solutions, are often poorly understood and underappreciated.

20. The Convention on Biological Diversity (CBD) is the most important international legal instrument addressing protected areas. The ongoing work of the Post-2020 Global Biodiversity Framework (GBF) under CBD, represents a new era for biodiversity conservation, with new goals and targets. The target for protected areas (target 2) is setting out an ambitious target to: “*By 2030, protect and conserve through well connected and effective systems of protected areas and other effective area-based conservation measures at least 30 per cent of the planet with the focus on areas particularly important for biodiversity*”. It is recognized that each individual country will have its own specific MCPA and OECM coverage targets, however in keeping with these global targets for protected areas, the post-2020 target for Mediterranean MCPAs and OECMs across the region as a whole which could be amended as the draft Post-2020 GBF progresses- has been identified as:

By 2030, at least 30 per cent of the Mediterranean Sea is protected and conserved through well connected, ecologically representative and effective²⁶ systems of marine and coastal protected areas and other effective area-based conservation measures, ensuring adequate geographical balance, with the focus on areas particularly important for biodiversity.

21. In addition, and in keeping with the regional marine conservation community recommendations (2%- The 2016 Forum of MPAs in the Mediterranean, Tangier declaration) and sub-regional targets (10%- EU Biodiversity Strategy) for enhanced levels of protection, a further regional sub-target has been identified:

By 2030, the number and coverage of marine and coastal protected areas with enhanced protection levels is increased, contributing to the recovery of marine ecosystems.

22. In order to achieve these ambitious targets, Contracting Parties and the region require transformative actions over the next decade, with an increasing role for OECMs. This Strategy therefore has identified five main strategic pillars necessary to achieve the post-2020 target for Mediterranean MCPAs and OECMs. These are: Governance, MCPA network expansion, OECMs, MCPA management effectiveness, and Government and stakeholder action and support. All of the pillars are inextricably linked and there are several cross-cutting outputs. For example, sustainable financing and enhanced cooperation between sectors, MCPA networks, stakeholders, countries and the region, are necessary for all five pillars. This strategy is aligned with a number of relevant international, regional and sub-regional strategies and policies (Appendix 1).
23. Under each pillar a clear strategic outcome, with corresponding outputs and proposed key actions at both Contracting Party, and Regional and International Organization levels, has been identified. Recognizing that countries are at different stages with regard to the establishment and management of their MCPAs, the proposed actions under each output therefore are meant to be indicative and not prescriptive.
24. This chapter presents each strategic pillar separately and provides a brief rationale and overview of the main focus for each of these five pillars.

²⁶ Effective systems are understood to comprise the four components identified by the IUCN Green List standards: Good governance; sound design and planning, management effectiveness and achieving conservation outcomes.
<https://iucngreenlist.org/>

II.1 Strategic Pillar 1: MCPA and OECM Governance

Strategic Outcome 1:

Governance arrangements for MCPAs and OECMs are inclusive and effective in delivering conservation and livelihood outcomes

25. Strengthening governance and co-operation among actors for both the establishment and management of MCPAs is essential if 2030 targets are to be achieved. Effective governance establishes the overarching framework for MCPA establishment and the management to follow. Governance²⁷ is multi-faceted and considers not only which body or institution has authority over MCPAs, but also who makes decisions and how these decisions are made. MCPA-relevant legislation is relatively strong across the region however a number of gaps have been identified. These gaps largely centre around procedures for enforcement of both national legislation and local by-laws, overlapping or conflicting policies across the different sectors for MCPA governance within and outside MCPAs, and poor legislation for promoting/supporting participatory and delegated management of MCPAs. Several countries also report a need for institutional reform, especially to avoid overlap in cases where different authorities are responsible for the country's protected areas. There is a need therefore to ensure that appropriate legislation and institutional frameworks are in place for the establishment and management of MCPAs (output 1.1) and that MCPAs are integrated into countries' SDGs and NDCs, and that, as per best practices, governance models include equitable and effective participation of stakeholders (output 1.2).
26. It is recognized that MCPAs cannot be managed in isolation and stakeholders must be involved at all levels. There is a need therefore for MCPAs to be integrated, recognized and engaged in the governance of surrounding territories, and that inter-sectoral co-operation, policy and action harmonization is improved (output 1.3). Lastly, recognizing that decisions can change in response to changes in political, social and environmental conditions, it is important to ensure that there is flexibility in planning and management frameworks to adapt to these changes (output 1.4).

Table 2: *Key outputs and proposed actions for outcome 1*

Output 1.1: Legal frameworks and institutional arrangements of MCPAs and OECMs allow for opportunities for participatory management	
Contracting Parties	
A.1.1.1	Assess current relevant legislation and institutional arrangements to allow for participatory management and identify any gaps or areas which need revision, paying particular attention to national and local regulations and participatory mechanisms
A.1.1.2	Develop appropriate governance frameworks to integrate MCPA strategy goals and policies into other sectors' policies
A.1.1.3	Establish, as appropriate, a readily accessible process to identify, hear and resolve complaints, disputes or grievances related to the governance or management of MCPAs and OECMs, or tackle this through already existing processes such as appeals and tribunals.
A.1.1.4	Develop national MCPA and OECM system strategies, standalone or as part of relevant national strategies, with clearly identified monitoring frameworks for system expansion and management
Regional/International Organizations	
A.1.1.5	Provide tailored assistance to Contracting Parties for strengthening appropriate legal and institutional frameworks as required

²⁷ Governance is "the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken and how citizens or other stakeholders have their say" (Borrini-Feyerabend et al. 2013)

A.1.1.6 Support the development and implementation of national MCPA and OECEM system strategies, including when relevant, transboundary and sub-regional MCPA and OECEM systems and action plans
Output 1.2: Governance arrangements for MCPAs and OECEMs are inclusive and equitable
Contracting Parties
A.1.2.1 Adapt governance structures and mechanisms of MCPAs to provide civil society, stakeholders and rights-holders with appropriate opportunities to participate in management planning, decision-making processes and actions
A.1.2.2 Where appropriate, create a national commission for MCPAs and marine conservation comprising government and non-government stakeholders including the private sector
A.1.2.3 Enhance governance arrangements to advance gender equity in and around MCPAs and OECEMs
Regional/International Organizations
A.1.2.4 Provide case studies and guidelines for best practices on co-management and participatory governance arrangements and support their replication and scaling-up
A.1.2.5 Promote the prerequisite for co-management as an eligibility criterion for regional and national MCPA financing institutions
A.1.2.6 Enhance opportunities for building capacity of national and local stakeholders in co-management
Output 1.3: National, regional, transboundary and cross sectoral co-operation for the establishment and management of MCPAs and OECEMs are strengthened
Contracting Parties
A.1.3.1 Establish cross-sectoral platforms to improve integrated marine spatial planning and co-ordination and to enhance dialogue between MCPAs and other sectors
A.1.3.2 Enhance transboundary co-operation for the identification of new priority areas of conservation and for the establishment and management of MCPAs
Regional/International Organizations
A.1.3.3 Facilitate regional and transboundary co-operation
A.1.3.4 Support sharing of experiences and best practices between Mediterranean countries
A.1.3.5 Strengthen and support existing national, regional and sub-regional networks of MCPA managers and other stakeholders
A.1.3.6 Facilitate exchanges among similar types of MCPAs such as the previous SPA/RAC's SPAMI Twinning Programme, and build capacity for MCPAs and OECEMs' establishment and management across countries
Output 1.4: Adaptive planning and management frameworks of MCPAs and OECEMs that anticipate, learn from and respond to changes in decision-making are strengthened
Contracting Parties
A.1.4.1 Ensure flexible and responsive institutional frameworks for governance, management and finance
A.1.4.2 Raise awareness and promote the use of MCPAs/OECEMs as reference sites for IMAP within the Barcelona Convention Ecosystem Approach (EcAp) process
A.1.4.3 Ensure appropriate multi-stakeholder feedback mechanisms for the integration of scientifically sound monitoring results and any changes in political, social and environmental conditions into MCPA management plans and actions
Regional/International Organizations
A.1.4.4 Follow progress of the BBNJ negotiations and ensure integration of its implementation in the Mediterranean context
A.1.4.5 Support Contracting Parties' disaster and emergency responses to natural hazards, human-made disasters and future pandemics by sharing experiences, human and other resources across the MCPA and OECEM systems as necessary

II.2. Strategic Pillar 2: MCPA Network Expansion

Strategic Outcome 2:

MCPA coverage increased through the expansion of soundly-designed, ecologically representative and well-connected systems of MCPAs

27. MCPA coverage in the Mediterranean Sea currently stands at 8.3%²⁸. This figure alone however does not illustrate the uneven distribution of MCPAs across the region. There are disproportionately more MCPAs occurring in the western Mediterranean sub-region compared to other sub-regions, significantly more MCPAs occurring in northern Mediterranean countries' waters compared to southern and eastern Mediterranean countries, and the majority of MCPAs occur in shallow waters close to the coast. It is evident that in order for Contracting Parties to advance towards the 30% target, a more strategic approach to establishing MCPAs is needed, so that there is more equal representation of MCPAs across the Mediterranean Sea sub-regions and ecosystems.
28. A first step in applying a more strategic approach to the establishment of MCPAs is to ensure that areas important for biodiversity and ecosystem services and their planned level of protection are clearly identified across the region (output 2.1), and that Contracting Parties with particularly low MCPA coverage, such as the southern and eastern Mediterranean countries, are supported to establish soundly designed MCPAs across these priority areas (output 2.2). MCPAs are also poorly represented in areas beyond national jurisdiction and, particularly as threats continue to emerge in these open waters, there is an urgent need for the establishment of soundly designed MCPAs in these areas (output 2.3). Building upon the text for UNCLOS²⁹, an international legally binding instrument under the Convention for the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction, of which measures such as area-based management tools, including marine protected areas, are currently being elaborated³⁰. This initiative is expected to provide a more explicit framework for establishing and governing MPAs in areas beyond Exclusive Economic Zones in the future and this strategy will ensure synergy with the elaborated text once finalized.
29. MCPAs with enhanced protection levels, including no-take or no-fishing zones, are also severely underrepresented across the Mediterranean MCPA system, with only 0.06% of the Mediterranean considered strictly protected. In keeping with regional and sub-regional expert recommendations and commitments therefore, output 2.4 identifies a need for increasing the percentage of MCPAs with enhanced protection levels, including no-take zones and other enhanced protection measures, across the Mediterranean Sea.

Table 3: Key outputs and proposed actions for outcome 2

Output 2.1: Areas of importance for biodiversity and ecosystem services are identified
Contracting Parties
A.2.1.1 Adequately support the identification of areas of importance for biodiversity and ecosystem services and share information through regional platforms in particular for under-represented ecosystems such as offshore and deep seas
A.2.1.2 Based on a gap analysis, identify and prioritize areas requiring conservation along with their expected level of protection

²⁸ MAPAMED, the Mediterranean Marine Protected Areas Database. 2019 Edition. © 2020 by SPA/RAC and MedPAN. Licensed under CC BY-NC-SA 4.0

²⁹ The reference made to the United Nations Convention on the Law of the Sea (UNCLOS) should not be interpreted as a change in the legal position of States not party to UNCLOS, nor could it be interpreted as imposing any legally binding obligation on non-party States to UNCLOS.

³⁰ UN General Assembly Resolution 69/292 and Resolution 72/249

A.2.1.3 Collaborate with neighbouring countries to promote joint co-ordinated research in ABNJs and to identify potential MCPAs based on harmonized monitoring protocols
A.2.1.4 Develop plan for establishing an ecologically coherent national MCPA system with clear priorities, levels of protection and time-frames, based on priority natural, cultural and landscape values and associated ecosystem services
Regional/International Organizations
A.2.1.5 Provide scientific, logistical and financial support for the identification of important areas based on countries' needs
A.2.1.6 Support the creation of stakeholder meeting/dialogue platforms for proposed MCPAs to obtain appropriate levels of engagement and buy-in from the beginning
Output 2.2: Distribution of MCPA systems across the Mediterranean Sea is balanced
Contracting Parties
A.2.2.1 Contracting Parties with advanced MCPA systems to share experiences and lessons learnt in system design
A.2.2.2 Design and establish a well-connected, soundly designed and effective MCPA system covering all key biodiversity areas, coastal and offshore, based on the best available knowledge and ensuring appropriate engagement of local communities and stakeholders
Regional/International Organizations
A.2.2.3 Provide priority technical, financial and awareness raising support to southern and eastern Mediterranean Contracting Parties to design and establish well-connected, soundly designed and effective MCPA systems
Output 2.3: MCPA coverage in areas beyond national jurisdiction is increased
Contracting Parties
A.2.3.1 Strengthen co-operation between neighbouring States in areas where marine boundaries have not yet been agreed upon, making use of area-based management tools, as relevant
Regional/International Organizations
A.2.3.2 Encourage states to collaborate in establishing transboundary MCPAs to ensure representation of ecosystems beyond their national jurisdiction, as guided by the BBNJ process
A.2.3.3 Assist and support Contracting Parties in the identification of potential transboundary MCPAs and create a platform for initiating and facilitating dialogue
Output 2.4: The number and coverage of MCPAs with enhanced protection levels is increased
Contracting Parties
A.2.4.1 Establish new MCPAs with enhanced protection levels and review existing MCPAs leading to enhanced protection levels, facilitate their rezoning, and increase protection measures, in line with the EU Biodiversity Strategy 2030 where applicable
A.2.4.2 Document experiences and impacts of MCPAs with enhanced protection levels, including the no-take zones
Regional/International Organizations
A.2.4.3 Provide scientific, logistical and financial support, build capacity and enhance experience sharing for the creation of new MCPAs with enhanced protection levels, including no-take zones
A.2.4.4 Provide tools for monitoring, documenting and communicating impacts of MCPAs with enhanced protection levels

II.3. Strategic Pillar 3: Other Effective Area-based Conservation Measures

**Strategic Outcome 3:
Marine and coastal OECMs in the Mediterranean are identified, recognized and reported towards post-2020 global and regional targets**

30. OECMs will be a critical tool to help Contracting Parties to the Barcelona Convention meet Post-2020 GBF targets. The Barcelona Convention has an important role to play in facilitating the identification, recognition and reporting of OECMs, but their management and monitoring would generally fall under other sectors and within the mandate of other regional organizations. Therefore, under this strategic pillar, outputs and activities centre around supporting Contracting Parties to only identify, recognize and report on OECMs in areas within and beyond their jurisdiction.
31. Although no marine OECMs are currently recognized in the region, there has been some experience among Contracting Parties in the recognition of terrestrial OECMs. These present an opportunity for learning and for adapting these to the marine context. Activities under this pillar will therefore focus on supporting Contracting Parties in understanding OECM criteria and ensuring appropriate and harmonized approaches to the application and testing of sites against these criteria (output 3.1). Further guidance and support will be provided for potential and candidate OECM recognition and reporting to relevant regional and global databases (output 3.2).
32. OECMs provide an opportunity to recognize efforts and contributions by other sectors to biodiversity conservation. Some OECMs may host important biodiversity and ecosystem services that would benefit from additional area-based measures to increase their biodiversity outcomes, and should therefore be prioritized in cross-sectoral marine spatial planning³¹ (MSP) (output 3.3) so that new OECMs can be established (output 3.4). This is highly relevant to achieving Target 1 of the current GBF but also to achieving the various commitments and initiatives on MSP under the Barcelona Convention.

Table 4: Key outputs and proposed actions for outcome 3

Output 3.1: Awareness in Contracting Parties and stakeholders on OECMs enhanced and guidance for the application of OECM criteria provided	
Contracting Parties	
A.3.1.1	Raise awareness on OECMs across multi-sectoral stakeholders and promote understanding of the CBD criteria ³² for their identification
A.3.1.2	Where appropriate, establish multi-stakeholder platforms and use relevant screening tools to identify potential OECMs
Regional/International Organizations	
A.3.1.3	Increase awareness on OECM identification, recognition and reporting across Contracting Parties and key sectors
A.3.1.4	Increase communication and awareness about OECMs and their role in contributing to biodiversity conservation and SDGs across Contracting Parties and sectors
A.3.1.5	Facilitate and initiate inter-sectoral and regional dialogue and sharing experiences around OECMs
A.3.1.6	Develop sectoral and other guidance, such as tools and templates, for applying OECM criteria and establishing processes for identifying OECMs
A.3.1.7	Provide training on the identification of OECMs and the application of OECM criteria

³¹ MSP is a “public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process” (Ehler & Douvère, 2009)

³² CBD COP Decision 14/8

Output 3.2: OECMs identified, recognized and reported to regional and global databases by Contracting Parties and regional organizations
Contracting Parties
A.3.2.1 Engage with the relevant sectors and governance authorities of the potential OECMs identified to encourage and establish processes for a full assessment of the potential OECMs against the CBD criteria
A.3.2.2 Enable assessments of the potential OECMs (identified in output 3.1) against the CBD criteria through a multi-stakeholder process and following relevant guidelines, and recognize OECMs that meet the CBD criteria, ensuring consent by the governing authorities of the areas
A.3.2.3 Report OECMs to MAPAMED and WD-OECM databases and ensure regular update of OECM data as new OECMs are identified and provide relevant data for OECM status reports, as part of regular reporting.
Regional/International Organizations
A.3.2.4 Support countries in their efforts to identify, recognize and report OECMs
A.3.2.5 Document and analyze Mediterranean countries' experiences and challenges of applying OECM criteria to marine and coastal areas
A.3.2.6 Relevant regional organizations to assess potential OECMs under their mandate, recognize the areas meeting the CBD criteria as OECMs, and accordingly report them to MAPAMED and WD-OECM
Output 3.3: Effectiveness of identified OECMs is enhanced, including through prioritization in cross-sectoral marine spatial planning
Contracting Parties
A.3.3.1 Initiate and/or advance Marine Spatial Planning (MSP)
A.3.3.2 Prioritize OECMs (alongside MCPAs) in the MSP process and encourage cross-sectoral dialogue to enhance their biodiversity outcomes
A.3.3.3 Encourage OECM governance authorities to include specific biodiversity conservation objectives in OECM management, where needed
Regional/International Organizations
A.3.3.4 Support Contracting Parties in their MSP processes
A.3.3.5 Encourage and assist Contracting Parties to identify potential threats to OECMs from other sectors
A.3.3.6 Facilitate dialogue with other sectors to increase the protection level of identified OECMs
A.3.3.7 Develop best practices and share lessons learnt/success stories on integrating OECMs and MCPAs in marine spatial planning exercises
Output 3.4: New OECMs are established and recognized OECMs expanded
Contracting Parties
A.3.4.1 Engage with the relevant sectors, stakeholders and governance authorities of potential OECMs that partially met the full assessment, to enhance governance, management and/or monitoring of the areas in order to fully meet the OECM criteria and be recognized as OECMs
A.3.4.2 Engage with the relevant sectors and stakeholders to establish new OECMs or expand areas of existing OECMs ensuring compliance with the CBD criteria
Regional/International Organizations
A.3.4.3 Develop guidance for future OECM designation, recognition and reporting
A.3.4.4 Undertake analyses and provide recommendations to Contracting Parties and relevant regional organizations on needs for additional new OECMs

II.4. Strategic Pillar 4: MCPA Management Effectiveness

Strategic Outcome 4:

MCPAs are effectively managed and their conservation outcomes successfully delivered

33. Post-2020 GBF targets go beyond simply increasing coverage of MCPAs and OECMs and require that protected area systems must also be effectively managed. There are a number of MCPAs in the Mediterranean that currently lack management plans, and many of those that have plans are not implementing them effectively, if at all. Management plans should be developed in participation with stakeholders and are a crucial tool in providing clear guidance to both MCPA managers and users alike. There is a clear need therefore to support the development of practical and cost-effective management plans for MCPAs in the region (output 4.1). Although an essential first step, a standalone plan will not increase the management effectiveness of MCPAs, and these plans, once developed, need to be implemented in an effective and cost-efficient manner. Lack of sufficient and sustainable finances and lack of institutional and staff capacity have been identified across all countries as the main barriers for effective management plan implementation. If MCPAs are to be established and managed effectively in the long-term, sufficient and sustainable finances are also required (output 4.2). Many Mediterranean MCPAs in addition have insufficient staff numbers and capacity. Once MCPAs have staff in place, it is essential that there are targeted and regular capacity development and training programmes available. Thus, capacity and training needs specific to MCPAs should be reviewed and regional capacity development programmes supported (output 4.3).
34. A central activity to reduce threats and enhance MCPA management effectiveness is ensuring the effective enforcement of MCPA rules and regulations and promoting compliance among MCPA users (output 4.4.). Strengthening enforcement across MCPAs will require appropriate infrastructure and equipment, and agreed and clearly defined roles, responsibilities and powers identified for all agencies responsible for enforcing MCPA regulations. Since enforcement requires the support of external enforcement agencies, ensuring they are fully aware of MCPA regulations and that guidelines for enforcement procedures are provided will be essential actions under this output.
35. Lastly, routine and regular patrolling and monitoring of illegal activities, ecosystem and biodiversity health and socio-economic benefits is critical to support adaptive management efforts and in turn the effective management of MCPAs. Supporting and harmonizing biodiversity, socio-economic, and threat monitoring methods will help fill the biodiversity and threat status information gaps that exist and provide the information necessary to carry out management effectiveness evaluations (output 4.5). Ensuring there is adequate handling, management, analysis and interpretation of data, and that data is fed back into management, will be key to strengthening the effective management of MCPAs and MCPA systems across the region.

Table 5: Key outputs and proposed actions for outcome 4

Output 4.1: All MCPAs have adaptive management plans adopted, effectively implemented and periodically reviewed

Contracting Parties

A.4.1.1 Identify MCPAs where management plans are lacking and ensure that all MCPAs develop integrated conservation and management measures that include MCPA conservation challenges beyond their border, climate change mitigation and adaptation actions, a zoning plan, and site-specific measures for all marine activities

A.4.1.2 Ensure there is a mandatory requirement for all MCPAs to have a management plan that is developed in participation with stakeholders (local and national actors, users and other sectors and ministries)
A.4.1.3 Periodically review, revise and adapt MCPA management plans and actions and ensure plans are effectively implemented, monitored and enforced
Regional/International Organizations
A.4.1.4 Develop guidelines for participatory management planning tools and key components to be included in management plans and support their development by providing small grants and building capacity for management planning
A.4.1.5 Strengthen networks of MCPA managers at national, regional and sub-regional scales to facilitate experience and knowledge sharing regarding management plan development and adoption
A.4.1.6 Encourage national and regional financing tools to include the existence of a management plan for access to funding
Output 4.2: Sufficient and sustainable resources for the establishment and management of MCPAs in the Mediterranean are mobilized
Contracting Parties
A.4.2.1 Build capacity for, and develop sustainable financing plans for MCPAs and national systems of MCPAs, and where appropriate develop business plans
A.4.2.2 Diversify income generation opportunities by MCPAs beyond tourism to ensure greater resilience to the financial impacts of future pandemics, human-made risks or natural hazards
A.4.2.3 Establish national environmental/MCPA financing mechanisms (including trust funds) to increase the ear-marking of finances for MCPAs from national trust funds
A.4.2.4 Establish offset mechanisms ³³ for MCPAs establishment including MCPA conservation
A.4.2.5 Include values of MCPAs into natural capital accounting and increase MCPA investments funding as part of National Recovery Plans, if applicable
Regional/International Organizations
A.4.2.6 Support and promote the regional MedFund and national MCPA trust funds to donors
A.4.2.7 Identify opportunities for regional and national MCPA financing mechanisms (e.g. blue carbon, blue bonds, etc.) including in case of emergencies
A.4.2.8 Provide guidance to Contracting Parties and build capacity in MCPA managers for diversified and sustainable financing mechanisms
Output 4.3: Individual and institutional capacity for MCPA management is enhanced
Contracting Parties
A.4.3.1 Carry out capacity development needs' assessments and undertake capacity development programmes for MCPA staff, management authorities and MCPA-related stakeholders
A.4.3.2 Support the establishment and long-term functioning of national networks of MCPA managers to enhance the sharing of experiences
A.4.3.3 Strengthen stakeholder involvement and engagement particularly in conflict prevention and resolution
Regional/International Organizations
A.4.3.4 Support capacity development programmes in meeting MCPA staff training needs across the region and support and strengthen joint training programmes from different regional organizations to target MCPA managers and other relevant stakeholders

³³ offsets are measurable conservation outcomes designed to compensate for adverse and unavoidable impacts of projects, in addition to prevention and mitigation measures already implemented (<https://www.iucn.org/resources/issues-briefs/biodiversity-offsets>)

A.4.3.5 Support and prioritize national, sub-regional and regional MCPA manager networking, capacity building initiatives, and experience sharing and exchange programmes, in particular between north and south Mediterranean countries
Output 4.4: Surveillance and enforcement in MCPAs are strengthened and ensured, and user compliance is promoted
Contracting Parties
A.4.4.1 Identify and pilot innovative and cost-effective approaches for surveillance control and enforcement including by engaging with the private sector, academics and universities etc., to identify potential emerging technologies (for example drones or VMS for tracking movement of boats)
A.4.4.2 Identify and meet staff, infrastructure and equipment needs for effective surveillance and enforcement
A.4.4.3 Strengthen collaboration and where appropriate establish enforcement inter-agency committees to build awareness and capacity in enforcing MCPA rules and regulations, as well as to jointly develop enforcement procedures with clearly defined roles and responsibilities
A.4.4.4 Raise awareness to improve knowledge of environmental legislation and MCPA regulations at local and national levels, and engage resource users in the decision-making process to increase compliance
Regional/International Organizations
A.4.4.5 Strengthen and support regional co-operation, experience and data sharing between Contracting Parties and other key actors (e.g. networks of environmental prosecutors) for effective surveillance and enforcement
A.4.4.6 Provide technical and financial support to Contracting Parties for the effective surveillance and enforcement of MCPA rules and regulations
A.4.4.7 Provide information on new, emerging and cost-effective technologies and their applications for surveillance
Output 4.5: Monitoring of conservation outcomes and evaluation of management effectiveness are strengthened across the MCPA system
Contracting Parties
A.4.5.1 Establish monitoring programmes and define a set of performance measures and thresholds to evaluate conservation outcomes of MCPAs and systems of MPCAs, including levels of conservation of MCPA values, level and intensity of threats, and achievement of management goals and objectives
A.4.5.2 Adopt standards and undertake regular evaluations of MCPA management effectiveness
A.4.5.3 Ensure data collection methods are environmentally friendly, sustainable, feasible in terms of cost and capacities, reliable, and adaptive
A.4.5.4 Build partnerships with academic institutions, NGOs, and citizen science initiatives, to meeting needs for both monitoring and management effectiveness evaluation and seek out opportunities for increasing stakeholder participation in these activities
A.4.5.5 Establish national information systems and databases and ensure data sharing and data viability
A.4.5.6 Identify potential emerging technologies that could be piloted and used to assist MCPAs monitoring
Regional/International Organizations
A.4.5.7 Support MCPA contributions to IMAP within the Barcelona Convention Ecosystem Approach (EcAp) process
A.4.5.8 Identify priority information gaps for the region as a whole and promote them widely across academic institutions
A.4.5.9 Identify regional and harmonized biodiversity, socio-economic and threat indicators for MCPAs and establish a data repository
A.4.5.10 Strengthen and support regional co-operation for monitoring and data sharing between Contracting Parties and other MCPA-related stakeholders and institutions

A.4.5.11 Provide information on emerging technologies and their applications for monitoring to Contracting Parties
A.4.5.12 Provide guidance on, and implement a regional approach for evaluating management effectiveness of MCPAs and OECSMs
A.4.5.13 Facilitate capacity building across Contracting Parties for the implementation of MCPA management effectiveness assessments, including on the socio-economic aspects

II.5. Strategic Pillar 5: Government and Stakeholder Action and Support

Strategic Outcome 5:

Actions and support for MCPAs and OECSMs are mobilized

36. The central aim of this outcome is to initiate change in behaviour across the different sectors, to move away from business-as-usual and to have MCPAs and OECSMs valued as essential elements to achieve national agendas. Output 5.1 therefore aims to increase understanding and appreciation of the values of, and threats to, MCPAs and OECSMs across government and non-government stakeholders, the private sector, the youth and wider society. Key actions under this output will centre around the development of a communication and awareness strategy targeting the different groups through a variety of mechanisms, including workshops, publications and other awareness creating activities. The socio-economic values of MCPAs and the impact of poorly managed MCPAs on these socio-economic values should be a major focus of these activities in addition to their biodiversity values and threats. It is important that harmonization of communication and awareness messages occur across the region, and that positive, non-technical language and wording are used to convey key MCPA-related terms and concepts to local actors and other key stakeholders. In addition to communicating messages and information, encouraging the greater involvement of stakeholders in management activities can also promote more positive attitudes towards MCPAs, which is an important driver for initiating change and enhancing support.
37. A major barrier to achieving the 2020 target for MCPAs has been the lack of political will to establish MCPAs and to support MCPA management. Without political will and support, Contracting Parties will not be able to achieve the new Post-2020 GBF targets for MCPAs and OECSMs. Critical to securing government support will be advancing their recognition of the value and importance of MCPAs and OECSMs in contributing to achieving national and international commitments as well as their contribution to the national economy. There is a need therefore to establishing strong communication channels between MCPA management and governments and to reinforce networking and co-operation between governmental and non-governmental stakeholders at local, national and Mediterranean levels. Further, ensuring governments are familiar with their MCPAs, the biodiversity they protect, their economic importance, and their importance as nature-based solutions for meeting SDGs and national climate change agendas, will be a key focus of actions under this output (output 5.2).
38. Stakeholders often perceive MCPAs to be in direct competition with their own needs. Ensuring that the wider society recognizes the functional and supportive role that MCPAs and OECSMs play in helping to achieve other non-biodiversity conservation agendas, and their socio-economic value, especially through opportunities for sustainable livelihoods, will be critical to mobilizing action and support across the different sectors and wider society (output 5.3). There is a need therefore to strengthen cross-sectoral partnerships and collaboration in order to recognize MCPAs and OECSMs values and their contribution to achieving countries' SDGs and NDCs. Studies and success stories demonstrating the tangible benefits of MCPAs and OECSMs to these sectors need to be shared, and the benefits of MCPAs and OECSMs to livelihoods and ecosystem service protection must be enhanced, understood and valued in the wider society.

Table 6: *Key outputs and proposed actions for outcome 5*

Output 5.1: Awareness, understanding and appreciation of the values of, and threats to, MCPAs and OECMs across government and non-government stakeholders, the private sector, the youth and wider society
Contracting Parties
A.5.1.1 Develop a national communication and awareness strategy tailored to each intended audience on MCPAs/OECMs focusing on the ecological, cultural and socio-economic values of MCPAs and the impact of poorly managed MCPAs/OECMs to these values
A 5.1.2 Establish a national online repository accessible to stakeholders and the general public for accessing information and updates on marine ecosystems and MCPAs/OECMs
A.5.1.3 Seek out opportunities for increasing exposure of MCPAs/OECMs and the marine environment on national media outlets (TV, radio, newspapers, social media)
A.5.1.4 Provide concrete examples of successful MCPAs, in particular no-take zones, providing ecological and socio-economic benefits to local actors and how they contribute to the national economy and GDP, as well as towards other national policies and agendas
A.5.1.5 Promote further research on the financial impacts of unhealthy marine ecosystems on the national economy, socio-economic benefits and other sectors and compare with costs for MCPA and OECM protection
A.5.1.6 Engage in in-country consultations with local and national stakeholders about the environmental and socio-economic effects of MCPAs with enhanced protection levels
Regional/International Organizations
A.5.1.7 Promote a regional approach to communication and environmental education regarding the marine environment and MCPAs/OECMs ensuring harmonization of wording and messages
A.5.1.8 Gather and share success stories of MCPAs providing social, cultural and economic benefits to local stakeholders and the private sector and the negative financial impacts of a degraded marine environment
A.5.1.9 Develop and disseminate regional communication and awareness publication materials for use across Contracting Parties
Output 5.2: Political support for the establishment and management of MCPAs and biodiversity conservation is increased
Contracting Parties
A.5.2.1 Increase awareness and appreciation of the wider reaching values, in particular climate adaptation and socio-economic contribution of MCPAs, across the different ministries
A.5.2.2 Provide concrete examples of the contribution of the countries MCPA network to wider society and the national economy
A.5.2.3 Reinforce knowledge sharing and networking links between government and MCPAs
A.5.2.4 Ensure key decision makers are familiar with national MCPA networks, by supporting familiarization trips and develop opportunities for interactions between government and field actors and recognition of efforts towards MCPAs
A.5.2.5 Establish and encourage Public-Private Partnerships
Regional/International Organizations
A.5.2.6 Facilitate higher level government decision-makers field trips to successful MCPAs across the region, in particular for Contracting Parties with low MCPA representation or where political support is significantly lacking
A.5.2.7 Strengthen information and capacity for benefit assessments of MCPA's ecosystem services
Output 5.3: The contribution of MPCAs and OECMs to sustainable development goals, the blue economy, climate change mitigation and adaptation, and the wider society are recognized and accounted for
Contracting Parties

A.5.3.1 Enhance knowledge of the role of MCPAs and promote the inclusion of MCPA initiatives in NDCs and other climate-related programmes and funding
A.5.3.2 Initiate pilot projects that demonstrate sustainable blue economy growth in line with MCPA/OECM objectives
A.5.3.3 Encourage further studies on the values of MCPAs/OECMs to the sustainable blue economy, local livelihood and climate change mitigation and adaptation and other SDGs, and widely disseminate findings to the wider society using various media
A.5.3.4 Promote the use of MCPAs as sentinel sites for climate change monitoring
Regional/International Organizations
A.5.3.6 Provide cases studies and best practices for scaling up benefits of MCPAs to wider society
A.5.3.7 Enhance collaboration between regional organizations supporting MCPAs and OECMs and other platforms on SDGs, blue economy, and climate change mitigation and adaptation
A.5.3.8 Provide guidance on using MCPAs and OECMs as nature-based solutions to contribute to climate change and SDGs building on success stories, case studies and exchanges, at a regional level

III. Strategy implementation

III.1. Implementation

39. This Post-2020 Strategy should be used as a tool to harmonize efforts to meet 2030 targets for MCPAs and OECMs in the Mediterranean and to promote joint activities by Contracting Parties, SPA/RAC, and other Regional and International Organizations and programmes. As such, the implementation of this strategy should be a co-operative process and its successful implementation will depend on the effective participation and collaboration of local, national, sub-regional, and regional stakeholders, encompassing inter-governmental agencies, local communities, civil society, the private sector, the research/academic community, MPA networks, and relevant Regional and International Organizations.
40. Under the direction of the UNEP/MAP and the supervision of the MAP co-ordinating Unit (MAP CU), SPA/RAC, supported by the AGEM, will undertake a central role in co-ordinating and facilitating the delivery of the strategic outcomes. The main role of SPA/RAC will be to provide technical assistance and support to the Barcelona Convention Contracting Parties, to foster collaboration, strengthen synergies and joint efforts between the different implementing partners, as well as other MAP regional activity centres, to contribute in mobilizing resources for strategy implementation, to support and strengthen existing relevant regional initiatives, and to ensure that awareness of the strategy is raised, and progress towards outcomes are regularly communicated among all key actors engaged with MCPA- and OECM-related activities in the Mediterranean.
41. The overall success of this strategy, however, relies on the political will of Contracting Parties for its implementation. Contracting Parties will be responsible for the delivery of indicative actions at the national and local levels and for creating the enabling conditions for fostering the effective collaboration and active participation of national and local stakeholders, including socio-economic sectors. Key socio-economic sectors and industries include spatial planning, fisheries, tourism, culture, shipping, oil and gas, trade and industry, agriculture, education, research, social affairs, economic, local small, medium and large enterprises and multinationals. Implementation of strategic actions will also require transboundary cooperation between the Contracting Parties.
42. Although shouldering the main responsibilities for strategy implementation, Contracting Parties and SPA/RAC will depend on crucial partnerships and technical, logistical and financial support from National, Regional and International Organizations that are active in marine biodiversity

conservation and MCPAs/OECMs in the Mediterranean. The efforts of these organizations to share best practices, build capacity, co-finance activities and advise on new tools and approaches will be critical. In addition, and although not directly responsible for implementation, the inclusive, equitable and meaningful co-operation, collaboration and participation of local communities, civil society, the general public and other sectors, an overarching principle central to all five strategic pillars, will be essential to successfully achieving the targets of this Post-2020 Strategy.

43. Lastly, in order to recognize and report marine OECMs as a relatively new concept for the region, effective inter-sectoral dialogue and co-operation will be essential to successfully achieve this particular outcome. Therefore, engagement with stakeholders involved in countries' MSP processes, as well as the General Fisheries Commission for the Mediterranean, will be important.

III.2. Financing

44. Mobilizing sufficient and sustainable finances for the establishment and management of MCPAs and OECMs at both national and regional levels is a key output under this strategy. Additional and substantial financing will be required however to implement the national and regional actions identified under this strategy. The development of this strategy provides an opportunity for enhanced regional co-operation, the harmonization of activities and the avoidance of duplication of effort across organizations, thereby increasing overall cost-efficiency through the co-financing and joint implementation of overlapping interests from Regional and International Organizations. The strategy also provides clearly identified actions for implementation, aspects of which can be packaged and presented to potential donors targeting specific and individual mandates by each donor agency. The adoption of this strategy by the Contracting Parties to the Barcelona Convention will further create opportunities for funding by demonstrating Contracting Parties' commitments to the outputs identified, making it more attractive to potential regional and international trust funds and donors such as The MedFund, EU, and the GEF, for example. Countries and MPA actors are encouraged to identify and use innovative, diversified and sustainable financing mechanisms, that suit best their context, at national and local levels.

III.3. Monitoring and Evaluation

45. Adaptive management is an important guiding principle for this strategy. It is essential that as the Post-2020 Global Biodiversity Framework targets evolve, and as knowledge and circumstances change, that the plan is responsive and is adapted accordingly. Conducting periodic reviews that allow for learning and adaption of actions as necessary will be important to ensure 2030 targets for MCPAs and OECMs in the Mediterranean are met. The Directory of Mediterranean Specially Protected Areas (SPAs) could serve as a tool recognized by the countries to report and measure the progress towards the targets of the post-2020 strategy.
46. An external mid-term evaluation of the strategy should be conducted in 2026. The mid-term evaluation should focus on evaluating progress against indicators and on providing recommendations for any necessary changes required to increase the likelihood of achieving the strategy's post-2020 targets. Mid-term review findings and proposed amendments should be presented at the 2027 subsequent COP meeting of the Barcelona Convention, and an effective communication and awareness strategy should be developed to disseminate findings among Contracting Parties and National, Regional and International Organization and stakeholders. A final external evaluation should also be conducted towards the end of the strategy's timeframe, focusing on lessons learnt and any barriers or enabling factors that either prevented or enhanced the achievement of the proposed outcomes. The final evaluation (to be conducted in 2030) and its recommendations should assist with the development, in 2031, of a new strategy for the post-2030 decade (2031-2040) and findings should be presented at the 2031 COP meeting and distributed to the wider stakeholder community.

47. To ensure the necessary time to identify practical indicators, a detailed monitoring framework with indicators and targets will be developed in line with the global biodiversity one, under the guidance of the Contracting Parties and with the support of AGEM, once the strategy is adopted at the next COP meeting. This detailed monitoring framework will be then submitted for adoption at the following COP meeting.

Appendix 1: Linkages with other global, regional and sub-regional strategies

Other strategies	Post-2020 Strategy MCPAs and OECMs
International	
Zero draft Post-2020 Global Biodiversity Framework	Target 1& 2, 7, 10, 11 <i>All outcomes</i>
Sustainable Development Goals	SDG 14.1 <i>outcome 1 & 5</i> ; SDG 14.2 <i>outcome 4</i> ; SDG 14.3 <i>outcome 1 & 5</i> ; SDG 14.4 <i>outcome 2,3 & 4</i> ; SDG 14.5 <i>outcome 2</i> ; SDG 14.7 <i>outcome 4</i> ; SDG 14.c <i>output 2.</i> ; SDG 12.2 <i>all outcomes</i> ; SDG 12.8 <i>output 5.1</i> ; SDG 13.1 <i>outcome 1 & 5</i>
Convention of the Law of the Sea	Output 2.3
Regional	
UNEP/MAP Mid-Term Strategy 2016-2021	SO 3.1 <i>all outcomes</i> ; IKO 1.1.4 <i>output 5.2</i> ; SO 1.6 <i>output 5.1</i> ; SO 2.6 <i>output 1.3</i> ; IKO 3.2.2/3 <i>output 3.1&3.2</i> ; IKO 3.3.2./3 <i>output 4.4</i> ; SO 3.4 <i>output 4.5</i> ; SO 3.5 <i>output 4.3</i> ; SO 3.5 <i>output 4.3</i> ; SO 3.6 <i>outcome 1&5</i> ; SO 3.7 <i>output 2.3</i> ; IKO 5.1.2 <i>outcome 1</i> ; IKO 6.4.1, 7.1.1, 7.1.5 <i>output 5.3</i>
Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region.	<i>All outcomes</i>
Mediterranean Strategy for Sustainable Development 2016-2025.	SD 1.1, 6.1, 6.3 <i>output 1.3</i> ; SD 2.1, 2.3, 5.3-5.3 <i>outcome 5</i> ; SD 4.1 <i>output 5.3</i> ; SD 4.4 <i>output 1.1</i> ; SD 6.2 <i>output 1.2</i> ; SD 6.5 <i>output 4.3</i>
Ecosystem Approach and agreed roadmap for its implementation	EO1 <i>outcome 2,3 & 4</i> ; EO2,4-11 <i>outcome 1&5</i>
Common Regional Framework for Integrated Coastal Zone Management	<i>Outcomes 1 and 5</i>
Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and related Assessment Criteria	<i>Output 1.4</i>
Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas	SD 1.5 <i>output 4.1</i> ; SD 2.2 <i>output 1.3</i> ; SD 4.1 <i>output 5.1</i> ; SD 4.3 <i>outcome 5</i>
Regional Action Plan on Sustainable Consumption and Production (SCP) in the Mediterranean4.	OO 3.1 <i>output 1.3, 5.3</i>
UfM post 2020 Environment Agenda	Thematic axis 3; <i>All outcomes</i>
GFCM strategy towards sustainable fisheries and aquaculture in the Mediterranean and Black Sea	Target 1 and 4; <i>all outcomes</i>
Post-2020 MPA roadmap (jointly led by SPA/RAC, MedPAN and WWF)	<i>Outcomes 1,2,4,5</i>
Sub-regional	

EU Marine Strategy Framework Directive	<i>Outcome 2</i>
EU Biodiversity Strategy for 2030	<i>Obj. 2.1 outcome 2; Obj. 2.2.6/9/10 output 1.3, outcome 5</i>
EUSAIR	<i>S.O. 1.2, 1.3, 3.1, 3.2 All outcomes</i>
Initiative for the sustainable development of the blue economy in the western Mediterranean	<i>Priority 2.4; Goal 3 -All outcomes</i>
The EU Habitats Directive	<i>All outcomes</i>
The EU Birds Directive	<i>All outcomes</i>
EU Green Deal	<i>Preserving and protecting biodiversity policy and actions; All outcomes</i>

Annex II

**Concepts to set up the Specially Protected Areas of Mediterranean Importance Day and the
Specially Protected Areas of Mediterranean Importance Certificate**

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ACRONYMS

COP	Conference of Parties
CSO	Civil society organization
EU	European Union
MAP	Mediterranean Action Plan
MPA	Marine Protected Area
NGO	Non-governmental organization
SPA/BD	Specially Protected Areas and Biological Diversity
SPAMI	Specially Protected Area of Mediterranean Importance
SPA/RAC	Specially Protected Areas Regional Activity Centre
TAC	Technical Advisory Commission
UNEP	United Nations Environment Programme
WWF	World Wide Fund for Nature

Concepts to set up the Specially Protected Areas of Mediterranean Importance Day and the Specially Protected Areas of Mediterranean Importance Certificate

1. Background

1. The Specially Protected Areas Regional Activity Centre (SPA/RAC) is a Component of the United Nations Environment Programme / Mediterranean Action Plan (UNEP/MAP)-Barcelona Convention system. It was established by the Contracting Parties to the Barcelona Convention in order to assist the Mediterranean countries in implementing the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) of the Barcelona Convention. SPA/RAC's main objective is to contribute to the protection, preservation and sustainable management of marine and coastal biological diversity in the Mediterranean and, in particular, the creation and effective management of marine and coastal areas of particular natural and cultural value and the conservation of threatened and endangered species of flora and fauna in the Mediterranean.
2. In order to promote cooperation in the management and conservation of natural areas, as well as in the protection of threatened species and their habitats, the Contracting Parties to the Barcelona Convention have drawn up, in 2001, the "List of Specially Protected Areas of Mediterranean Importance" (SPAMI List). A SPAMI is a coastal, marine and/or high sea area that is of importance for conserving the components of biological diversity in the Mediterranean, contains ecosystems specific to the Mediterranean area or the habitats of endangered species, or is of special interest at the scientific, aesthetic, cultural or educational levels. The sites included in the SPAMI List are intended to have a value of example and model for the protection of the natural heritage of the region. To this end, the Parties must provide each SPAMI area with a legal status guaranteeing its effective long-term protection.
3. After several rounds of SPAMI ordinary periodic reviews (since the biennial period 2008-2009), the various technical advisory commissions (TACs) in charge of the evaluations have recommended to SPA/RAC to further promote networking and exchange among SPAMIs.
4. In this context, SPA/RAC initiated in 2018 the SPAMI Twinning Programme, which aims at developing and strengthening an effective management of SPAMIs, promoting networking and best practices/experience sharing among managers, building capacities, and involving the civil society organizations (CSOs) in marine and coastal protected areas management.
5. In order to facilitate exchanges among SPAMI managers, promote the SPAMI List and enhance its visibility, SPA/RAC has developed a SPAMI Collaborative Platform³⁴, which is a virtual workspace that provides users with resources and tools aiming to facilitate communication and human interactions around SPAMIs and marine and coastal protected areas (MCPAs) in general.
6. After having encouraged further cooperation and collaboration in the management and conservation of SPAMIs among Contracting Parties as well as among individual SPAMIs, COP 21 (Naples, Italy, 2-5 December 2019) requested the UNEP/MAP Secretariat (through SPA/RAC) to draft the concepts in order to set up the SPAMI Day and SPAMI Certificate, and submit them for consideration by the Contracting Parties at their COP 22 (Antalya, Turkey, on 7-10 December 2021) (Decision IG.24/6).

³⁴ <http://spami.medchm.net/en>

2. Methodology

7. The elaboration of the present SPAMI Day and SPAMI Certificate concepts was based on the review and analysis of useful documentation and sources of information related to relevant global and regional environmental initiatives, days and celebrations. This allowed to identify success stories and best practices to inspire and guide the development of these concepts.
8. Furthermore, a rapid overview of the previous SPAMI ordinary periodic review recommendations was made, in order to identify the main gaps hindering a greater SPAMI efficiency and outreach.

3. Objectives

9. The SPAMI Day intends to raise awareness on SPAMIs and marine and coastal protected areas in particular, and on Mediterranean marine and coastal ecosystem conservation and natural resource management, in general.
10. The target audiences are the following:
 - Decision makers relevant to MAP's mandate, such as Contracting Parties officials, and Focal Points;
 - Main actors relevant to MPAs management/development such as MPA/SPAMI managers, national institutions, CSOs, MAP partners, donors and business;
 - General public and influencers, such as journalists, scientific community, academic community.
11. The concepts to set up the SPAMI Day and SPAMI Certificate are tailored to address the challenges related to communication and outreach about SPAMIs at the Mediterranean level and beyond. Hence, the SPAMI Day and SPAMI Certificate aim to achieve the main following objectives:
 - to raise awareness of the general public on issues related to SPAMIs/MPAs;
 - to mobilize political will and resources to address the problems of SPAMI/MPA management and marine ecosystems conservation in the Mediterranean region;
 - to acknowledge and promote the achievements of existent SPAMIs, and value the initiatives of individual managers, rangers, mayors, volunteers, etc.;
 - to celebrate the inclusion of and deliver SPAMI Certificates to areas newly included in the SPAMI List;
 - to communicate on the SPAMI ordinary reviews results and lessons learned on a biennial basis;
 - to focus on cooperation, collaboration, exchange and dialogue, and encourage unity and not disparity or competition;
 - to create a forum/platform for SPAMI managers to meet and build a network, with a view to fostering cooperation among SPAMIs, sharing knowledge, offering twinning opportunities and encouraging the emergence of new projects and ideas with the contribution and collaboration of different stakeholders (e.g. donors, managers, CSOs, NGOs, institutional partners, and the research and conservation communities).

4. Expected outcomes and impacts

12. The SPAMI Day and SPAMI Certificate expected outcomes and impacts include:
 - The SPAMIs and SPAMI Day are promoted, and various target groups participation, including the general public, is enhanced;
 - The role of SPAMIs as examples and models for the protection of the Mediterranean natural heritage is promoted, at local, national and regional levels;
 - Effective conservation of the Mediterranean natural and cultural heritages;

- Collaboration, cooperation, participation, and involvement of local communities is enhanced;
- Political will and resources are mobilized;
- The sustainability of SPAMIs through financing and co-financing opportunities is enhanced, and solid partnerships are implemented at regional and international levels;
- Increase opportunities for inclusion of new areas in SPAMIs List and their sound management.

5. SPAMI Day concepts

5.1. Themes

13. A SPAMI Day theme would be identified for each biennial SPAMI Day event. Preliminary discussions on the SPAMI Day theme could be held with relevant stakeholders such as the UNEP/MAP-Barcelona Convention Secretariat and other Components, SPA/BD Focal Points and SPAMI managers, to brainstorm ideas in this regard while observing the criteria listed below:
 - Effective event theming would be utilized as to attract and inspire participants and the wider public, create pre-event interest, promote social media sharing and heighten engagement.
 - Themes would be simple, clear, appealing and relevant to the stakeholders. Incentives should be built-in the themes such as providing sustainable livelihoods and benefits of biodiversity conservation for all.
 - Themes would be linked to the main features characterizing SPAMIs, such as effective conservation of the Mediterranean natural and cultural heritage, collaboration, cooperation (bilateral and multilateral), participation, involvement of local communities, enforcement, exemplary and adaptive management methods and practices, effective protection measures, monitoring, education, awareness, effective legal framework enforcement, promotion of scientific research, promotion of sustainable development and coastal zone management within and around SPAMIs, etc.
 - Themes would determine the SPAMI Day event's prevalent aims at that period of time, linked to emerging global and/or regional priorities and does not distract from those aims and priorities.
 - Themes would reveal what the "takeaway" from the events would be and what is intended for the participants to remember and act upon after the events are concluded.
 - Themes would be incorporated onto invitations, programmes, brochures and electronic marketing, name tags, signs and event-related gifts or memorabilia.
14. Target groups could be engaged pre-launch, by voting for one of the theme options. Annual themes should be specified in the annual announcements to be made prior to the event, explaining the rationale and links with topical developments.
15. SPAMI Day themes could be derived from the following keywords: SPAMIs, marine protected areas, Mediterranean, importance, natural heritage, sustainability, cooperation, biodiversity conservation, sustainable livelihoods. Examples of themes: "SPAMIs, the Mediterranean model of a sustainable livelihood" or... "Protecting the Med, sustaining livelihoods"

5.2. Date and periodicity

16. The starting point should be a COP of the Barcelona Convention, that may decide to include a number of marine and coastal protected areas in the SPAMI List. Usually, COPs take place at the end of an odd-numbered year (e. g. December 2021). Sometimes, it could be held at the beginning of the following year (e.g. February 2022).

17. The first SPAMI Day celebration following a COP should have the format of a regional face-to-face event (ideally in a SPAMI or a new SPAMI venue), where the SPA/RAC Director and MAP Coordinator could deliver the SPAMI Certificates to the newly declared SPAMIs.
18. This regional event could take place in Spring, few months after the COP (e. g. April 2022). It is proposed to be the **second week of April**; and even a specific date could be chosen (e. g. **15 April 2022** - an international celebration-free day).
19. The following SPAMI Day celebration, during the same biennium, should be a general public celebration at the level of each SPAMI (or those who wish to celebrate), with the support of SPA/RAC (e.g. 15 April 2023).
20. An indicative timeline for the preparation and organization of the first and second SPAMI Day editions (2022 and 2023) is presented in **Appendix 1**.

5.3. Slogans

21. SPAMIs are models for the other Mediterranean marine and coastal protected areas that provide a wide variety of benefits ranging from the conservation of whole areas that are home to important diversity of species, serving as nursery grounds for fisheries and enhancing fish stocks, protecting habitats that buffer the impacts of storms and waves, and removing excess nutrients and pollutants from the water. They also provide more sustainable tourism and economic benefits, as well as enhance other non-use values such as cultural and heritage values.
22. Slogans would be articulated to get the above messages across and expressing SPAMIs issues and the purposes behind these messages in a manner that captures the imagination.
23. Slogans would be linked to the themes of SPAMI Day editions, they would be short, so that they could be used on the different communication material. Hashtag as well as conventional slogans could be used. Following are a few relevant examples of Hashtags:
 - #MedNatureDay
 - #ProtectMedDay
 - #ThinkBlueGoGreen
 - #SPAMIsSupportSocieties
 - #ManySpecies1Planet1future
 - #SPAMILovers
 - #ProtectMED
 And slogans:
 - Conservation works. Give the Mediterranean a chance
 - Let the Mediterranean heal itself
 - Time to make peace with nature in the Mediterranean
 - SPAMIs, the Mediterranean model of sustainability
 - The sea deserves our respect and care, polluting it is not at all fair
 - Turn the tide on sea level rise.
24. As for the themes, target groups could be engaged pre-launch, by voting for one of the slogan and hashtag options.

5.4. Logos

25. The SPAMI and SPAMI Day logo (a derivation of the latter) should be relevant and convey a key message such as supporting livelihoods, sustainable use of resources or an iconic species.

26. The logos should be attractive, balanced, easily recognizable, simple and follow the SPA/RAC branding, graphic charter colors and graphic lines. The logos should be versatile and well suited for a variety of applications such as letterheads, certificates, promotional materials, etc. Here below is an example of SPAMI and the derived SPAMI Day logos.



Above is an example of a SPAMI logo.



An example of the SPAMI Day logo is a deviation from the above logo (by adding the word Day).

5.5. Online dissemination, delivery and media resources

27. The SPAMI Day would be an occasion to raise awareness of the public on issues of concern, to mobilize political will and resources to address problems, and to celebrate and reinforce achievements. The proposed resources would be designed around the theme; address the gaps, key issues and desired outcomes; and will be performed in an artistic and informative manner using visually appealing material that would inspire and engage.
28. A wide variety of methods and techniques are available for delivering these resources and would be put to use in highlighting the gaps, messages, opportunities and relevant issues and promoting the SPAMI Day.
29. Furthermore, there should be the development of a SPAMI Day toolkit that provides resources to all those who wish to take part in the celebration, including by organizing their own micro-events in locations other than the venue where the main SPAMI Day event would be taking place (e.g. schools, universities, MPAs, etc.).

The following outlines the main dissemination mechanisms and resources to be utilized:

5.5.1. SPAMI Day website and resources

30. The world-wide web, social media and information technologies offer the most efficient means of communicating with a wide and ever-increasing range and number of target audiences. For a Mediterranean-wide impact, the implementation of the campaign and the production of materials in all Mediterranean languages is recommended. Following is a *prioritized* list of the resources that may be available on the SPAMI Day website (part of the SPAMI Collaborative Platform), many of which will be shared on other platforms:

5.5.1.1. Stylized map/guide of SPAMIs

31. This double-sided poster would include a stylized map of SPAMIs on one side; the map would be inlaid with artwork highlighting iconic marine species, seabirds, authentic people portraits and cultural landmarks. The other side would feature a photo and caption for each of the SPAMIs plus informative text.
32. Downloadable size of this map/guide of SPAMIs would be A0 (841 x 1189 mm) which could be folded to form a travel guide. (example at **Appendix 2**)

33. The map/guide could also be declined in other formats for use in digital communication channels (social media, website, etc.).

5.5.1.2. *Interactive SPAMI discovery link*

34. This is a progressive link which uses Google Technologies and takes the visitor to a ‘Virtual tour across SPAMIs’. This interactive and engaging feature will take the viewer on a tour of discovery showing photos, animations and a caption for each SPAMI. A beta version of this powerful resource with about 30 of the current 39 SPAMIs has been performed for demonstration purposes ([click here to view](#)).

5.5.1.3. *Royalty free artwork*

35. SPAMI Day and sponsors logos would be used by designers, SPAMI management, catalysts and other involved parties for a variety of applications such as inserting them on SPAMI Day posters and banners, artwork, press backdrop panels, drawing and other award certificates, promotional materials, letterheads, etc. Relevant advice and references could be included in the communication toolkit provided to the event organizers.
36. Graphic clipart such as endangered and iconic species silhouettes could be used by designers for creating artwork. Using a template of silhouettes would provide them with a tool for creativity and provide for a recognizable art expression for the SPAMI Day.



5.5.1.4. *Posters and banners*

37. The main poster/banner will be available in high resolution; Key ideas will include:

A. *SPAMI Day theme poster* (example at **Appendix 3**)

38. This poster will highlight the SPAMI Day theme in the context of marine diversity and cultural values around SPAMIs. Downloadable size posters of A0 (841 x 1189 mm) and A1 (594 x 841 mm) could be designed.

B. *Large Seamless panorama of SPAMIs* (example at **Appendix 4**)

39. This large attention-grabbing poster/banner/exhibit will highlight main marine and coastal habitats throughout SPAMIs (or a specific SPAMI), iconic species, submersed archaeology, cultural landmarks and sustainable human activities such as artisanal fishing, responsible diving, sailing and whale watching.
40. The resolution and details would allow this banner to be printed at sizes ranging from 1 m x 10 m and up to 3 m x 30 m. It is designed to be printed on outdoor vinyl material and laid flat on the ground in order to eliminate the need for an exhibit space and erection costs while remain clearly visible to visitors. It is easily rolled and stored for later use.
41. A smaller version for standard size posters of A0 (841 x 1189 mm) and A1 (594 x 841 mm) would be available for download.

5.5.1.5. Royalty free photos

42. Royalty free photos (licenced under Creative Commons) are an excellent resource to open the field of creation to others and to enable regulated sharing, grab attention and spread awareness. These would include:

- SPAMIs seascapes
- SPAMIs exquisite coast lines
- Marine and terrestrial flora and fauna within SPAMIs
- Endangered species
- Iconic species
- Local people in authentic attire and cultural landscapes around SPAMIs.

5.5.1.6. Flyers and factsheets

43. Flyers are important in marketing. While we might live in an age of high-tech advertising, the humble flyer is still a priceless promotion tool. Flyers are an effective way to get our messages across, are extremely cost effective and have a high impact.

44. Flyers would focus on the following subjects:

- SPAMI Day announcements
- SPAMI Day events
- Messages
- Slogans with high impact photos
- Introducing webinars and other activities.

45. Factsheets provide readers from our target audience with compelling information in a clear and concise format. It is inexpensively presented on a piece of paper or digitally, and informs people about relevant topics such as:

- Endangered species
- Iconic species
- Cultural values in SPAMIs
- Burning issues
- Threats to marine conservation and livelihoods
- What you can do to help
- Good practices and interesting stories from SPAMIs
- New trends in marine conservation.

5.5.1.7. PowerPoint presentation

46. Presentations will be tailored in relation to a current SPAMI Day theme to highlight subjects such as:

- Promotion of networking among SPAMIs
- Communication skills with decision makers and key stakeholders
- Adaptive management plans
- Sustainable financing of SPAMIs
- Knowledge on values and benefits of SPAMIs/livelihoods
- Law enforcement
- Governance and institutions.

5.5.1.8. Stories and news

47. Storytelling can be an effective communication tool. This should be aligned with the messages that are yet to be crafted. Inspiring stories related to conservation such as success stories, cultures from around the Mediterranean, whales back from the brink and best practices in SPAMIs. SPAMI ordinary review results and lessons learned could also inspire and feed news about SPAMIs.

5.5.1.9. Promotional and outreach materials artwork

48. Artwork designed for promotional materials and goodies such as caps, bags, T-shirts and other everyday articles would be effective for conveying messages. These should be crafted if needed and considering the Barcelona Convention's zero-plastic policy and avoidance of all forms of waste.

5.5.1.10. Links to international days

49. Links to relevant social media platforms (following subject) and international days such as the International Day for Biological Diversity, World Environment Day, will be posted:

- UN World Oceans Day website
- Intergovernmental Oceanographic Commission (UNESCO)
- UN Environment-Oceans
- UN Decade of Ocean Science for Sustainable Development 2021-2030
- 2020 UN Ocean Conference
- SDG 14: Life underwater.

5.5.1.11. SPAMIs video

50. In addition to the existing ("[SPAMIs : Protecting the Mediterranean natural heritage](#)"), new 3 to 5-minute videos, with actual onsite footage would capture the awesome scenery around SPAMIs, the diverse cultures around the Mediterranean and stimulate the public and inspire them to value and engage in SPAMIs and the marine environment conservation.

51. Possibly, another long version, performed simultaneously, could be around 50 minutes. This is an ambitious project that would require an enticing story and actual onsite footage.

5.5.2. Social media

52. Our primary goal for the social media plan is to widely share the messages listed earlier, raise public awareness about relevant issues and promote the SPAMI Day at least 6 months in advance. Social media platforms will link to SPAMI's website. Twitter, Facebook and Instagram would be performed to promote the SPAMI Day and resources. The SPAMI Day communication toolkit should include assets for sharing on social media, such as digital cards with facts and figures, visuals and quote cards.

5.5.2.1. Twitter

53. What began on Twitter has now spread to Facebook, Instagram, Google search, and almost everywhere in between. Hashtags are an effective way to encourage engagement and get discovered.

54. A new event hashtag (e.g. #ProtectMedDay or #SPAMIDay) is proposed, while the following hashtags can be used whenever possible to connect to other ongoing conversations on Twitter. This also helps to spread the word to new potential users:

- #SPAMIs
- #MPAs

- #BlueParks
- #marineparks
- #ocean
- #marine
- #MPAsWork
- #MedMPAs
- #mybluemed (used by WWF in Med/Euro region)
- #Mediterranean
- #SPARAC

5.5.2.2. Facebook

55. To optimize for the SPAMI Day event attendance and engagement the following should be created:

- Create the SPAMIs Day event page on Facebook
- Invite friends and colleagues before promoting it outright
- Post teasers with necessary details and a sneak peek
- Post updates regularly
- Use event hashtag and as most relevant from above twitter hashtags in posts.

56. SPA/RAC Facebook page would be optimized and aesthetics upgraded. More content of interest to engage enthusiasts, catalysts and other stakeholders needs to be included. Another Facebook group should be established in order to spread awareness and cater to these groups.

5.5.2.3. Instagram

57. Instagram is an entirely visual platform. Unlike Facebook, which relies on both text and pictures, or Twitter, which relies on text alone, Instagram's sole purpose is to enable users to share images or videos with their audience. The following could be performed:

- Share eye-catching imagery with message highlights.
- Make Instagram stories.
- Interview attendees on Instagram Stories.
- Use event hashtag and as most relevant from above twitter hashtags in posts.

5.5.2.4. YouTube

58. SPA/RAC YouTube channel would be optimized in order to seek more views and better rankings. More videos of interest could be added including content exhibiting SPAMIs and their cultural and natural landscapes.

5.6. SPAMI Day activities

59. SPAMI Day activities will take place on the date of the event. These would take place on site and/or online depending on restrictions at the time such as budgets and other conditions, such as the current COVID-19 pandemic restrictions.

SPAMI Day activities which will take place on the date of the event are to be divided as follows:

5.6.1. SPAMIs Day onsite main event at the regional level

60. The SPAMI Day onsite main event would be supported by SPA/RAC main sponsors and held in rotation within a SPAMI venue, considering criteria such as available infrastructure to support the event. In the event, a new SPAMI has been declared, the SPAMI Day could be celebrated at that SPAMI. This event will include the following:

5.6.1.1. The large exhibit poster

61. Noted at 5.5.1.3 B above, will be printed and exhibited plus resources available to the local level below will also be utilized.

5.6.1.2. Regional actors

62. Including stakeholders, the press, decision makers and relevant parties will also be invited.

5.6.1.3. Resources

63. Described for the local level below will also be applied as relevant.

5.6.2. SPAMI Day onsite event at the local level

64. The SPAMI Day would be celebrated at the local level utilizing available means and website resources according to available budgets.

5.6.2.1. A Facebook event

65. Would be created at least one month in advance and promoted across relevant online social media and online resources.

5.6.2.2. The venue

66. The venue would be a local meeting spot accessible to the public and stakeholders such as a local library grounds, a SPAMI, an MPA, a park or within an aquarium's grounds. The SPAMI Day may could be also celebrated in other locations, including schools, universities, etc.

5.6.2.3. Open Day

67. At MPAs and SPAMIs would welcome visitors at no charge. A community walk, bike or run on the coast would entice visitors to learn about the key messages and be enlightened and excited about the different ways everyone can enjoy and help conserve these protected areas.

5.6.2.4. A clean-up and zero-waste day

68. Could be held on the coasts to learn about the SPAMIs and raise awareness of the mismanaged waste crisis by mobilizing the public to participate in clean-up and zero-waste actions. A biodiversity watch/talk on key species in the area could also be organized.

5.6.2.5. Promotional and outreach materials

69. Described at 5.5.1.9 above could be utilized and would be an effective for conveying messages.

5.6.2.6. Exhibition

70. Using the SPAMI Day website and other available local resources would be utilized.

5.6.2.7. Awards

71. Awards are an easy way to engage and generate likes and convert participants into catalysts. It's also a great way to uncover some user-generated content. The works would be derived from the theme and messages; it would be posted on Facebook and is one of the best ways to achieve our social media goals. Awards could be monetary, visit to a SPAMI or items from our promotional materials such as caps and T-shirts plus recognition on the SPAMI Day website under the past events link and social media. Awards would be given to:

- School children drawings competition
- Mobile photo competition
- Award of excellence for initiatives of individual managers, rangers, mayors, volunteers, etc.

5.6.2.8. Webinar

72. Addressing gaps, challenges, generating outputs and proposing solutions

5.6.2.9. Press kit

73. Properly crafted and appropriately distributed in a credible and pointed manner would reach key audiences with targeted messages that matter to them.

5.6.2.10. Speakers

74. Speakers representing stakeholders would present issues related to achievements of SPAMIs, challenges, sustainable development issues, sustainable financing, blue economy and investment in SPAMIs.

5.7. Monitoring and feedback

75. The SPAMI Day performance would have to be refined and updated through public and stakeholder engagement, continued review, monitoring and evaluation. Measuring the success after each event would allow us to set attainable goals and make more accurate estimations for future events, their planning and improvement.

76. These concepts successful implementation depends largely on its evolution through a long term and sustained effort. In this sense it is the beginning of a long-term process, which will be continually assessed, refined and implemented.

77. The following mechanisms will be used to monitor, evaluate and adapt the process; tracking progress event-to-event will aid in setting future goals:

5.7.1. Ongoing SPA/RAC internal review and monitoring

78. Internal review by SPA/RAC is key to monitor and analyze the various indicators listed below, adherence to budgets and also built-up experience to better manage future events. Information collected could also be discussed at the SPA/BD Focal Points meetings for feedback and recommendations.

5.7.2. Stakeholder consultation and review

79. Consultation with stakeholders, continued engagement, enhancement and integration of stakeholders' input and feedback is a cornerstone of a sustainable event. An after-event questionnaire could be prepared and circulated to stakeholders for their evaluation of a completed event and

recommendations on future ones. Face to face meetings or phone calls with key stakeholders could be of utmost benefit.

5.7.2.1. Social media and online activity

80. Will be carried on in the days leading up to the event. This will get attendees excited and talking about it on their own social network channels. Social media activity after the event will continue to be closely monitored.

81. Hashtags will be utilized to monitor social media mentions. A quantitative way to measure using social media would be to use audience growth, shares, mentions, likes and views. Various online visitation statistics specially those of the SPAMI Day website will also be monitored.

5.7.2.2. Attendance

82. Would be a measured as an important indicator of success of the event.

5.7.2.3. Post-event surveys

83. Will be evaluated through a post-event survey. This will give a general idea of the attendees' perception. This helps in identifying weak points that could be improved upon.

5.7.2.4. Sponsor recognition

84. Is vital as they are the backbone of the event because they are the ones funding it. Were they pleased with how the event went? Did they feel the event met their expectations? How can future events be improved? To get feedback on this questions, online communication or a sit-down meeting with sponsor representatives will be held to gauge the sponsors' impression.

5.7.2.5. Media coverage

85. Publicity generated before and after the SPAMI Day event. Media coverage is an important indicator of the success of the event and can increase attendance for future events.

5.8. Stakeholders and partnerships

86. Partnerships and stakeholders' involvement are critical for making the SPAMI Day events a success. The following major stakeholder groups have been identified:

- Organiser(s) and host organisation
- Host community, including local authorities, businesses, tourism players
- Sponsors
- Media
- Participants and spectators.

87. SPA/RAC will seek ad hoc partnerships based on the SPAMI Day theme, venue, context, budget, etc. SPAMI Managers and national MPA managing authorities (including SPA/BD Focal Points) will be key actors. They could be part of the organizers and host organizations.

88. Partnerships may involve local and national NGOs and CSOs, relevant regional and international partner organizations working on marine protected areas conservation, including SPAMIs, and other MAP Components.

5.9. Financing

89. The SPAMI Day celebrations financing will rely on external funds (external donor-funded projects, other ad hoc mobilized funds, sponsors, local partnerships, etc.).

6. SPAMI Certificate

90. SPAMI Certificates would be given to SPAMIs newly included in the SPAMI List, except for the first ceremony of certificate distribution which will involve all the SPAMIs included in the list since its establishment in 2001. Like most certificates, included fields should be few and relevant. The certificate could also include one outstanding biodiversity feature that makes the SPAMI so special i.e. corals, Posidonia etc. Following is a template which would be applicable:



Mediterranean
Action Plan
Barcelona
Convention



SPECIALLY PROTECTED AREA OF MEDITERRANEAN IMPORTANCE

By decision of the Barcelona Convention Conference of the Parties

Xyyyyyyy Marine Protected Area

has been included in the Specialty Protected Areas of Marine Importance

Athens, Greece
20 December 2023

Valid for six years from the date of issue

Mr. Gaetano Leone

UNEP/MAP coordinator

Mr. Khalil Attia

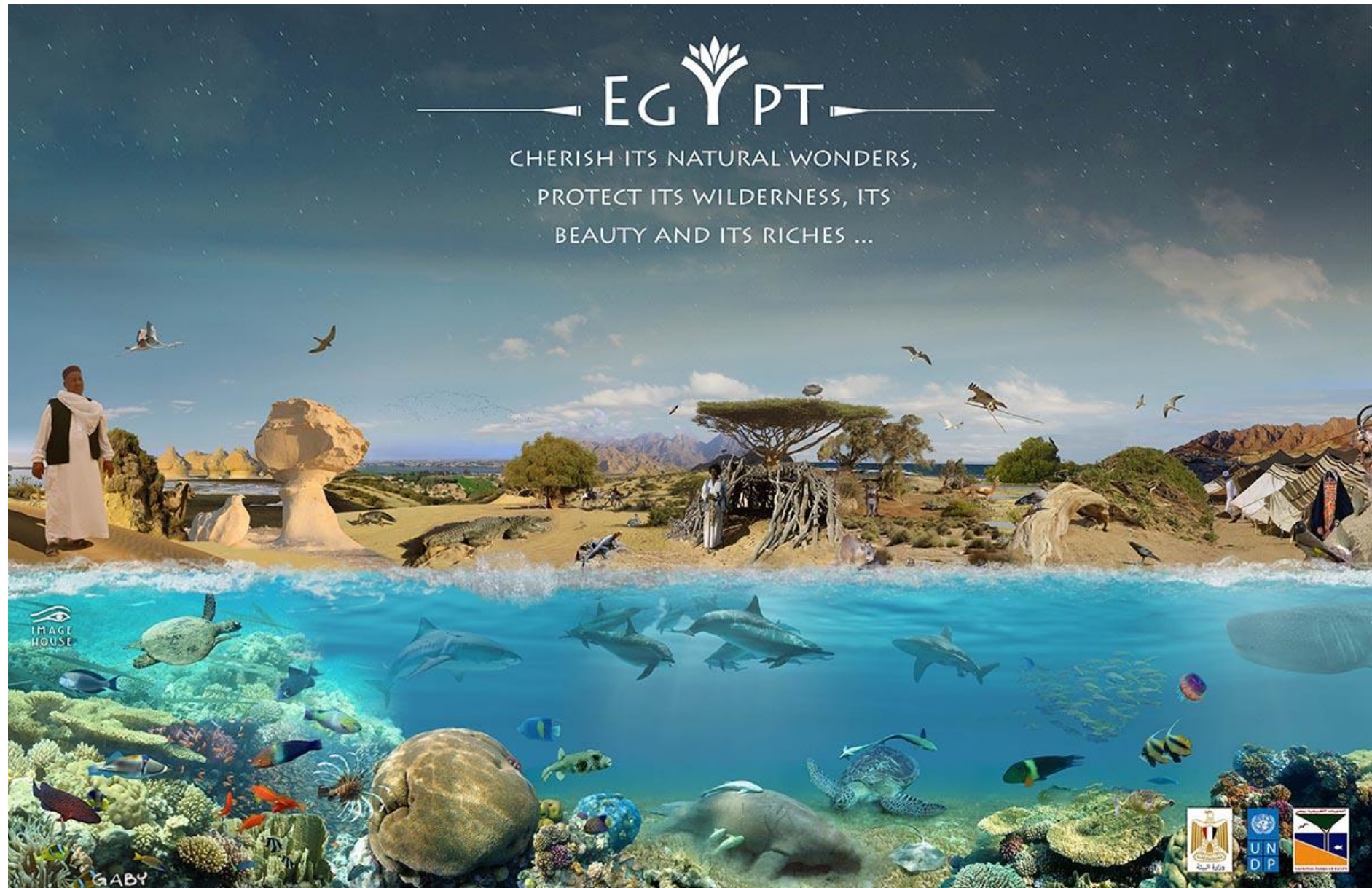
SPA/RAC Director

APPENDIX 2: STYLIZED MAP/GUIDE OF SPAMIs EXAMPLE



Folded map/guide fits in pocket

APPENDIX 3: SPAMI DAY THEME POSTER EXAMPLE



APPENDIX 4: LARGE SEAMLESS PANORAMA OF SPAMIs EXAMPLE



Annex III

Criteria for inclusion of Specially Protected Areas in the Directory of Mediterranean Specially Protected Areas

Criteria for inclusion of Specially Protected Areas (SPAs) in the Directory of Mediterranean SPAs

I. Introduction

1. Decision IG.24/6³⁵ “Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance”, adopted by the 21st ordinary meeting of the Contracting Parties to the Barcelona Convention and its Protocols (COP 21; Naples, Italy, 2-5 December 2019), requested the Secretariat to establish a Directory of Mediterranean Specially Protected Areas (SPAs), and the Specially Protected Areas Regional Activity Centre (SPA/RAC) to elaborate criteria for inclusion of SPAs in the directory, for consideration by the Contracting Parties at their 22nd meeting (COP 22; Antalya, Turkey, 7-10 December 2021).
2. Decision IG.24/6 further decided to set up the Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM) to support the Secretariat and the Contracting Parties to progress with the 2020 and post-2020 marine protected areas agenda in the Mediterranean and to work on related issues such as preparing guidelines, setting up definitions and measurable indicators, and tailoring global concepts and approaches to the Mediterranean context.
3. The Criteria for inclusion of Specially Protected Areas (SPAs) in the Directory of Mediterranean SPAs were prepared by SPA/RAC with the full expertise and support of AGEM.

II. Elaboration of the Criteria for inclusion of SPAs in the Directory of Mediterranean SPAs

4. In view of the development of the Criteria for inclusion of SPAs in the Directory of Mediterranean SPAs, the following elements are considered:
 - Difference between Specially Protected Areas (SPAs) and Marine and Coastal Protected Areas (MCPAs), and if SPAs should be a special category of MCPAs similar to the Specially Protected Areas of Mediterranean Importance (SPAMIs);
 - Definition of a SPA;
 - Purpose of the Directory of Mediterranean SPAs;
 - Criteria for inclusion of SPAs in the Directory of Mediterranean SPAs (and format of the proposal);
 - Format/data to be contained in the Directory of Mediterranean SPAs;
 - Maintenance and update of the Directory of Mediterranean SPAs.

II.1. Difference between Specially Protected Areas (SPAs) and Marine and Coastal Protected Areas (MCPAs)

5. Specially Protected Areas (SPAs) don't have special criteria different from Marine and Coastal Protected Areas (MCPAs). They are the same as MCPAs, but they are meant to be “officially established and fully managed” MCPAs (as opposed to paper parks).

³⁵ Decision IG.24/6 “Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance”: http://www.rac-spa.org/sites/default/files/doc_cop/cop21/decision_24_6_eng.pdf

II.2. Definition of a SPA

6. Given that there is no definition of “SPA” under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean³⁶ (SPA/BD Protocol), it would be useful to have such definition, particularly to avoid confusions that may arise.

7. Based on an examination of the various relevant articles of the SPA/BD Protocol, this definition should include the following points:

- A geographically defined marine or terrestrial coastal area (Article 2, para. 1, of the SPA/BD Protocol);
- Established by legal enactment;
- Devoted to protection (should be amongst its objectives); and
- Includes measures in the legal enactment-indications about key elements for management.

8. A SPA definition includes: **“a geographically defined marine or coastal area that is designated by legal enactment and managed to achieve specific protection objectives (as listed in Article 4 of the SPA/BD Protocol) through appropriate protection measures”**.

9. It is particularly important that SPAs have clear protection objectives that aim to reach a specific conservation goal. It is not enough that the SPA is legally established. The SPA/BD Protocol is clear that the SPA needs to have some binding management measures in it, and in particular a management plan. In addition, it would be useful to account for the effectiveness of the protection measures in the data to be requested in the Directory of Mediterranean SPAs.

10. It may be useful to have guidance on which MCPA categories could be considered as SPAs and included in the Directory of Mediterranean SPAs.

II.3. Purpose of the Directory of Mediterranean SPAs

11. The main purpose of the Directory of Mediterranean SPAs is to facilitate and standardize reporting on progress toward the implementation of the Barcelona Convention and its SPA/BD Protocol.

12. The current reporting format for the implementation of the Barcelona Convention and its Protocols has a section on SPAs. The information requested in this reporting format is limited. Improving this format of standard reporting on SPAs would be needed, taking into account the criteria for the areas that should be considered as SPAs.

13. The Directory of Mediterranean SPAs could also serve as a tool recognized by the country to report on international and regional MCPA targets (the Post-2020 Regional Strategy for MCPAs and OECMs in the Mediterranean) and improve level of transparency in reporting, and measure progress towards these targets. It therefore should accommodate reporting needs for various commitments on marine protected areas (MPAs) to CBD, EU directives as appropriate, etc., and also enable reporting on other effective area-based conservation measures (OECMs).

14. The Directory of Mediterranean SPAs could also provide other objectives and services including:

- enable reporting effectiveness of the protection measures. This could ultimately enable enhance management effectiveness of these protected areas;
- facilitate the creation of networks at Mediterranean level amongst MCPAs in different countries sharing similar objectives;
- enable analysis of Mediterranean OECMs.

³⁶ http://rac-spa.org/sites/default/files/spamis_temp/spa_bd_protocol_annexes1_to_3_v_2019_eng.pdf

15. Ideally a SPAMI should be first listed as SPA and meet all the SPA criteria before being evaluated as SPAMI. Every SPAMI should be a SPA, but not all SPAs are expected to become SPAMIs.

II.4. Criteria for inclusion of SPAs in the Directory of Mediterranean SPAs (and format of the proposal)

16. In line with Articles 4, 6, 7, 16, 19, 23 and 26 of the SPA/BD Protocol the following criteria for inclusion of an area in the Directory of Mediterranean SPAs are recommended:

- (a) The SPA must be declared (established) through a legal enactment that clearly states its protection objective(s) and its boundaries. The text of the legal enactment must be provided and included in the Directory of Mediterranean SPAs.
- (b) The legal enactment of the SPA must include at least one of the following conservation objectives, as listed in Article 4 of the SPA/BD Protocol:
 - (i) to safeguard representative types of coastal and marine ecosystems of adequate size to ensure their long-term viability and to maintain their biological diversity;
 - (ii) to safeguard habitats which are in danger of disappearing in their natural area of distribution in the Mediterranean or which have a reduced natural area of distribution as a consequence of their regression or on account of their intrinsically restricted area;
 - (iii) to safeguard habitats critical to the survival, reproduction and recovery of endangered, threatened or endemic species of flora or fauna;
 - (iv) to safeguard sites of particular importance because of their scientific, aesthetic, cultural or educational interest.
- (c) To achieve the area's conservation objectives, the legal framework of the SPA must define relevant protection measures as per Article 6 of the SPA/BD Protocol. In particular, the protection measures should include:
 - (i) the regulation or prohibition of fishing, hunting, taking of animals and harvesting of plants or their destruction, as well as trade in animals, parts of animals, plants, parts of plants, which originate in specially protected areas;
 - (ii) the regulation and if necessary the prohibition of any other activity or act likely to harm or disturb the species or that might endanger the state of conservation of the ecosystems or species or might impair the natural or cultural characteristics of the specially protected area.
- (d) As relevant³⁷, the legal framework of the SPA should also include the following protection measures (protection measures also listed in Article 6 of the SPA/BD Protocol):
 - (i) the regulation of the introduction of any species not indigenous to the specially protected area in question, or of genetically modified species, as well as the introduction or reintroduction of species which are or have been present in the specially protected area;
 - (ii) the prohibition of the dumping or discharge of wastes and other substances likely directly or indirectly to impair the integrity of the specially protected area;
 - (iii) the regulation of the passage of ships and any stopping or anchoring;
 - (iv) the regulation or prohibition of any activity involving the exploration or modification of the soil or the exploitation of the subsoil of the land part, the seabed or its subsoil;
 - (v) the regulation of any scientific research activity;
 - (vi) the strengthening of the application of the other Protocols to the Convention and of other relevant treaties to which they are Parties;

³⁷ The term "as relevant" means that a SPA does not necessarily need to have in place all of the listed protection measures, but only those that are required, taking into account its own characteristics and conservation objective.

- (vii) any other measure aimed at safeguarding ecological and biological processes and the landscape.
- (e) To be included in the Directory of Mediterranean SPAs, a SPA must³⁸ have planning, management, surveillance and monitoring measures. As per Article 7 of the SPA/BD Protocol, they should include:
- (i) the development and adoption of a management plan that specifies the legal and institutional framework and the management and protection measures applicable;
 - (ii) the continuous monitoring of ecological processes, habitats, population dynamics, landscapes, as well as the impact of human activities;
 - (iii) the active involvement of local communities and populations, as appropriate, in the management of the specially protected area, including assistance to local inhabitants who might be affected by its establishment;
 - (iv) the adoption of mechanisms for financing the promotion and management of the specially protected area, as well as the development of activities which ensure that management is compatible with its objectives;
 - (v) the regulation of activities compatible with the objectives for which the specially protected area was established and the terms of the related permits;
 - (vi) the training of managers and qualified technical personnel, as well as the development of an appropriate infrastructure.

II.5. Format/data to be contained in the Directory of Mediterranean SPAs

17. The Directory of Mediterranean SPAs should be constructed as a multifunctional tool that would accommodate the different demands in terms of reporting, as discussed under section II.3. above.

18. The reporting of the Contracting Parties to the Directory of Mediterranean SPAs should build upon the current reporting requirement under the Barcelona Convention and its Protocols. Taking into consideration the purpose of the Directory of Mediterranean SPAs and SPA criteria, the current reporting requirement should be amended to include the additional information contained in **Appendix 1** (bold underlined text).

19. It is necessary for the SPA to have a management plan that is adopted as per Article 7 of the SPA/BD Protocol (see section II.4. (e) (i) above). The reporting format should therefore be amended to delete the sub-columns “No” and “Under Development” with reference to the management plan (see Appendix 1, stricken-through text).

II.6. Maintenance and update of the Directory of Mediterranean SPAs

20. The Directory of Mediterranean SPAs should be updated every two years, as part of the regular reporting under the Barcelona Convention and its Protocols reporting system.

21. It is important that an analysis of all submitted reports is provided by SPA/RAC at every meeting of the SPA/BD Focal Points.

³⁸ Article 7, para. 1, of the SPA/BD Protocol states that Parties “shall” adopt planning, management, supervision and monitoring measures. The verb “shall” is understood as “have an obligation to” and, therefore, the term “must” is used here to convey the mandatory nature of these requirements.

Appendix 1

Additional information on Specially Protected Areas (SPAs) to be added to the reporting format for the implementation of the Barcelona Convention and its Protocols, for purposes of inclusion in the Directory of Mediterranean SPAs

Note: The additional information is underlined and in bold.
The amendment of the reporting format should also delete the stricken-though text.

Table III. List of SPAs within the SPA/BD Protocol's geographical coverage

No	Name of the SPA	Date of establishment	<u>Legal enactment (copy of the text should be attached)</u>	Category	Jurisdiction	Coordinates <u>Polygons</u>	Surface (marine, terrestrial, wetland) <u>(total and if it's the case distinguish into marine, coastal, wetland)</u>	Main ecosystems, species and their habitats <u>(incl. species listed under Annexes II and III)</u>	Management plan			<u>Protection objectives (drop down menu from objectives in Article 4)</u>	<u>Protection measures (drop down menu from list in Article 6) Other measures?</u>	<u>Are the measures legally binding (e.g. included in an applicable regulation)?</u> <u>If yes, provide reference to relevant regulation</u>	<u>Existence of No-Take Zone³⁹ (Yes/No)</u> <u>If yes, provide total extent of the No-Take Zone as officially declared (in km²)</u>	
									Date of adoption <u>(link or attachment provided)</u>	NO	Under development					
N																
N+1																
...																

³⁹ No-Take Zones are geographically defined zones within marine protected areas that do not allow any fishing, mining, drilling, or other extractive activities.

Draft Decision IG.25/13

Action Plans for the conservation of species and habitats under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at its 22nd meeting,

Recalling General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res.10 of 15 March 2019, entitled “Innovation on biodiversity and land degradation”,

Having regard to the Barcelona Convention, in particular Article 10 thereof, whereby Contracting Parties shall, individually or jointly, take all appropriate measures to protect and preserve biological diversity, rare or fragile ecosystems, as well as species of wild fauna and flora which are rare, depleted, threatened or endangered and their habitats, in the Mediterranean Sea Area,

Having also regard to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, hereinafter referred to as “the SPA/BD Protocol”, in particular Articles 11 and 12 thereof, addressing national and cooperative measures for the protection and conservation of species,

Recalling Decision IG.22/7, on the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016),

Recalling also Decision IG.24/07, on Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAPBIO, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019),

Taking into account the results of the assessment of the status of implementation of the Regional Action Plan for the conservation of cetaceans in the Mediterranean Sea and the Dark Habitats Action Plan, as well as the first elements for elaborating the list of Reference of Pelagic Habitat Types in the Mediterranean Sea,

Committed to further streamlining the Mediterranean Action Plan Ecological Objectives and associated Good Environmental Status and Targets, as well as the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria into the Regional Action Plans for the conservation of endangered and threatened species and key habitats adopted within the framework of the SPA/BD Protocol,

Recalling the mandate of the Regional Activity Centre for Specially Protected Areas (SPA/RAC), as laid down in Decision IG. 19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Having considered the report of the 15th Meeting of Specially Protected Areas and Biological Diversity Focal Points (Videoconference, 23-25 June 2021),

1. *Adopt* the Action Plan for the conservation of cetaceans in the Mediterranean Sea and the Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea (Dark

Habitats Action Plan), as updated and set out in Annexes I, and II to this Decision (updated sections in grey);

2. *Urge* the Contracting Parties to take the necessary measures for the effective implementation of the Action Plans and to report on their implementation, using the online Barcelona Convention Reporting System;

3. *Request* the Secretariat (SPA/RAC), in coordination with other relevant regional and international organizations, where appropriate, to continue to provide technical support to Contracting Parties for the effective implementation of the Action Plans, through technical cooperation and capacity building activities, including resource mobilization activities;

4. *Request* the Secretariat (SPA/RAC) to update:

- The Action Plan for the conservation of bird species listed in Annex II of the SPA/BD Protocol in the Mediterranean based on its implementation progress at national and regional levels, and to suggest adjustments to its implementation timetable to maintain them in favourable status of conservation,
- The Action Plan concerning species introduction and invasive species in the Mediterranean Sea to address the impact, on biodiversity and ecosystem integrity, of non-indigenous species and invasive non-indigenous species,

and submit them for consideration of COP23;

5. *Invite* the Secretariat (SPA/RAC) to establish a multidisciplinary group of experts nominated by the Contracting Parties to define parameters allowing to use phytoplankton and zooplankton for relevant IMA biodiversity indicators and elaborate the List of Reference of Pelagic Habitat Types in the Mediterranean Sea so that it can be used, where necessary, as a basis for identifying reference pelagic habitats to be monitored and assessed at the national level under the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria for consideration of COP 23.

Annex I
Action Plan for the conservation of cetaceans in the Mediterranean Sea

Action Plan for the conservation of cetaceans in the Mediterranean Sea

1. The Contracting Parties to the Barcelona Convention, within the framework of the Mediterranean Action Plan, give priority to the conservation of the marine environment and to the components of its biological diversity. This was confirmed by the adoption of the 1995 Barcelona Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) and of its annexes, among them a list of endangered or threatened species.
2. Elaborating and implementing action plans to conserve one species or group of species is an effective way of guiding, coordinating and strengthening the efforts the Mediterranean countries are making to safeguard the natural heritage of the region. Although they do not have a binding legal character, these action plans were adopted by the Contracting Parties as regional strategies setting priorities and activities to be undertaken. In particular, they call for greater solidarity between the States of the region, and for co-ordination of efforts to protect the species in question. This approach has proved to be necessary for ensuring conservation and sustainable management of the concerned species in every Mediterranean area of their distribution.
3. These Action Plans constitute mid-term regional strategies that should be updated every five years, based on an evaluation of their implementation at regional and national levels. For the biennium 2020-2021, the Contracting Parties to Barcelona Convention requested SPA/RAC during the CoP 21 (Naples, Italy, 2-5 December 2019) to update the Action Plan for the conservation of cetaceans.
4. This update process was done in close collaboration with ACCOBAMS, given that the common obligations relating to cetaceans under the Protocol on Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) are fulfilled through the implementation of ACCOBAMS (COP 14, Slovenia 2005) and the new Memorandum of Collaboration between ACCOBAMS and SPA/RAC, signed in Monaco on October 15, 2020, defining the joint ACCOBAMS - SPA/RAC work program for the period 2020-2022.

5. The Mediterranean Sea, *Mare medi terraneum* (Latin for a “sea in the middle of the land”), is the largest (2,969,000 km²) and deepest (average 1,460 m, maximum 5,267 m) enclosed sea on Earth. It is a marine biodiversity hotspot, with approximately 17,000 marine species occurring within its basin (Coll et al, 2010). Its cetacean diversity is also remarkable: twenty-five species of cetaceans occur or have occurred at various degrees of abundance in the Mediterranean Sea. Eleven species occur regularly, with resident populations in the basin (Table 1). In addition, the North Atlantic minke whale *Balaenoptera a. acutorostrata*, the North Atlantic humpback whale *Megaptera n. novaeangliae* and the false killer whale *Pseudorca crassidens* are considered visitors, while the remaining 11 species are very rare (Table 2).

Table 1. Cetacean species with regular occurrence and resident populations in the Mediterranean Sea and their common names in English, French and Arabic. (Cetacean names in Arabic are usually direct translation from the English version but some Arabic countries translate the French names instead. When two options are given, the upper name refers to English and the lower to French).


Cetacean species represented by populations regularly present in the Mediterranean			
Species	English	French	Arabic
 <i>Balaenoptera physalus</i>	Fin whale	Rorqual commun	الحوت الزعنفي روقال شائع
 <i>Physeter macrocephalus</i>	Sperm whale	Cachalot	حوت العنبر
 <i>Ziphius cavirostris</i>	Cuvier's beaked whale	Ziphius	حوت كوفير المنقاري زيفيوس
 <i>Orcinus orca</i>	Orca	Orque	الحوت القاتل اوركا
 <i>Globicephala melas</i>	Long-finned pilot whales	Globicéphale noir	الحوت القائد جلوبيسيفالوس
 <i>Grampus griseus</i>	Risso's dolphin	Dauphin de Risso	دلفين ريسو جرامبوس
 <i>Steno bredanensis</i>	Rough-toothed dolphin	Sténo	الدلفين ذو الاسنان الخشنة ستينو
 <i>Tursiops truncatus</i>	Common bottlenose dolphin	Grand dauphin	الدلفين زجاجي الانف الدلفين الكبير
 <i>Stenella coeruleoalba</i>	Striped dolphin	Dauphin bleu et blanc	الدلفين المخطط الدلفين الأبيض والازرق
 <i>Delphinus delphis</i>	Common dolphin	Dauphin commun	الدلفين الشائع
 <i>Phocoena phocoena relicta</i>	Harbour porpoise	Marsouin commun	خنزير البحر


Table 2. Cetacean species occurring, or having occurred, in the Mediterranean Sea. Regular species outlined in grey. Habitat (preferred in bold) and status are indicated only for species recognized as regular. (Adapted from ACCOBAMS, 2021. Conserving Whales, Dolphins and Porpoises in the Mediterranean Sea, Black Sea and adjacent areas: an ACCOBAMS status report. By Giuseppe Notarbartolo di Sciara and Arda Tonay. *In preparation.*)

	Species/subspecies	English name	Classification	Presence	Habitat	Current status (IUCN)
1	<i>Eubalaena alacialis</i>	North Atlantic right whale	Mysticeti, Balaenidae	very rare		
2	<i>Balaenoptera a. acutorostrata</i>	North Atlantic minke whale	Mysticeti, Balaenopteridae	Visitor		
3	<i>Balaenoptera b. borealis</i>	Northern Sei whale	Mysticeti, Balaenopteridae	very rare		
4	<i>Balaenoptera p. physalus</i>	North Atlantic fin whale	Mysticeti, Balaenopteridae	Regular	oceanic, slope, neritic	Vulnerable
5	<i>Megaptera n. novaeangliae</i>	North Atlantic humpback whale	Mysticeti, Balaenopteridae	Visitor		
6	<i>Eschrichtius robustus</i>	grey whale	Mysticeti, Eschrichtiidae	very rare		
7	<i>Physeter macrocephalus</i>	sperm whale	Odontoceti, Physeteridae	Regular	slope, oceanic	Endangered
8	<i>Kogia sima</i>	dwarf sperm whale	Odontoceti, Kogiidae	very rare		
9	<i>Hyperoodon ampullatus</i>	northern bottlenose whale	Odontoceti, Ziphiidae	very rare		
10	<i>Mesoplodon bidens</i>	Sowerby's beaked whale	Odontoceti, Ziphiidae	very rare		
11	<i>Mesoplodon densirostris</i>	Blainville's beaked whale	Odontoceti, Ziphiidae	very rare		
12	<i>Mesoplodon europaeus</i>	Gervais' beaked whale	Odontoceti, Ziphiidae	very rare		
13	<i>Ziphius cavirostris</i>	Cuvier's beaked whale	Odontoceti, Ziphiidae	Regular	slope, oceanic	Vulnerable
14	<i>Delphinus d. delphis</i>	common dolphin	Odontoceti, Delphinidae	Regular	neritic, slope, oceanic	Endangered
15	<i>Globicephala macrorhynchus</i>	short-finned pilot whale	Odontoceti, Delphinidae	very rare		
16	<i>Globicephala m. melas</i>	North Atlantic long-finned pilot whale	Odontoceti, Delphinidae	Regular	oceanic, slope, neritic	Endangered (proposed)
17	<i>Grampus griseus</i>	Risso's dolphin	Odontoceti, Delphinidae	Regular	slope, oceanic	Vulnerable (proposed)
18	<i>Orcinus orca</i>	Orca	Odontoceti, Delphinidae	Regular	neritic, slope, oceanic	Critically Endangered
19	<i>Pseudorca crassidens</i>	false killer whale	Odontoceti, Delphinidae	Visitor		
20	<i>Sousa plumbea</i>	Indian Ocean humpback dolphin	Odontoceti, Delphinidae	very rare		
21	<i>Stenella coeruleoalba</i>	striped dolphin	Odontoceti, Delphinidae	Regular	oceanic, slope	Least Concern (proposed)
22	<i>Steno bredanensis</i>	rough-toothed dolphin	Odontoceti, Delphinidae	regular in the Levantine Sea, visitor	oceanic, slope, neritic	Data Deficient (proposed)
23	<i>Tursiops t. truncatus</i>	North Atlantic bottlenose dolphin	Odontoceti, Delphinidae	Regular	neritic, oceanic	Least Concern (proposed)
24	<i>Phocoena p. phocoena</i>	North Atlantic harbour porpoise	Odontoceti, Phocoenidae	very rare		
25	<i>Phocoena p. relicta</i>	Black Sea harbour porpoise	Odontoceti, Phocoenidae	regular in N. Aegean Sea	Neritic	Endangered

6. The Mediterranean region has been inhabited by humans for millennia. Among the planet’s marine environments, the Mediterranean Sea is one of the most affected by anthropogenic activities. Concentration of human populations and activities around the basin cause substantial impacts to the marine and coastal environments, threatening the structure and function of natural ecosystems and the quality and abundance of natural resources to varying degrees. The State of the Mediterranean Marine and Coastal Environment Report 2012 (UNEP/MAP, 2012) highlighted the following as the major issues requiring coordinated policy and management responses to stop the degradation of the Mediterranean ecosystems: coastal development and sprawl, chemical pollution, eutrophication, marine litter, marine noise, invasive non-indigenous species, over-exploitation, sea-floor integrity, changed hydrographic conditions, marine food webs, and biodiversity. This complex scenario of multiple pressures acting simultaneously puts certain habitats and species at high risk. As very mobile, long-lived vertebrates situated at the highest levels of the marine trophic webs and with very low reproductive rates, cetaceans are among those species at risk. Accordingly, nations bordering the Mediterranean and Black Seas created a legal instrument to ensure the survival of whales and dolphins in the area: The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), which came into force in 2001. Besides this, and in addition to national legislation, other European and international regulations are also of relevance, either directly or indirectly, to cetacean conservation (Table 3).

Table 3. European legislations, international environmental agreements and Intergovernmental organisations relevant to cetacean protection in the Mediterranean Sea.

	Habitats Directive (1992)	<ul style="list-style-type: none"> • The directive’s overarching goal strives to ensure the “preservation, protection and improvement of the quality of the environment, including the conservation of natural habitats and wild fauna and flora”. Cetacean species are listed in annexes II and IV. • Establishes a Community-wide network of nature protection areas known as <i>Natura 2000</i> with the aim of assuring the long-term survival of Europe’s most valuable and threatened species and habitats. The responsibility for proposing sites for <i>Natura 2000</i> lies with the Member States¹.
	Pelagos Sanctuary (1999)	<ul style="list-style-type: none"> • France, Italy and the Principality of Monaco to create jointly coordinated initiatives to protect cetaceans and their habitats from all sources of disturbance: pollution, noise, accidental capture and injury, disruption etc.
	The Mediterranean Regulation (2006)	<ul style="list-style-type: none"> • Adaptation of the EU Common Fisheries Policy in the Mediterranean Sea context, by laying out the necessary measures for the sustainable exploitation of fishery resources. • Regulation of the European Parliament and of the Council for fisheries technical measures. Newest version Regulation (EU) 2019/1241.
	Marine Strategy Framework Directive (2008)	<ul style="list-style-type: none"> • Establishment of a framework within which Member States shall take the necessary measures to achieve or maintain <i>good environmental status</i>² in the marine environment by the year 2020 at the latest. • Designated to create a synergy with the Habitats Directive for marine protection.
	Barcelona Convention (1976 and 1995)	<ul style="list-style-type: none"> • “Convention for the protection of the marine environment and the coastal region of the Mediterranean”. The Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP) acts as its Secretariat. • Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean. • Action Plan for the conservation of Mediterranean cetaceans” (1991)
	Bonn Convention (1979)	<ul style="list-style-type: none"> • The Convention on the Conservation of Migratory Species of Wild Animals (CMS).
	ACCOBAMS (1996)	<ul style="list-style-type: none"> • The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Atlantic Area.
	CITES (1973)	<ul style="list-style-type: none"> • The Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known Washington Convention. • Forbids trade in endangered species (e.g., cetaceans).
	Bern Convention (1979)	<ul style="list-style-type: none"> • The Convention on the Conservation of European Wildlife and Natural Habitats, also known as Bern Convention. • Places all cetaceans regularly found in the Mediterranean in Appendix I (strictly protected fauna species).

	Convention on Biological Diversity (1992)	<ul style="list-style-type: none"> • Also known as CBD, although not explicitly referring to cetaceans, urges Contracting Parties to develop national programmes that will safeguard their natural heritage and biological diversity.
	UNCLOS (1982)	<ul style="list-style-type: none"> • United Nations Convention on the Law of the Sea. • It has special provisions for marine mammals (Art. 65: “States shall cooperate with a view to the conservation of marine mammals...”).
	GFCM (1949)	<ul style="list-style-type: none"> • The General Fisheries Commission for the Mediterranean was established under the provisions of Article XIV of the Constitution of the Food and Agriculture Organization of the United Nations (FAO). • Its main objective is to ensure the conservation and the sustainable use of living marine resources as well as the sustainable development of aquaculture in the Mediterranean and in the Black Sea.
	IWC (1946)	<ul style="list-style-type: none"> • The International Whaling Commission is the global body charged with the conservation of whales and the management of whaling. • Currently 88 member governments from countries all over the world. • Today’s IWC works to address a wide range of conservation issues.

7. Main threats faced by cetacean species in the Mediterranean Sea are reviewed below:

II.1. Fisheries Interactions

Bycatch in fishing gear (legal/illegal, ghost nets)

8. Interactions between cetaceans and fisheries in the Mediterranean Sea are probably as old as the first human attempts to catch fish with a net (Bearzi, 2002). Direct fisheries interactions pose a serious threat to the survival of many populations and some species of marine mammals, with bycatch (incidental mortality and injury caused by fisheries from accidental entanglement) being the most acute problem (Read, 2008; Brownell et al. 2019). Various types of fishing gear can lead to cetacean bycatch, including passive and active nets, longlines, traps and discarded or lost nets and lines. More than observed bycatch rates themselves, the evidence of entanglement observed in stranded cetaceans in the past few years shows the strong impact of fisheries on Mediterranean (and Black Sea) cetacean populations (ACCOBAMS, 2019). Additionally, larynx entanglement or laryngeal strangulation has also been shown as a cause of death in dolphins depredating fishing gear. During these depredation events dolphins may swallow the net, which may get wrapped around the larynx, get lodged in the stomach or cut into laryngeal tissue (Đuras Gomerčić et al. 2009).

9. Recently, the incidental catch of cetaceans in Mediterranean fisheries has decreased with respect to earlier periods, when marine mammal bycatch, caused mainly by pelagic driftnets, was relevant (also for other groups of large marine vertebrate species). The use of these nets was banned in 2005, and since then, only a few studies have reported on the bycatch of marine mammals from other fisheries in the Mediterranean Sea.

10. Currently, the types of vessel groups with the greatest rates of interactions with marine mammals seem to be those using set gillnets and trammel nets in coastal areas

11. In terms of species bycatch composition, the recorded species of cetaceans decreased considerably once large driftnets were banned and subsequently dismissed. Currently, medium-small cetacean species, such as the striped dolphin (*Stenella coeruleoalba*), the bottlenose dolphin (*Tursiops truncatus*) and the common dolphin (*Delphinus delphis*) are sporadically found in bycatch reports (GFCM SOMFI 2020)

12. In recent decades, the use of static nets extending to the continental slopes in all coastal fisheries has led to an increased risk of fishing gear loss and thus to unaccounted catches (i.e., ghost fishing). Fishing gear can be lost accidentally during storms, but it can also be abandoned deliberately. In the Mediterranean, despite the scarcity and inconsistency of data on derelict fishing gear, this has been recognized as an issue of major concern. The main impacts of abandoned or lost fishing gear are not only the continued catches of fish, but also of other animals such as whales and dolphins. Additional impacts include alterations of the sea-floor environment (FAO, 2019).

Overfishing and prey depletion

13. The Mediterranean Sea is one of the most intensely fished regions in the world and hosts a substantial fishing fleet comprising an estimated 76,280 fishing vessels, of which small-scale fishing vessels represent approximately 82% (FAO, 2020). The intense fishing effort is depleting fish populations and impacting many vulnerable species, including cetaceans but also sharks, Mediterranean monk seals *Monachus monachus* and sea turtles. Unsustainable fishing has contributed to dramatic ecological changes in the Mediterranean Sea (Sala, 2004), where overfishing is well documented and has had negative effects on prey availability for marine mammals, especially for small cetaceans (Piroddi et al. 2010).

Depredation by cetaceans

14. Fish depredation by dolphins appears to be recurrently perceived by Mediterranean fishers to be causing economic hardship, particularly as far as small-scale fisheries are concerned, by causing damage to fishing gear and disturbing fishing activities (Bearzi, 2002). However, dolphin depredation is not limited exclusively to small-scale fisheries and has been also reported, for instance, in purse seiners in Tunisia and Morocco (Benmessaoud et al. 2018). Ecosystem damage resulting from overfishing and habitat degradation in the Mediterranean Sea has probably exacerbated the perception that dolphins reduce fishery yields (Reeves et al. 2001). Therefore, the economic damage caused by dolphins generates conflict with fishers and, although rarely, may lead to intentional kills in retaliation, as well as to occasional demands for organized culls in some places.

II.2. Intentional Killings

15. In some Mediterranean areas, direct killings and bounties for dolphins represented the first human attempts to solve the problem of depredation and competition, a strategy that was supported by several governments and went on until the late 1960s. Nowadays, approaches to marine mammal control such as culling, or harassment are illegal in most Mediterranean countries and are no longer viewed as appropriate by most fishing organizations. Although direct killings are still occasionally enacted by individual fishers or other people, intentional killings likely do not pose a conservation problem to Mediterranean cetacean populations anymore.

II.3. Ship strikes

16. The Mediterranean Sea is subject to some of the heaviest vessel traffic in the world, with about 30 % of the world's total merchant shipping concentrated within only 0.8 % of the global ocean surface.

17. Collisions with large vessels present a major conservation issue for both fin whales (*Balaenoptera physalus*) (David et al. 2011; Panigada et al. 2006) and sperm whales (*Physeter macrocephalus*) (Di Méglia et al. 2018; Frantzis et al. 2019). Fin whales and sperm whales are listed as Vulnerable (VU) and Endangered (EN) under the IUCN Red List Criteria respectively, underlying the urgent need to reduce and mitigate any anthropogenic pressure. An analysis of stranding and collision records showed that the fin whale is the most vulnerable species to ship strikes in the North-Western Mediterranean Sea. Unusually high rates of ship collisions have been reported for this species in the region, where the minimum mean annual fatal collision rate increased from 1 to 1.7 whales/year from the 1970s to the 1990s. It should also be noted that reported strikes greatly underestimate the true number of strikes. The highest number of collisions with fin whales occur in summer, during their feeding season when they

are more often encountered, and when the traffic in ferries and passenger ships increases in the area. Collisions with fin whales tend to occur predominantly on the main passenger ship routes that cross the basin.

18. Sperm whales also are vulnerable to ship strikes, particularly on the main cargo routes that travel parallel to the Italian and French coastlines and along the Hellenic Trench, where sperm whale occurrence and naval traffic overlap substantially (Frantzis et al. 2019).

II.4. Underwater noise

19. Underwater noise from various maritime activities is recognised as a chronic, habitat-level stressor (Williams et al. 2020) and can adversely affect cetaceans in a number of ways. In the most severe cases, such as extremely high levels of acute noise (e.g., from seismic vessels or drilling projects of the offshore industry), this can result in permanent threshold shift or even tissue damage leading to stranding and death. Both acute and chronic noise - at various spatial and temporal scales - can affect cetaceans through a range of mechanisms, including temporary threshold shifts, spatial displacement and habitat exclusion, masking of sounds relevant to communication and foraging, disturbance and elevated stress levels, and modifications of short-term and possibly long-term behaviour (Southall et al. 2007; Weilgart 2007; Clark et al. 2009; Williams et al. 2020). These may lead to impacts on feeding and energetic balance, as well as on reproduction, potentially leading to population-level consequences. In addition to vessel traffic of all types and purposes (cargo, transport, fishing, tourism, whale watching, research), noisy activities can arise from geophysical exploration, military activities (sonar and explosions), dredging and coastal and offshore development (e.g., offshore windfarms). Potentially, the noise emitted by vessels may also affect the ability of cetaceans to avoid collisions with vessels.

II.5. Disturbance from boat traffic

20. There has been a great expansion of recreational boat traffic and shipping in the Mediterranean Sea in recent decades. The relatively closed nature of the Mediterranean Sea, its densely populated coastlines and prominent presence of tourism likely make cetaceans in this basin particularly susceptible to the impacts of recreational boat traffic and the associated acoustic disturbance. A number of studies demonstrated behavioural changes (including acoustic behaviour) in response to recreational boat traffic in some species (Papale et al. 2011), as well as temporary avoidance of areas with high vessel density of recreational boat traffic (La Manna et al. 2010; Gonzalvo et al. 2014), although a certain degree of tolerance has been also reported (La Manna et al. 2013). In addition to its potential to disrupt foraging, socializing or resting behaviour, as well as increase stress levels (see also 4-Underwater noise), boat traffic may also lead to serious injuries or death from boat strikes, as described above.

II.6. Cetacean-watching (including swimming-with)

21. Invasive approaches of boats (e.g., from cetacean-watching activities or even non-careful research activities) can disturb cetaceans through direct physical presence and/or via emitted noise and may interrupt important behaviours, such as feeding and reproduction (Jahoda et al. 2003). Long-term vessel presence can also exclude animals from preferred habitat (see also 4-Underwater noise).

22. Unregulated cetacean-watching activities, which may grow very fast in some areas, may have detrimental population-level effects, which need to be mitigated and prevented.

23. Close and invasive approaches, such as those related to swim-with operations, should be prohibited in accordance with guidance from ACCOBAMS, the Pelagos Sanctuary Agreement and the IWC, as they may lead to severe disturbance to the animals.

24. It is noteworthy to consider also that Unmanned Aerial Vehicles (UAVs), or drones, have recently emerged as a relatively affordable and accessible method for studying, photographing and filming cetaceans. For many cetacean watching operators this relatively new, rapidly evolving and increasingly

affordable technology is seen as a good opportunity to obtain spectacular images and footage for promoting their business.

II.7. Chemical pollutants

25. Effects of chemical pollutants on cetaceans are varied and can be both direct and indirect. They include immunosuppression (Tanabe et al. 1994), endocrine disruption (Tanabe et al. 1994 ; Vos et al. 2003 ; Schwacke et al. 2012), reproductive impairment (Schwacke et al. 2002) and developmental abnormalities (Tanabe et al. 1994 ; Vos et al. 2003). Pollutants may directly impact abundance through reduced reproduction or survival (Hall et al. 2006; Hall et al. 2017), while indirect effects include impacts on the abundance or quality of cetacean prey. Although organochlorine contamination has generally decreased in several areas, levels in several Mediterranean cetaceans remain alarmingly high (Jepson et al. 2016; Marsili et al. 2018; Genov et al. 2019). Currently, Polychlorinated Biphenyls (PCBs) are likely the greatest contaminant threat to cetaceans (Jepson et al. 2016). Within the Mediterranean Sea, PCB concentrations in bottlenose dolphins, a species widespread across the basin, generally decline from north to south, and from west to east (Genov et al. 2019), in line with a general gradient of human activities in this basin. The Mediterranean Sea may also be particularly vulnerable to contamination by mercury, due to its semi-enclosed nature, as well as the relatively high presence of this heavy metal from both natural and anthropogenic sources (Andre et al. 1991).

II.8. Marine debris (macro/micro)

26. Plastic pollution has become one of the biggest environmental concerns of the Anthropocene, as it represents a major threat to both wildlife and human health. The Mediterranean Sea is one of the most plastic polluted environments. This acute marine pollution might threaten entire ecosystems through its impact on marine fauna (entanglement, ingestion, contamination), eventually impacting the tourism industry and the well-being of Mediterranean populations (Lambert et al., 2020).

27. Different cetacean species may be threatened by marine debris to varying degrees (Baulch & Perry 2014), with deep-diving odontocetes apparently particularly vulnerable to ingestion of plastic macro debris (Simmonds 2012; de Stephanis et al. 2013). Baleen whales such as the Mediterranean fin whale may be especially vulnerable to the ingestion of microplastics due to their feeding mechanisms. The interaction between free-ranging fin whales and microplastics in the Mediterranean Sea and elsewhere has only recently started to be investigated. Fossi et al. (2012) found considerable quantities of microplastics and plastic additives in surface water samples of and adjacent to the Pelagos Sanctuary. More recent studies suggest that debris, including micro-plastics and chemical additives (e.g., phthalates), tend to accumulate in pelagic areas in the Mediterranean (Fossi et al. 2016, 2017), indicating a potential overlap between debris accumulation areas and fin whale feeding grounds. Exposure to microplastics (direct ingestion and consumption of contaminated prey) poses a major threat to the health of fin whales in the Mediterranean Sea. Microplastics have also been found in a number of odontocete species, but the scale of impacts is still poorly understood (Nelms et al. 2019).

II.9. Habitat loss and degradation

28. Habitat degradation can be defined as ‘those processes of anthropogenic origin that make habitats less suitable or less available to marine mammals’ (IWC, 2006). It is often difficult to separate physical degradation of certain activities (i.e., physical damage to the habitat such as coastal development or bottom trawling) from other factors associated with those activities (e.g., high levels of noise resulting from coastal development or trophic web effects). Either way, directly or indirectly human development activities (both coastal and pelagic) in key cetacean habitats can have serious adverse impacts.

29. Reduced habitat quality and loss of critical habitat can be caused by coastal and offshore development, marine engineering, port and dam construction, opening and closing of waterways, and exploitation of marine resources (e.g., resulting in sea floor modifications, changes in water quality, eutrophication and harmful algal blooms). The resulting disruption of cetacean behaviour might compromise an individual’s energy balance and, consequently, population vital rates (e.g., survival and

reproduction). Moreover, when this disruption affects most individuals in a population, it can translate into changes in population dynamics. It has been reported, for instance, that higher intensities of dredging related to a harbour expansion project caused bottlenose dolphins to spend less time in the harbour, despite high baseline levels of disturbance and the importance of the area as a foraging patch (Pirodda et al. 2013).

II.10. Climate change

30. Climate change is now widely recognized as a global issue (IPCC, 2007), which has also been documented in the Mediterranean Sea. Boero and colleagues (2008) reviewed water temperature and salinity levels over the last decades, reporting higher levels throughout the entire Mediterranean Sea, attributable to climate change. The effects of climate change over the Mediterranean Sea have been the subject of several studies (Gambaiani et al. 2009; Lejeune et al. 2009), with predicted changes in prey availability and distribution over the water column and increases in the presence of alien (exotic) species, due to the ‘tropicalization’ of the entire area (Bianchi, 2007).

31. As an example, the potential effects of global climate change or ocean acidification on Mediterranean fin whales, largely dependent for feeding on euphausiids such as *Meganyctiphanes norvegica* (Notarbartolo di Sciara et al. 2003), as well as possibly susceptible to an increase in water temperature and salinity (Gambaiani et al. 2009), may strongly influence the entire population, leaving no space to move to northern latitudes.

32. The effects of climate change on Mediterranean cetaceans are currently unknown but cannot be neglected and need further investigation. Impacts may occur because of changes in prey availability, increased intra- and inter-specific competition, potentially increased incidence of pathogens, oceanographic changes or interaction of climate change and fishery pressure (Gambaiani et al. 2009).












II.11. Cumulative effects

33. The above sections discuss threats individually. However, it is clear that some or all of them may interact temporally and/or spatially.













34. Cumulative effects can be considered as changes in reproduction and/or survivorship that negatively affect population dynamics and status, because of repeated exposure to the same stressor(s) over time, or the combined effects of multiple stressors. Developing robust ways to evaluate this is a complex problem (Stelzenmüller et al. 2018). Perhaps the best-developed framework to date is the Population Consequences of Disturbance (PCoD) model (Booth et al. 2020), which has been extended to consider the Population Consequences of Multiple Stressors (PCoMS) (National Academies of Sciences, Engineering, and Medicine 2017). This approach moves through the effects of stressors on individuals' behaviour and physiology, which is converted to effects on vital rates and then on to population trends and sustainability. However, the approach is extremely data demanding and requires quantitative temporal and spatial information on the target species (distribution, demographics and physiology), their prey and environment, human activities and models linking these - this complexity also contains inherent large levels of predictive uncertainty.

Table 4. Threats faced by cetaceans with a regular occurrence and resident populations in the Mediterranean Sea.

(The attempt to rank threats affecting these 11 cetacean species should be considered as a purely indicative exercise. For instance, some of these threats may be locally high in a given area but considered medium or low at regional level. Moreover, the sparse use of “?” indicating lack of knowledge does not imply that the rest of “ranked” cells have to be considered as definitive, but as stated above, purely indicative based on available evidence).

											
<i>Balaenoptera physalus</i>	None	None	None	None	High	High	High	High	High	High	High
<i>Physeter macrocephalus</i>	High	None	None	None	High	High	High	High	High	High	High
<i>Ziphius cavirostris</i>	None	Medium	None	None	High	High	High	High	High	High	High
<i>Orcinus orca</i>	High	High	High	None	High	High	High	High	High	High	High
<i>Globicephala melas</i>	None	High	None	None	High	High	High	High	High	High	High
<i>Grampus griseus</i>	High	High	None	None	High	High	High	High	High	High	High
<i>Steno bredanensis</i>	High	High	Medium	None	High	High	High	High	High	High	High
<i>Tursiops truncatus</i>	High	High	High	None	High	High	High	High	High	High	High
<i>Stenella coeruleoalba</i>	High	High	None	None	High	High	High	High	High	High	High
<i>Delphinus delphis</i>	High	High	None	None	High	High	High	High	High	High	High
<i>Phocoena phocoena relicta</i>	High	Medium	None	None	High	High	High	High	High	High	High

?	High	Medium	Low	None
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-  Bycatch in fishing gear (legal/illegal, ghost nets)
-  Overfishing and prey depletion
-  Intentional killings
-  Ship strikes
-  Underwater noise
-  Disturbance from boat traffic
-  Cetacean-watching (including swimming-with)
-  Chemical pollutants
-  Marine debris (macro/micro)
-  Habitat loss and degradation
-  Climate change
-  Cumulative effects

III. Objective of this Action Plan

35. The main Objective of this Action Plan is to provide a conservation framework and guidance, in line with decisions adopted by international bodies such as ACCOBAMS, the Pelagos Sanctuary Agreement and the International Whaling Commission (IWC), to be used to improve the conservation status of cetacean populations within the Mediterranean Sea.

IV. Methodology

36. According to the IUCN Red List, several cetacean populations in the Mediterranean Sea are Endangered or Threatened. Consequently, measures to enhance their protection and conservation should be considered as priority actions within this Action Plan by all Parties to the Barcelona Convention when defining the best strategies to implement it with the assistance of ACCOBAMS and SPA/RAC.

37. Ongoing efforts at the Mediterranean scale, such as the ACCOBAMS Survey Initiative (ASI), have allowed the collection of robust baseline data on presence, distribution, abundance and density of several

cetacean species. On the other hand, many important aspects of cetacean biology, behaviour, range and habitats in the Mediterranean are still poorly known.

38. In drafting this action plan, references to the ongoing programme of work by ACCOBAMS and by the IWC have been taken into careful consideration. As an example, Conservation and Management Plans should be drafted and implemented for most cetacean species in the Mediterranean Sea, in order to properly manage human activities that may have detrimental effects on cetacean populations.

39. The Action Plan considers the UNEP/MAP Decision IG22/7 on the Integrated Monitoring and Assessment Programme and related Assessment Criteria (IMAP), that aimed at enabling a quantitative, integrated analysis of the state of the marine and coastal environment. IMAP covers three clusters i) pollution and marine litter, ii) biodiversity and non-indigenous species and iii) hydrography. These backbones of the IMAP are the 11 Ecological Objectives and their agreed common indicators, targets and Good Environmental Status (GES) definition. At their 19th Ordinary Meeting (COP 19, Athens, Greece, 9-12 February 2016), the Contracting Parties to Barcelona Convention, when adopting IMAP, stated that species of cetaceans regularly present in the Mediterranean Sea should all be considered when developing the national monitoring and assessment activities. Accordingly, the Contracting Parties should make every effort to identify a minimum of two species (if present) to be included in their national monitoring programme, based on the specificity of their marine environment and biodiversity, and taking account that these species should belong to at least two different functional groups, where possible (Baleen whales/Deep-diving toothed whales/Shallow-diving toothed whales). Moreover, as far as possible, the choice of monitored species should be coordinated at sub-regional scale to ensure coherence with cetacean population distribution in the Mediterranean Sea.

40. Cetaceans are included in two Ecological Objectives of IMAP (EO1 and EO11). EO1 focus on common Indicators 3, 4 and 5 for distribution, abundance, and demography respectively. Most of the actions proposed are expected to provide robust data and inputs relevant for the establishment of a primary, region-wide Standardized Integrated Monitoring and Assessment Programme. Monitoring and assessment of cetacean distribution, abundance and demography at national, sub-regional and regional levels will be used to improve knowledge on the Mediterranean marine environment through the development every cycle of six year a regional assessment product (2023 Mediterranean Quality Status Report (2023 MEDQSR)).

41. While the different actions have not necessarily been specifically designed according to the EcAp/IMAP process, they are aligned with EcAp/IMAP goals and requirements. The data arising from the implementation of each single action will provide key inputs to address the different indicators targeting cetaceans.

V. Regional Coordinating Structure and Implementation

42. The coordinating body is composed by SPA/RAC in collaboration with ACCOBAMS with occasional support/advice from its Scientific Committee, which will be helping by:

- providing support to in the implementation of the AP, its review and update every five years;
- providing recommendations and advice on issues related to cetacean conservation;
- providing support on the creation and maintenance of a forum for cetacean conservation experts, where relevant information and experience is shared, exchanges are facilitated, challenges are discussed, cooperative initiatives are enhanced, transparency and openness of procedures are safeguarded (e.g., NETCCOBAMS);
- Regularly reporting to the National Focal Points for SPAs about the implementation of the present Action Plan;
- ensuring that the Mediterranean region is involved in the pertinent international and/or regional initiatives in relation with cetacean monitoring and conservation.

43. Implementing the present Action Plan is the responsibility of the national authorities of the Contracting Parties. At each of their meetings, the National Focal Points for SPAs shall assess how far the Action Plan is being implemented on the basis of national reports on the subject and a report made by SPA/RAC on implementation at regional level.

44. In the light of this assessment, the Meeting of National Focal Points for SPAs will suggest recommendations to be submitted to the Contracting Parties. If necessary, the Meeting of Focal Points will also suggest adjustments to the schedule that appears in the Appendix to the Action Plan.

VI. Participation in the Implementation

45. Implementing the present Action Plan is the province of the national authorities of the Contracting Parties. The concerned international organisations and/or NGOs, laboratories and any organisation or body are invited to join in the work necessary for implementing the Action Plan. At their ordinary meetings, the Contracting Parties may, at the suggestion of the meeting of National Focal Points for SPAs, grant the status of «Action Plan Associate» to any organization or laboratory which so requests, and which carries out, or supports (financially or otherwise) the carrying out of concrete actions (conservation, research, etc.) likely to facilitate the implementation of the present Action Plan, taking into account the priorities contained therein.

VII. National Action Plan

46. To ensure more efficiency in the measures envisaged in the implementation of this Action Plan, Contracting Parties are invited to establish National Action Plans for the conservation of cetaceans.

47. Each National Action Plan, taking into account the concerned country's specific features, should address the current factors causing loss or decline of cetacean population and their habitats, suggest appropriate subjects for legislation, give priority to the protection and management of marine areas, the regulation of fishing practices and ensure continued research and monitoring of populations and habitats as well as the training and refresher courses for specialists and the awareness-raising and education for the general public, actors and decision-makers.

VIII. Priority Actions

48. The actions outlined in this Plan are grouped into four categories: Education and Awareness, Capacity Building, Research and Monitoring, and Management.

49. In all the actions presented below, there is a section referred to as *Actors* and one as *Evaluation*. In the former, various bodies that may be responsible for the execution and implementation of each action are proposed; this is not meant to be an exclusive or comprehensive list and other actors can be included in a case-by-case basis, depending on the country/region of implementation of the action and its needs (e.g Pelagos Secretariat). Ultimate evaluation of all the actions proposed within this AP is to be carried out by SPA/RAC and ACCOBAMS, as stated above, with support and advice from the ACCOBAMS SC.

50. There are several actions in this Action Plan, and we acknowledge it would be difficult to implement all of them and evaluate their objectives within the next five years. A priority ranking is provided for each action and it is suggested that during the next meeting of the Contracting Parties, these actions are carefully evaluated, their feasibility is considered, and agreement is reached on identifying the actions to be urgently implemented, according to national and international conservation and management priorities.

VIII.1. Education and awareness

VIII.1. INCREASE PUBLIC AWARENESS	
Objective	Priority (Low, Medium, High)
To develop a strategy for the timely production of a series of resources to inform citizens of the status and the importance of conservation of Mediterranean cetaceans	Medium
Description	
<p>Aim of this action is to develop a strategy and a series of actions to produce a variety of targeted, accurate, public awareness resources that will inform the general public on the status of Mediterranean cetaceans and on how citizens can assist in conservation efforts, including what they should do if they encounter living or dead individuals. This action refers to a variety of categories of stakeholders for each range state: coast guard, mariners (and their trade associations where applicable), fishers (and their trade associations where applicable), cetacean watching operators, NGOs, research institutes, schools, etc.</p> <p>Outreach should include the use of mass media such as newspapers, radio and television; the internet and social media; public lectures and symposiums; education programmes for teachers and students of all ages; and dissemination of information in written and spoken form in cetacean-watching and other tourism operations. Dedicated smartphone applications could also be developed, or those already existing may be adapted, as necessary.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, Ministry of Environment (or equivalent for each country), Ministry of Fisheries, Ministry of Education (or equivalent for each country), NGOs.	SPA/RAC and ACCOBAMS

VIII.2. Capacity building

VIII.2.1. INCREASE AND STRENGTHEN CAPACITY AT THE MEDITERRANEAN LEVEL	
Objective	Priority (Low, Medium, High)
To ensure that individuals and relevant management bodies have the motivation, skills and resources needed to implement this plan	High
Description	
<p>The degree of knowledge and expertise throughout the region is unevenly distributed. The transfer of necessary skills is a key step in the process of successfully implementing this AP. Training effort should be diverse and target different aspects of the conservation process, by providing the knowledge needed to conduct adequate research, monitoring and assessment activities on cetacean species and their ecosystems, but also by giving tools to effectively translate the newly acquired information on cetacean distribution and conservation needs into legislative, regulatory and management actions, that will lead to direct conservation benefits.</p> <p>This strategy is to be tailored for each Contracting Party and target groups may vary between countries - while some may be in need of very specific capacity building actions (i.e., training), other may be in a position to play an active role in exchanging of best practices by providing sub-regional training opportunities.</p> <p>Training packages for different approaches to cetacean research (e.g., line-transect surveys, photo-identification, stranding management and sampling protocols, data analysis, etc.) and conservation tools, with the aim of unifying teaching methods, will be designed in synergy with the ongoing activities developed within the EcAp/IMAP process.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, the Pelagos Sanctuary Agreement, research institutes, Universities, MedPAN and NGOs	SPA/RAC and ACCOBAMS

VIII.2.2. INCREASE THE CAPACITY OF AND DEVELOP STRANDING NETWORKS THROUGHOUT THE REGION	
Objective	Priority (Low, Medium, High)
Set up a pilot project on remote training and advice for stranding networks	Medium
Description	
<p>The Covid-19 pandemic crisis has demonstrated the great potential of remote training and advisory services. This innovative approach can be applied to cetacean stranding capacity building, by setting up an online programme based on video tutorials and presentations. While some aspects of training may be carried out remotely, other aspects may be implemented through in-person teaching. These courses can be followed by dedicated personnel going through a final test, which should give access to a formal accreditation (open badge) issued by teaching entities (i.e., universities) and recognized by ACCOBAMS. The course should be tailored depending on resources and skills present in each country.</p>	

<p>Practical training should be provided for veterinarians and/or biologists by preparing a train-the-trainer program. Training subjects covered by the program will include information on stranding response and management, carcass disposal, data collection and basic post-mortem evaluation, as well as specific instructions on the collection and preservation of samples, related to both life history and histopathology.</p> <p>After compilation of the training, follow-up advice will be provided to support first interventions in stranding events and in more complex cases by using remote support platforms such as WhatsApp, Zoom, etc.</p>	
Actors	Evaluation
Universities, Research institutes, veterinary professionals, NGOs, already existing and well-established Stranding Networks, SPA/RAC and ACCOBAMS	SPA/RAC and ACCOBAMS

VIII.2.3. INCREASE CAPACITY ON AND DISSEMINATE CETACEAN MONITORING TECHNIQUES	
Objective	Priority (Low, Medium, High)
Capacity building on cetacean monitoring techniques, to be complemented with a pilot initiative to facilitate remote training and advice for less experienced researchers	Medium
Description	
<p>Effective national and regional monitoring programmes in line with the EcAp/IMAP process and in synergy with the Marine Strategy Framework Directive (MSFD) are fundamental in setting conservation targets and ensure they are being met. Increasing national and regional capacity for implementing such programmes is therefore of utmost importance. Because institutional and individual capacity in the region is highly uneven and variable, training activities are vital in ensuring wider implementation capabilities and therefore data representativeness. Depending on the specific needs, the methods in question (e.g., boat-based visual surveys, aerial surveys, photo-identification, passive acoustic monitoring) and the level of experience by the trainees, training may be organised in-person, remotely, or as a combination of the two. Increasing capacity is needed at the level of data collection, data analysis and data publishing.</p>	
Actors	Evaluation
MPA management unit(s), IMAP national committee(s), Universities, research institutes running long-term cetacean monitoring programmes and projects, NGOs	SPA/RAC and ACCOBAMS

VIII.2.4. INCREASE CAPACITY ON AND IMPROVE MONITORING OF THREATS AFFECTING CETACEANS	
Objective	Priority (Low, Medium, High)

Capacity building on monitoring threats, to facilitate training and advice for less experienced researchers	Medium
Description	
<p>Alongside monitoring of cetacean populations, it is imperative to monitor the threats affecting them. This action is consistent with Action 2.3 and may build into it. As already postulated in Action 2.3, the monitoring capacity is highly uneven across the Mediterranean region and there are clear benefits to carry out capacity building activities to ensure a better data representativeness and region-wide ability to monitor the status of cetacean populations. As with Action 2.3, training activities may be organised through both in-person and remote learning, depending on the specific methodology, threats (e.g., fisheries bycatch, underwater noise, chemical pollutants, etc.) and individual needs in different countries or regions.</p>	
Actors	Evaluation
Universities, research institutes running long-term cetacean monitoring projects, National IMAP Committee(s) ¹ , NGOs	SPA/RAC and ACCOBAMS

VIII.3. Research and Monitoring**VIII .3.1. CETACEAN BYCATCH – IMPLEMENTATION OF LESSONS LEARNT BY MEDBYCATCH PROJECT THROUGHOUT THE MEDITERRANEAN**

Objective	Priority (Low, Medium, High)
Implementing lessons learnt from the MedBycatch project throughout the Mediterranean	High
Description	
<p>The scope of the on-going MAVA funded MedBycatch Project is to monitor and mitigate incidental catches of vulnerable species (Marine Mammals, Sharks, rays, seabirds, marine turtles, corals and sponges) and reduce fishing impacts and pressures on marine habitats and species. Phase 1 (Sept. 2017 - Jun. 2020), involving Morocco, Tunisia and Turkey generated several outputs, among them a protocol on Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea Fisheries: Methodology of data collection, an Identification guide of vulnerable species incidentally caught in Mediterranean fisheries, creation of a Pan-Mediterranean multi-taxa database containing data on bycatch of vulnerable species in the region, and a Review on Incidental Catches of Vulnerable Species in the Mediterranean and the Black Seas as well as national bycatch reports. Phase 2 (Jun. 2020 - Oct. 2022) has expanded the geographical scope of the project, including Croatia and Italy. Phase 2 is primarily focusing on testing mitigation measures and on informing and influencing policy developments related to the bycatch of vulnerable species at national and regional levels.</p> <p>It is of key importance to capitalize the efforts done so far (and on-going) in the context of the MedBycatch project and promoting its approach, deliverables and results to encourage replication across the Mediterranean, establishing a baseline for bycatch in the region and identifying existing gaps.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, National IMAP Committee(s), Ministries of Fisheries and Environment (or equivalent for each country), GFCM, partners of the MedBycatch project directly (or indirectly) involved in cetacean conservation	SPA/RAC and ACCOBAMS

VIII.3.2. INVOLVING FISHERS ACROSS THE MEDITERRANEAN SEA ON CETACEAN CONSERVATION

Objective	Priority (Low, Medium, High)
Gather fishers' local ecological knowledge in order to improve information on cetacean conservation status and threats, and increase their marine conservation awareness	Medium
Description	

<p>Fishers' local ecological knowledge (LEK), accumulated over the course of their fishing careers, can be invaluable in helping marine researchers and resource managers obtain critical information to improve management of fish stocks and rebuild and conserve marine ecosystems.</p> <p>Well-designed and carefully conducted interviews with fishers will allow insights into past abundance of fish and changes in ecosystem status and quality, dolphin–fisheries interactions, as well as whale and dolphin population trends and status, and to identify the main conservation management actions needed. In addition, this initiative will contribute to increasing the marine conservation awareness of fishers by inviting them to reflect on issues that, in many cases, have been largely ignored by their community, and to directly contribute to effective ecosystem-based management measures.</p> <p>The LEK protocol used in the context of the MedBycatch project (see above), as well as the experience gained in this field through similar initiatives within the Mediterranean are to be taken into consideration when designing future questionnaires addressed to fishers.</p> <p>Fishers of different ages and from different generations should be ideally included in this exercise, to account for the phenomenon of shifting environmental baselines². Before conducting private interviews, informative talks will be given at the local fishers' cooperatives to call for the collaboration of their members. This action should not be focused exclusively on small-scale fishers, but also on those working in industrial fishing fleets.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, GFCM, Ministries of Fisheries (or equivalent for each country), Ministry of Environment (or equivalent for each country), NGOs	SPA/RAC and ACCOBAMS

VIII.3.3. STANDARIZATION OF CETACEAN STRANDING PROTOCOLS ACROSS MEDITERRANEAN COUNTRIES	
Objective	Priority (Low, Medium, High)
Promote and implement standardized cetacean stranding protocols throughout the Mediterranean	High
Description	
<p>At the Joint ACCOBAMS/ASCOBANS Workshop on standardization of best practices on cetacean post-mortem investigation and tissue sampling, a common approach was adopted. This was followed by the resolution 7.14 on <i>best practices in monitoring and management of cetacean stranding</i> being released at the 7th Meeting of the Parties to ACCOBAMS, held in Istanbul, Turkey, in November 2019³. This should now be shared across the entire Region, including focusing on the collection of data on marine litter ingestion. Three sub-actions are envisaged:</p> <p>IV Promotion and distribution of the documents to the different stranding networks in the region. Common data sets will be collected annually to have an updated overall view of cetacean interaction with fishing activities and marine litter.</p> <p>V To stress the relevance of a common basic sampling. A common set of tissue samples should be collected and stored for further analyses. These data sets will be dependent on stranding networks skills and resources (see 2.2). Part of these</p>	

² The phenomenon of shifting environmental baselines was described by Daniel Pauly (1995) noting that each generation subconsciously views as 'natural' the way the environment appeared in their youth. As one generation replaces another, perceptions of what is natural can change dramatically among local communities and lead to the loss of memory on past ecosystem status.

³ ACCOBAMS-MOP7/2019/Doc38/Annex15/Res.7.14

<https://accobams.org/wp-content/uploads/2019/12/Res.7.14.-Best-Practices-Strandings.pdf>

ACCOBAMS-MOP7/2019/Doc 33 - *Best Practice on Cetacean Postmortem Investigation and Tissue Sampling*

https://accobams.org/wp-content/uploads/2019/04/MOP7.Doc33_Best-practices-on-cetacean-post-mortem-investigation.pdf

<p>VI</p> <p>VII</p>	<p>samples will be stored in centralized common tissue banks identified by ACCOBAMS that will store and share samples with all the Mediterranean countries where required. A dialogue with CITES will be established as necessary to facilitate sharing tissue samples, including with IWC.</p> <p>Set-up of veterinary laboratories for those stranding networks not having one national laboratory for ancillary analyses (necropsy, histopathology, microbiology). Through the cooperation with the World Animal Health Organization Marine Mammal Health (OIE) reference centre, based in Torino, laboratories will be identified, training will be provided and contacts with already existing and well-established stranding networks will be facilitated.</p> <p>All resulting data is to be shared with the Mediterranean database on cetacean strandings (MEDACES)</p> <p>This action is complementary to 2.2 (Capacity building). A centralized tissue bank system should be identified according to the ISO standards foreseen by the OIE and the Environmental Tissue Bank standards.</p>
Actors	Evaluation
Parties to the Barcelona Convention, Ministry of Environment (or equivalent for each country), Coastguards, NGOs, National Stranding Networks	SPA/RAC and ACCOBAMS

VIII.3.4. WEB-BASED EXCHANGE OF SCIENTIFIC INFORMATION	
Objective	Priority (Low, Medium, High)
Contribute to a harmonized web-based platform such as NETCCOBAMS by which scientific information (e.g., photo-ID catalogues, tissue sample database, sighting record registry) can be maintained in a centralized location and freely exchanged among interested parties	High
Description	
Integration of information on Mediterranean cetaceans from all areas where they are observed is of substantial value in understanding patterns of habitat use and the links between geographic areas, as well as in determining migration routes and wintering location(s) for some species, such as fin and sperm whales. Having a centralized data repository where all interested parties (including the public) would be able to share and exchange information on Mediterranean cetaceans - in accordance with an agreed data availability protocol - would benefit conservation measures at a broader (i.e., range-wide) geo-spatial scale.	
Actors	Evaluation
Parties to the Barcelona Convention, Ministry of Education (or equivalent for each country), Ministry of Environment (or equivalent for each country), Research Institutes, NGOs,	SPA/RAC and ACCOBAMS

VIII.3.5. DEVELOP AND CARRY OUT EFFECTIVE LONG-TERM MONITORING AT THE ENTIRE MEDITERRANEAN BASIN SCALE TO ESTIMATE ABUNDANCE AND TRENDS	
Objective	Priority (Low, Medium, High)
To obtain robust and unbiased population estimates and distributional information on Mediterranean cetaceans throughout the Basin at regular intervals (suggested 6 years following the IMAP requirements)	High
Description	
<p>Promote suitable monitoring programme for the entire Mediterranean region to enable abundance trends, potential distributional changes to be identified and demography of population, in order to inform timely mitigation actions. Robust baseline information on parameters following the agreed EcAp/IMAP agreed common indicators (i.e distribution, abundance and demography) are necessary to inform conservation actions and to implement and evaluate the efficacy of any measures currently in place.</p> <p>The European Habitat Directive, the Marine Strategy Framework Directive, and the IMAP/Ecosystem Approach not only require the monitoring of the Good Environmental Status (GES) of species and habitats of community interest, but also require reporting on this status every 6 years.</p> <p>A synoptic survey, applying line transect distance sampling methodologies, to be carried out in a short period of time across the whole Mediterranean Sea, combining visual survey methods (boat- and aerial-based surveys) and passive acoustic monitoring (PAM). The main aim in both aerial and vessel-based surveys is to estimate density and abundance and assess potential trends over time. Standardized and agreed protocols should be used for the monitoring actions, following the guidelines endorsed by the Contracting Parties during the EcAp Coordination Group Meeting and benefits from the ACCOBAMS Survey Initiative (ASI, 2018) experience.</p> <p>Use existing ongoing programs to integrate abundance estimates and trend estimates.</p> <p>Consider the possibility to perform photo-ID and biopsy and eDNA sampling during large scale surveys to: (1) sample data poor areas, (2) monitor changes in hormones levels, stable isotopes, contaminants in areas of interest as identified by previous surveys.</p> <p>Power analysis should be used to design the specific monitoring framework to detect a trend of a given magnitude and to detect specific rates of population change.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, National IMAP committee(s), MPA management unit(s), Ministry of Environment (or equivalent for each country), Universities, Research Institutes, NGOs	SPA/RAC and ACCOBAMS

VIII.3.6. DEVELOP AND CARRY OUT EFFECTIVE ANNUAL LONG-TERM MONITORING OF CETACEAN DISTRIBUTION, ABUNDANCE AND TRENDS NATIONALLY AND SUB-REGIONALLY	
Objective	Priority (Low, Medium, High)
Ensure that annual/seasonal monitoring of distribution, abundance and density is regularly conducted nationally and at relevant sub-regional units, corresponding to the main distribution areas of Mediterranean cetaceans	High
Description	

<p>Continued monitoring of the Mediterranean cetacean populations and regular updates on population status are essential for meeting conservation objectives; among these, the Barcelona Convention, through the EcAp/IMAP, requests Parties to implement common indicators on a variety of species topics (e.g., distribution, abundance and demography) and prepare periodic regional assessment report (Quality Status Reports), to be presented at regular intervals of six years. In addition, the European Commission, through the implementation of the MSFD, asks its members to systematically report on their monitoring programs, developed at national level.</p> <p>Photo-identification is a widely used technique in cetacean research that can provide information on population demography, estimates of abundance and population parameters such as survival and reproductive rates. Long time series of photo-identified cetaceans of several species are available in different areas, providing opportunities for detecting changes in abundance over time. Similarly, biopsy sampling can be used to obtain information on population genetic structure, contaminant levels, and abundance through genetic mark-recapture analysis.</p> <p>Monitoring at the regional level may require data collection throughout the year, to better understand seasonal patterns in distribution, whereas monitoring at the basin level would mainly address inter-annual changes (3.5.). Mark-recapture models should be applied to photo-identification data (and genetic data where practicable) to estimate abundance for specific areas that populations or part of populations occupy during one or more seasons of the year. Collating information collected by different research groups in these areas is also recommended. Line-transect surveys based on distance-sampling methodology may be appropriate for some species, countries or regions. The use of platforms of opportunity, such as fisheries surveys and/or passenger ferries should also be considered in some cases, while acknowledging their limitations.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee(s), MPA management unit(s), Ministry of Environment (or equivalent for each country), Universities, Research Institutes, NGOs	SPA/RAC and ACCOBAMS

VIII.3.7. MONITOR THREATS AT THE NATIONAL AND BASIN LEVEL	
Objective	Priority (Low, Medium, High)
To periodically assess the status and trends of threats, and the emergence of potential new threats	High
Description	
<p>Status and trends of threats to cetaceans, including ship strikes, bycatch in fishing gear and other negative interaction with fisheries, underwater noise, micro- and macro litter ingestion, chemical contaminant exposure, physical disturbance and climate change, as well as their cumulative effects in the entire Mediterranean Sea, is key information needed to assess the efficiency of existing and future mitigation measures, and the needs for adaptation of any mitigation strategies. Existing national fishing fleet monitoring programs should be leveraged to obtain information on and monitor cetacean bycatch. Trend maps will inform on the evolution of known threats in previously identified risk areas compared to previous assessments, the identification of new risk areas and the emergence of new threats. The needed know-how to conduct this monitoring is not uniformly distributed among the region; therefore, this action is to be conducted in coordination with 2.4., which aims at providing capacity on monitoring threats to cetaceans where necessary.</p>	

Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee(s), MPA management unit(s), Ministry of Environment (or equivalent for each country) in collaboration with neighbouring countries (whenever possible), Universities, Research Institutes, NGOs	SPA/RAC and ACCOBAMS

VIII.4. Management

VIII.4.1. WIDER ADOPTION AND IMPLEMENTATION OF STANDARDIZED MEASURES TO MITIGATE ADVERSE IMPACT OF CETACEAN WATCHING ACTIVITIES	
Objective	Priority (Low, Medium, High)
Efficient management of cetacean watching activities and the implementation of relevant standardized codes of conduct (IWC, ACCOBAMS, CMS)	Medium
Description	
<p>Harassment risk begins when a vessel is deliberately closer than the minimum distance identified in common rules (Code of Conduct) for commercial cetacean watching or when the vessel stays for a period longer than prescribed. This is especially true for swim-with cetacean activities. Moreover, direct interactions between swimmers and animals may introduce risks of animal violent behaviour and transmission of diseases.</p> <p>Additionally, individuals that are regularly approached (even in respect of the code of conduct) can experience substantial stress, which may lead to medium or long-term population-level impacts. It is therefore necessary to minimize the risk of cetacean-watching activities having negative impacts on cetaceans, by the implementation of effective management strategies including the adoption and implementation of standardized codes of conduct (IWC, ACCOBAMS, CMS). The ACCOBAMS “High Quality Whale-Watching®” Certificate aims at encouraging the implementation of good practices and sustainable know-how by whale-watching operators involved in initiatives fostering quality and environmental responsibility; its implementation throughout the basin must be promoted and implemented, ideally, by all Parties.</p> <p>There have been several attempts to evaluate the potential impact of UAVs on cetaceans. At present, there is very little evidence that UAVs disrupt the behaviour of baleen whales. To date, the behavioural responses of dolphins when approached by a UAV remain poorly investigated and most studies have focused on bottlenose dolphins. The available evidence suggests that when small UAVs are flown at an altitude of 10–30 m above bottlenose dolphins, short-term behavioural responses occur. These responses may vary depending on group size and behaviour. Guidelines and well-defined protocols should be developed, promoted among the industry and properly implemented to minimize any potential adverse effects (See Raoult et al. 2020 for a review on using drones on marine animal research).</p>	
Actors	Evaluation
Parties to the Barcelona Convention, Ministry of Environment (or equivalent for each country), Ministry of Tourism (or equivalent for each country), Research Institutes, NGOs, MAP managers	SPA/RAC and ACCOBAMS

VIII.4.2. MITIGATE SHIP STRIKES WITH LARGE WHALES	
Objective	Priority (Low, Medium, High)
Reduce ship strike risk for fin and sperm whales throughout the Mediterranean Basin	High
Description	
<p>Measures that separate whales from vessels (or at least minimise co-occurrence) in space and time to the extent possible (e.g., routing schemes, Traffic Separation Schemes TSS) are the most effective in reducing this threat. In the absence of routing options, reducing speed has been identified as the most effective way of reducing ship strike risk.</p> <p>Emphasis should be placed on the collection and reporting of data to the IWC Global Ship Strikes Database which will both: (1) facilitate a proper evaluation, prioritisation and monitoring of ship strikes as a threat to various populations and areas (e.g., the Mediterranean Sea); and (2) assist in the development of specific mitigation measures.</p> <p>One of the key actions is to identify high-risk areas for ship strikes (a high-risk area is defined as the convergence of either areas of high-volume shipping and whales, or high numbers of whales and shipping, reflected in the ACCOBAMS work on Cetacean Critical Habitat, CCH). Important Marine Mammal Areas (IMMAs) represent a systematic and biocentric approach to identifying important habitats and can be helpful in identifying potential high-risk areas for ship strikes. In particular, if an IMMA contains a species or population vulnerable to ship strikes, and is transited by significant shipping, the area can be “flagged” for further investigation and potential mitigation.</p> <p>The following steps should be undertaken as part of a process to identify High Risk Areas for Ship Strikes based on IMMAs and in relation to CCH: (1) Traffic information (e.g., vessel type, size, speed, flag, etc.): plotting major ship routes to determine overlap with IMMAs that host significant populations of species threatened by or vulnerable to ship strikes; (2) Species information (e.g., relative or absolute abundance, status, behaviour/seasonality/key lifecycle use in and within IMMAs); and (3) Management and Mitigation.</p> <p>Further develop the process for the designation of International Maritime Organization (IMO) measures, such as a TSS in the Hellenic Trench and a Particularly Sensitive Sea Areas (PSSA) at a scale that includes the North West Mediterranean Sea, Slope and Canyon IMMA, as well as the Spanish corridor, to take into account whale population movement and distribution. Zoning within the area with ship strike mitigation tools such as speed reduction and routing measures could be proposed as part of Associated Protective Measures within the PSSA.</p> <p>Co-operation with IMO, other IGOs, national authorities, the shipping industry, port authorities and the whale watching industry is essential if effective mitigation is to occur.</p>	
Actors	Evaluation
IMO, IWC, REMPEC, European Community Shipowners' Associations (ECSA), relevant Ministries per country, research institutes, NGOs	SPA/RAC and ACCOBAMS

VIII.4.3. DEVELOP CONSERVATION MANAGEMENT PLANS (CMPs) FOR MEDITERRANEAN CETACEANS	
Objective	Priority (Low, Medium, High)
Develop a series of CMPs to manage human activities that affect cetaceans in the Mediterranean Sea in order to maintain a favourable conservation status throughout their historical range, based on the best available scientific knowledge	High

Description	
<p>It is not possible to ‘manage’ cetaceans in the Mediterranean Sea themselves, but it is possible to manage human activities that adversely affect the cetaceans and/or their habitat. Thus, by their nature, the management actions associated with CMPs require a degree of control and limitation on human activities.</p> <p>In pursuing this goal, the needs and interests of stakeholders need to be considered to the extent possible, whilst recognising that favourable conservation status is the highest priority. Moreover, scientific uncertainty must be considered while setting priorities and determining appropriate actions, but uncertainty alone should not preclude conservation action. Ideally, all management actions are based on adequate scientific data. However, there are occasions when the potential conservation consequences of waiting for confirmatory scientific evidence are sufficiently serious that it is justified to take action immediately whilst continuing to study the problem. This means following the ‘precautionary principle’.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, IWC, research institutes, NGOs	SPA/RAC and ACCOBAMS

VIII.4.4. ENHANCE EFFORT ON SPECIALLY PROTECTED AREAS OF MEDITERRANEAN IMPORTANCE (SPAMIs) WITH IMPORTANT MARINE MAMMAL AREAS (IMMAs) AND CETACEAN CRITICAL HABITATS (CCH)	
Objective	Priority (Low, Medium, High)
Continue with the ongoing effort to monitor existing SPAMIs and designate new ones, assess potential new candidate IMMAs and Areas of Interest and move forward with the overlap with anthropogenic stressors, to identify CCH in the Mediterranean Sea	Medium
Description	
<p>There are 2 SPAMIs specifically designated for the protection of marine mammals in the Mediterranean Sea: the Pelagos Sanctuary and the Spanish Migration Corridor. Efforts to continue monitoring these areas, by implementing their management plan, as well as proposing new potential SPAMIs in the Basin should be considered as a priority.</p> <p>The Mediterranean Sea also features 19 IMMAs designated as important habitats for cetaceans. In addition to these, 5 candidate IMMAs relevant to cetacean conservation have been identified, along with 23 AoIs. The re-evaluation period for IMMAs is envisaged every 10 years. The next evaluation for the Mediterranean, following a first workshop organised in 2016, is scheduled for 2026, coinciding with the last phase of this 5-year AP. Furthermore, where possible, efforts should be made to designate some of the existing IMMAs as Marine Protected Areas.</p> <p>SPAMIs and IMMAs provide the initial biocentric process (through the spatial definition of the animals’ most important habitats) to be followed by use of the CCH, in which the spatial distribution of threats is identified. Management advice is then based upon an integration of the two approaches and the prioritization of mitigation approaches on a case-specific basis. In addition, other highly relevant initiatives include the post-2020 Regional Strategy for Marine Protected Areas (MPAs) and Other Effective Area-based Conservation Measures (OECMs) in the Mediterranean Sea, coordinated by SPA/RAC. This multidisciplinary effort will assist in providing Countries with advice on targeted and effective conservation measures (where appropriate on a seasonal basis) including:</p> <ul style="list-style-type: none"> ▪ designation of new (or the extension of existing) MPAs with appropriate focused management actions, ▪ zoning within existing MPAs, ▪ corridors between MPAs, 	

<ul style="list-style-type: none"> threat-specific mitigation measures for application throughout the region (shipping or noise directives, e.g., through IMO) during marine spatial planning processes. 	
Actors	Evaluation
IUCN Marine Mammal Protected Areas Task Force, Parties to the Barcelona Convention.	SPA/RAC and ACCOBAMS

VIII.4.5. REDUCE THE INTRODUCTION OF ANTHROPOGENIC SOUND INTO THE MARINE ENVIRONMENT AND MITIGATE ACTIVITIES LIKELY TO PRODUCE UNDERWATER NOISE	
Objective	Priority (Low, Medium, High)
Reduce the input of man-made sound into the marine environment, especially from sources and at levels likely to negatively impact cetaceans, as well as provide mitigation measures for noise-producing activities	High
Description	
<p>Cetaceans rely on sound to communicate, navigate and locate prey. Man-made underwater noise is a significant threat to these animals. Efforts should be made to reduce the underwater noise pollution, in order to prevent adverse effects on cetaceans. For activities and development likely to produce high intensity impulse sounds (e.g., seismic surveys for oil and gas exploration, pile driving and the use of sonar) and long-term chronic noise (e.g., planning of ports and shipping routes or other sound-producing activities), appropriate Environmental Impact Assessments should be carried out before such activities are allowed to take place. Appropriate mitigation measures should be put in place to prevent detrimental effects of underwater noise on cetaceans.</p> <p>Within the EcAp/IMAP process, Contracting Parties to the Barcelona Convention are required to monitor and assess the candidate common indicators related to energy including underwater noise (i.e. common indicator 26: Proportion of days and geographical distribution where loud, low, and midfrequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals, and common indicator 27: Levels of continuous low frequency sounds with the use of models as appropriate). It is also important to monitor underwater noise levels nationally and regionally and build on initiatives such as the “Overview of the Noise Hotspots in the ACCOBAMS area”, the EU funded QuietMed I & II projects, the Quiet Sea Project and the Mediterranean Strategy on Underwater Noise Monitoring for establishing the methodological basis for a future implementation of a basin-wide monitoring programme on underwater noise.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee, MPA management unit(s), Relevant Ministries for each Government, IWC, CMS	SPA/RAC and ACCOBAMS

VIII.4.6. REDUCE THE INPUT OF CHEMICAL CONTAMINANTS	
Objective	Priority (Low, Medium, High)
Reduce the input of chemical contaminants into the marine environment and limit the mobilization of contaminants in marine sediments	High
Description	
<p>Chemical pollutants impact cetacean species in a number of ways. While some pollutants in the Mediterranean Sea have declined or are declining, organochlorine levels, particularly PCBs, are found at high concentrations in several Mediterranean cetacean species. Pollutants and their impact in marine organisms are included in the EcAp/IMAP Ecological Objective 9 and its Common Indicator 19 and the Descriptor 8 of the Marine Strategy Framework Directive (MSFD)</p> <p>At the Mediterranean policy level, PCB concentration in relation to established toxicity thresholds should be used to assess “Favourable Conservation Status” of cetaceans. Chemical pollutants need to be included in impact assessments of other activities likely to affect cetaceans, due to cumulative and synergistic effects. Greater compliance with the Stockholm Convention is needed in order to significantly reduce PCB contamination of the marine and terrestrial environment by 2028. Measures include the safe disposal or destruction of large stocks of PCBs and PCB-containing equipment, limiting the dredging of PCB-laden rivers and estuaries, reducing PCB leakage from old landfills, limiting PCB mobilization in marine sediments, and regulating the demolition of PCB-containing precast buildings.</p>	
Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee, Relevant Ministries for each Government, MED POL, IWC, REMPEC	SPA/RAC and ACCOBAMS

VIII.4.7. REDUCE THE AMOUNT OF MARINE DEBRIS AND MICROPLASTICS ACROSS THE MEDITERRANEAN BASIN	
Objective	Priority (Low, Medium, High)
Reduce the input of marine debris and micro/nano plastics into the marine environment and ensure appropriate removal where possible	High
Description	

Different cetacean species are threatened by marine debris to varying degrees, with deep-diving odontocetes likely most vulnerable to ingestion of macro debris and fin whales especially vulnerable to the ingestion of micro/nano plastics. Macro- and microplastics enter the marine environment either directly from improper waste disposal, improperly managed landfills, improperly treated water waste management or result from the degradation of larger items breaking down into smaller particles.

Marine litter monitoring of IMAP is based on the Regional Plan on Marine Litter management (Decision IG.20/10) and on the following agreed candidate indicator 24 “Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds, and marine turtles (EO10)”.

Mitigation measures in relation to marine plastic pollution should focus on 1) preventing the leakage of new micro- and macro-plastic material into the environment and 2) instigating the removal of macro-plastics from the marine environment. The Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 was established to reduce the impact of plastic on the environment (including marine ecosystems) by promoting the establishment of a circular economy. Considering that single-use plastics and fishing-related items represent the vast majority of marine litter, these products should be the main target of mitigation measures. The transition to a circular economy framework will involve the phasing out of single-use plastics, extended producer responsibilities, and recycling schemes. The Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol should be implemented.

Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee, Relevant Ministries for each Government, MedPOL, IWC, REMPEC	SPA/RAC and ACCOBAMS

VIII.4.8. MANAGEMENT OF FISHERIES TO MITIGATE CETACEAN BYCATCH	
Objective	Priority (Low, Medium, High)
Recognising mitigating cetacean bycatch as intrinsic to successful fisheries management	High
Description	
<p>Despite being considered as the greatest threat to cetaceans globally, bycatch is frequently perceived as a separate fisheries management issue. Nevertheless, to achieve effective reduction of cetacean bycatch rates, technical mitigation measures specially designed, promoted and imposed for cetaceans, must be coupled with other intrinsic improvements in fisheries management globally. For instance, the most generally effective mitigation measure of cetacean bycatch is reduction in fishing effort; such strategy is to be seriously considered, starting to incorporate it in future fisheries management initiatives, starting by fisheries with the largest documented impact, which may vary considerably among or even within countries.</p> <p>According to the ACCOBAMS/ASCOBANS bycatch mitigation measures, the following are proposed:</p> <p>16. Encourage Parties, Research Institutes, and Private Sector bodies supported by funding bodies, in collaboration with fishers throughout the process, to develop or improve mitigation measures with new technology and/or materials, alternative gears, the shifting of fishing effort etc.</p>	

17. The success of particular mitigation measures depends upon a variety of elements including the particular cetacean population, specifics of the gear and its deployment, as well as local conditions. The Working Group should keep a watching brief of case studies relevant to the Agreement Areas that describe which measures have or have not worked. This should be undertaken in liaison with other bodies (e. g. ICES, WGBYC, FAO, IWC, HELCOM, OSPAR) so that actions complement one another rather than duplicate effort.
18. There is a need to improve the involvement of fishers from the start, including transfer of knowledge, in adopting good practices and to contribute prevention and monitoring of bycatches and careful release of entangled animals. Better outreach would help to inform and reduce bycatch and entanglement. Parties should consider the provision of incentives where appropriate.
19. The Working Group should develop guidelines to policymakers, authorities, and the scientific community on how to best incentivise and engage fishers in prevention, mitigation and monitoring programmes.
20. Where the current mitigation measures (e. g. pingers) don't solve the problem, spatio-temporal closures may be the only immediately available solution, although care is needed that this does not simply move the problem elsewhere. Consideration should be given to moving away from métiers of concern, in which case national authorities should consider some means of compensation to help cover fishers' income loss, where appropriate. The precautionary principle should be adopted. Insufficient technology development should not be considered as a reason to postpone decision-making.
21. The need to move towards an internationally standardised approach for dealing with potential interventions (or lack thereof) of free-swimming, chronically entangled cetaceans should be considered. Expansion of the IWC Global Whale Entanglement Response Network across the regions should be encouraged, including dedicated training of entanglement responders.
22. The humane release of live bycaught and entangled animals according to best practices should be encouraged to help ensure their survival (e.g. Guidelines for the Safe and Humane Handling and Release of Bycaught Small Cetaceans from Fishing Gear - CMS Technical Series No.43, FAO/ACCOBAMS Good Practice Guide for the Handling of Cetaceans caught incidentally in Mediterranean Fisheries, IWC Guidelines for entanglement responders) and fishers should be encouraged to report releases of bycaught individuals.
23. Countries should be encouraged to establish Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) where appropriate, and to develop and implement management plans to reduce cetacean bycatch.
24. Methods to monitor the performance of mitigation measures (such as pingers) as well as compliance in their usage by fisheries in real world conditions should be improved and become standard.

Actors	Evaluation
Parties to the Barcelona Convention, national IMAP committee, GFCM, Ministries of Fisheries (or equivalent for each country), Ministry of Environment (or equivalent for each country), IWC	SPA/RAC and ACCOBAMS

VIII.5 IMPLEMENTATION SCHEDULE

	Actions	Time	Who
VIII.1. EDUCATION AND AWARENESS	VIII.1.1. Increase public awareness	Continuously	Contracting Parties ;SPA/RAC; ACCOBAMS
VIII.2. CAPACITY BUILDING	VIII .2.1. Increase and strengthen capacity at the Mediterranean level	Continuously and as needed	SPA/RAC; ACCOBAMS; CPs
	VIII .2.2. Increase the capacity of and develop stranding networks throughout the region		SPA/RAC; ACCOBAMS; CPs
	VIII .2.3. Increase capacity on and disseminate cetacean monitoring techniques		SPA/RAC; ACCOBAMS; CPs
	VIII .2.4. Increase capacity on and improve monitoring of threats affecting cetaceans		SPA/RAC; ACCOBAMS; CPs
VIII.3. RESEARCH AND MONITORING	VIII .3.1. Cetacean bycatch – implementation of lessons learnt by med bycatch project throughout the Mediterranean	As soon as possible and continuously	SPA/RAC; ACCOBAMS; GFCM
	VIII.3.2. Involving fishers across the Mediterranean Sea on cetacean conservation		Contracting Parties
	VIII.3.3. Standardization of cetacean stranding protocols across Mediterranean countries		SPA/RAC; ACCOBAMS;
	VIII .3.4. Web-based exchange of scientific information		Contracting Parties; ACCOBAMS
	VIII .3.5. Develop and carry out effective long-term monitoring at the entire Mediterranean basin scale to estimate abundance and trends		SPA/RAC; ACCOBAMS; CPs
	VIII .3.6. Develop and carry out effective annual long-term monitoring of cetacean distribution, abundance and trends nationally and sub-regionally		SPA/RAC; ACCOBAMS; CPs
	VIII .3.7. Monitor threats at the national and basin level		CPs; SPA/RAC; ACCOBAMS;
VIII.4. MANAGEMENT	VIII .4.1. Wider adoption and implementation of standardized measures to mitigate adverse impact of cetacean watching activities	As soon as possible and continuously	CPs; ACCOBAMS; SPA/RAC; Pelagos secretariat
	VIII.4.2 mitigate ship strikes with large whales		CPs; ACCOBAMS; SPA/RAC; Pelagos secretariat
	VIII .4.3. Develop conservation management plans (CMPs) for Mediterranean cetaceans		ACCOBAMS; SPA/RAC; Pelagos secretariat

	VIII.4.4. Enhance effort on specially protected areas of Mediterranean importance (SPAMIs) with important marine mammal areas (IMMAs) and cetacean critical habitats (CCH)		ACCOBAMS; SPA/RAC; Pelagos secretariat
	VIII.4.5. Reduce the introduction of anthropogenic sound into the marine environment and mitigate activities likely to produce underwater noise		CPs, ACCOBAMS; SPA/RAC; Pelagos secretariat
	VIII .4.6. Reduce the input of chemical contaminants		CPs, ACCOBAMS; SPA/RAC; Pelagos secretariat, MEDPOL
	VIII .4.7. Reduce the amount of marine debris and microplastics across the Mediterranean basin		CPs, ACCOBAMS; SPA/RAC; Pelagos secretariat, MEDPOL
	VIII.4.8. Management of fisheries to mitigate cetacean bycatch.		CPs, ACCOBAMS; SPA/RAC; GFCM, Pelagos secretariat

IX. References

- ACCOBAMS, 2019. Review of Bycatch Rates of Cetaceans in the Mediterranean and the Black Sea. ACCOBAMS-MOP7/2019/Doc 29.
- Andre J., Boudou A., Ribeyre F. and Bernhard, M. 1991. Comparative study of mercury accumulation in dolphins (*Stenella coeruleoalba*) from French Atlantic and Mediterranean coasts. *Science of the Total Environment*. 104(3): 191-209.
- Baulch S. and Perry C. 2014. Evaluating the impacts of marine debris on cetaceans. *Marine pollution bulletin* 80:210-221.
- Bearzi G. 2002. Interactions between cetacean and fisheries in the Mediterranean Sea. In *Cetaceans of the Mediterranean and Black Seas: State of Knowledge and Conservation Strategies*, Notarbartolo di Sciara G. (ed.). A Report to the ACCOBAMS Secretariat, Section 9, Monaco, February 2002, 20.
- Benmessaoud R., Cherif M., Jaziri S., Koched W. and Zaara K. 2018. Atténuation des interactions entre les espèces menacées (delphinidés et oiseaux marins) et les activités de pêche des petits pélagiques dans la région de Kélibia (Tunisie). Rapport d'avancement. MoU ACCOBAMS N°05/2016/LB6410, 57pp.
- Bianchi C.N. (2007) Biodiversity issues for the forthcoming tropical Mediterranean Sea. *Hydrobiologia* 580:7–21.
- Boero F., Féral J.P., Azzurro E., Cardin V., Riedel B., Despalatovi M., Munda I., Moschella P., Zaouali J., Fonda Umani S., Theocharis A., Wiltshire K. and Briand F. 2008. Executive summary of CIESM Workshop 35. In Briand F. (ed.) 'Climate warming and related changes in Mediterranean marine biota'. CIESM Workshop Monographs 35, 5–21.
- Booth C.G., Sinclair R.R., and Harwood J. 2020. Methods for Monitoring for the Population Consequences of Disturbance in Marine Mammals: A Review. *Frontiers in Marine Science*. 7 :115. 10.3389/fmars.2020.00115
- Brownell R.L.J., Reeves R. R., Read A. J., Smith B. D., Thomas P. O., Ralls K., Amano M., Berggren P., Chit A.M., Collins T., Currey R., Dolar M.L.L., Genov T., Hobbs R.C., Krebs D., Marsh H., Zhigang M., Perrin W.F., Phay S., Rojas-Bracho L., Ryan G.E., Sheldon K.E.W., Slooten E., Taylor B.L., Vidal O., Ding W., Whitty T.S. and Wang J.Y. 2019. Bycatch in gillnet fisheries threatens Critically Endangered small cetaceans and another aquatic megafauna. *Endangered Species Research* 40 :285-296.
- Clark C.W., Ellison W.T., Southall B.L., Hatch L., Van Parijs S.M., Frankel A. and Ponirakis D. 2009. Acoustic masking in marine ecosystems: intuitions, analysis, and implication. *Marine Ecology Progress Series* 395:201 - 222.
- Coll M., Piroddi C., Steenbeek J., Kaschner K., Lasram F.B.R., Aguzzi J., Ballesteros E., Bianchi C.N., Corbera J., Dailianis T. Danovaro R., Estrada M., Froglija C., Galil B.S., Gasol J.M., Gertwagen R., Gil J.O., Guilhaumon F.O., Kesner-Reyes K., Kitsos M.-S., Koukouras A., Lampadariou N., Laxamana E., Cuadra C.M.L.P.F. de L., Lotze H.K., Martin D., Mouillot D., Oro D., Raicevich S.A., Rius-Barile J., Saiz-Salinas J.I., Vicente C.S., Somot S., Templado J., Turon X., Vafidis D. and Villanueva R., Voultziadou E. 2010. The biodiversity of the Mediterranean Sea: estimates, patterns, and threats. *PLoS ONE* 5: e11842
- David L., Alleaume S. and Guinet C. 2011. Evaluation of the potential of collision between fin whales and maritime traffic in the north-western Mediterranean Sea in summer, and mitigation solutions. *Journal of Marine Animals and Their Ecology*, 4,1: 17-28.
- de Stephanis R., Giménez J., Carpinelli E., Gutierrez-Exposito C. and Cañadas A. 2013. As main meal for sperm whales: Plastics debris. *Marine pollution bulletin* 69:206-214.

- Di Méglio N., David L. and Monestiez P. 2018. Sperm whale ship strikes in the Pelagos Sanctuary and adjacent waters: assessing and mapping collision risks in summer. *Journal of Cetacean Research and Management* 18:135–147
- Duras Gomerčić M., Galov A., Gomerčić T., Škrtić D., Čurković S., Lucić H., Vucović S., Arbanasić H., Gomerčić H. 2009. Bottlenose dolphin (*Tursiops truncatus*) depredation resulting in larynx strangulation with gill-net parts. *Marine Mammal Science* 25: 392–401.
- FAO. 2019. Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO.
- FAO. 2020. The State of Mediterranean and Black Sea Fisheries 2020. General Fisheries Commission for the Mediterranean. Rome. <https://doi.org/10.4060/cb2429en>
- Frantzis A., Leaper R., Alexiadou P., Prospathopoulos A. and Lekkas D. 2019. Shipping routes through core habitat of endangered sperm whales along the Hellenic Trench, Greece: Can we reduce collision risks? *PLoS ONE* 14(2): e0212016. <https://doi.org/10.1371/journal.pone.0212016>
- Fossi M.C., Panti C., Romeo T., Guerranti C., Coppola D., Giannetti, Marsili L. and Minutoli, R. 2012. Are baleen whales exposed to the threat of microplastics? A case study of the Mediterranean fin whale (*Balaenoptera physalus*). *Marine Pollution Bulletin*, 64(11):2374-2379. <https://doi.org/10.1016/j.marpolbul.2012.08.013>
- Fossi M.C., Marsili L., Bainsi M., Giannetti M., Guerranti C., Caliani I., Minutoli R., Lauriano G., Finoia M.G., Rubegni F., Panigada S., Bérubé M., Urban J. and Panti C. 2016. Fin whales and microplastics: The Mediterranean Sea and the Sea of Cortez scenarios. *Environmental Pollution* 209:68-78. doi: 10.1016/j.envpol.2015.11.022
- Fossi M.C., Romeo T., Bainsi M., Panti C., Marsili L., Campani T., Canese S., Galgani F., Druon J.N., Airoidi S., Taddei S., Fattorini M., Brandini C. and Lapucci C. 2017. Plastic debris occurrence, convergence areas and fin whales feeding ground in the Mediterranean Marine Protected Area Pelagos Sanctuary: a modelling approach, *Frontiers in Marine Science* 4:167 | DOI: 10.3389/fmars.2017.00167
- Gambaiani D.D., Mayol P., Isaac S.J. and Simmonds M.P. 2009. Potential impacts of climate change and greenhouse gas emissions on Mediterranean marine ecosystems and cetaceans. *Journal of the Marine Biological Association of the United Kingdom* 89:179–201.
- Genov T., Jepson P.D., Barber J.L, Hace A., Gaspari S., Centrih T., Lesjak J. and Kotnjek P. 2019. Linking organochlorine contaminants with demographic parameters in free-ranging common bottlenose dolphins from the northern Adriatic Sea. *Science of the Total Environment* 657:200-212.
- Gonzalvo J., Forcada J., Grau E. and Aguilar A. 2014. Strong site-fidelity increases vulnerability of common bottlenose dolphins *Tursiops truncatus* in a mass tourism destination in the western Mediterranean Sea. *Marine Biology* 94:1227-1235.
- Hall A.J., McConnell B.J., Rowles T.K., Aguilar A., Borrell A., Schwacke L., Reijnders P.J.H. and Wells R.S. 2006. Individual-based model framework to assess population consequences of polychlorinated biphenyl exposure in bottlenose dolphins. *Environmental Health Perspectives* 114(1): 60-64.
- Hall A.J., McConnell B.J., Schwacke L.H., Ylitalo G.M., Williams R. and Rowles T. K. 2017. Predicting the effects of polychlorinated biphenyls on cetacean populations through impacts on immunity and calf survival. *Environmental Pollution* 233:407-418.
- IPCC. 2007. Climate Change 2007, Intergovernmental Panel on Climate Change (IPCC). Fourth Assessment Report. Cambridge, UK and New York: Cambridge University Press (<http://www.ipcc.ch/>).

- IWC. 2006. Report of the IWC Scientific Committee Workshop on Habitat Degradation. *Journal of Cetacean Research and Management* 8 (Suppl.): 313-335.
- Jahoda M., Lafortuna C.L., Biassoni N., Almirante C., Azzellino A., Panigada S., Zanardelli M. and Notarbartolo di Sciara, G. 2003. Mediterranean fin whale's (*Balaenoptera physalus*) response to small vessels and biopsy sampling assessed through passive tracking and timing of respiration. *Marine Mammal Science* 19(1):96-110.
- Jepson P.D., Deaville R., Barber J.L., Aguilar À., Borrell A., Murphy S., Barry J., Brownlow A., Barnett J., Berrow S., Cunningham A.A., Davison N.J., ten Doeschate M., Esteban R., Ferreira M., Foote A.D., Genov T., Giménez J., Loveridge J., Llavona Á., Martin V., Maxwell D.L., Papachlimitzou A., Penrose R., Perkins M.W., Smith B., de Stephanis R., Tregenza N., Verborgh P., Fernandez A. and Law R.J. 2016. PCB pollution continues to impact populations of orcas and other dolphins in European waters. *Scientific Reports*. 6:18573.
- La Manna G., Clò S., Papale E. and Sara G. 2010. Boat traffic in Lampedusa waters (Strait of Sicily, Mediterranean Sea) and its relation to the coastal distribution of common bottlenose dolphin (*Tursiops truncatus*). *Ciencias Marinas* 36:71–81.
- La Manna G., Manghi M., Pavan G., Lo Mascolo F. and Sarà G. 2013. Behavioural strategy of common bottlenose dolphins (*Tursiops truncatus*) in response to different kinds of boats in the waters of Lampedusa Island (Italy). *Aquatic Conservation: Marine and Freshwater Ecosystems* 23(5):745-757.
- Lambert C., Authier M., Dorémus G., Laran S., Panigada S., Spitz J., Van Canneyt O. and Ridoux V. 2020. Setting the scene for Mediterranean litterscape management: The first basin-scale quantification and mapping of floating marine debris. *Environmental Pollution* 263, 114430. <https://doi.org/10.1016/j.envpol.2020.114430>
- Lejeune C., Chevaldonne' P., Pergent-Martini C., Boudouresque C.F. and Perez T. 2009. Climate change effects on a miniature ocean: the highly diverse, highly impacted Mediterranean Sea. *Trends in Ecology and Evolution* 1204: 11 pp. doi:10.1016/j.tree.2009.10.009
- Marsili L., Jiménez B. and Borrell A. 2018. Persistent organic pollutants in cetaceans living in a hotspot area: the Mediterranean Sea. In *Marine Mammal Ecotoxicology: Impacts of Multiple Stressors on Population Health*. (M.C. Fossi and C. Panti, eds.). Academic Press. pp.185-212.
- Nelms S. E., Barnett J., Brownlow A., Davison N., Deaville R., Galloway T.S., Lindeque P.K., Santillo D. and Godley B. J. 2019. Microplastics in marine mammals stranded around the British coast: ubiquitous but transitory? *Scientific Reports* 9:1-8.
- Notarbartolo di Sciara G., Zanardelli M., Jahoda M., Panigada S. and Airoidi S. 2003. The fin whale *Balaenoptera physalus* (L. 1758) in the Mediterranean Sea. *Mammal Review* 33: 105–150.
- Notarbartolo di Sciara G. 1990. A note on the cetacean incidental catch in the Italian driftnet swordfish fishery, 1986–1988. *Report of the International Whaling Commission* 40:459–460.
- Panigada S., Pesante G., Zanardelli M., Capoulade F., Gannier A. and Weinrich M.T., 2006. Mediterranean fin whales at risk from fatal ship strikes. *Marine Pollution Bulletin* 52:1287–1298. <http://dx.doi.org/10.1016/j.marpolbul.2006.03.014>.
- Papale E., Azzolin M. and Giacoma C. 2011. Vessel traffic affects bottlenose dolphin (*Tursiops truncatus*) behaviour in waters surrounding Lampedusa Island, south Italy. *Journal of the Marine Biological Association of the United Kingdom* 92(8):1877-1885. doi:10.1017/S002531541100083X.
- Pauly D. 1995. Anecdotes and the shifting baseline syndrome of fisheries. *Trends in Ecology and Evolution* 10:430.
- Piroddi C., Bearzi G. and Christensen V. 2010. Effects of local fisheries and ocean productivity on the northeastern Ionian Sea ecosystem. *Ecological Modelling* 221:1526–1544.

- Pirotta E., Laesser B.E., Hardaker A., Riddoch N., Marcoux M., Lusseau D. 2013. Dredging displaces bottlenose dolphins from an urbanised foraging patch. *Marine Pollution Bulletin* 74:396–402. doi:10.1016/j.marpolbul.2013.06.020
- Raoult, V., Colefax, A.P., Allan, B.M., Cagnazzi, D., Castelblanco-Martínez, N., Ierodiaconou, D., Johnston, D.W., Landeo-Yauri, S., Lyons, M., Pirotta, V., Schofield, G., Butcher, P.A., 2020. Operational Protocols for the Use of Drones in Marine Animal Research. *Drones* 4, 64. doi:10.1016/j.pecs.2019.03.002
- Read A.J. 2008. The looming crisis: Interactions between marine mammals and fisheries. *Journal of Mammalogy* 89:541–548.
- Reeves R.R., Read A.J. and Notarbartolo di Sciara G. 2001. Report of the Workshop on Interactions between Dolphins and Fisheries in the Mediterranean: Evaluation of Mitigation Alternatives. ICRAM: Rome.
- Sala E. 2004. The past and present topology and structure of Mediterranean subtidal rocky-shore food webs. *Ecosystems* 7:333–340.
- Schwacke L.H., Voit E.O., Hansen L.J., Wells R.S., Mitchum G.B., Hohn A.A. and Fair P.A. 2002. Probabilistic risk assessment of reproductive effects of polychlorinated biphenyls on bottlenose dolphins (*Tursiops truncatus*) from the Southeast United States coast. *Environmental Toxicology and Chemistry*. 21(12):2752-2764.
- Schwacke L.H., Zolman E.S., Balmer B.C., De Guise S., George R.C., Hoguet J., Hohn A.A., Kucklick J.R., Lamb S., Levin M., Litz J.A., McFee W.E., Place N.J., Townsend F.I., Wells R.S and Rowles, T.K. 2012. Anaemia, hypothyroidism and immune suppression associated with polychlorinated biphenyl exposure in bottlenose dolphins (*Tursiops truncatus*). *Proceedings of the Royal Society B: Biological Sciences*. 279(1726):48-57.
- Simmonds M. P. 2012. Cetaceans and marine debris: the great unknown. *Journal of Marine Biology* 2012. doi:10.1155/2012/684279
- Southall B. L., Bowles A.E., Ellison W.T., Finneran J.J., Gentry R.L., Greene C.R., Kastak D., Ketten D.R., Miller J.H., Nachtigall P.E., Richardson W.J., Thomas J.A., and Tyack P.L. 2007. Marine mammal noise exposure criteria - Initial scientific recommendations. *Aquatic Mammals* 33:411–521.
- Stelzenmüller V., Coll M., Mazaris A.D., Giakoumi S., Katsanevakis S., Portman M.E., Degen R., Mackelworth P., Gimpel A., Albano P.G., Almpandou V., Claudet J., Evagelopoulos F. Essl, T., Heymans J.J., Genov T., Kark S., Micheli F., Pennino M.G., Rilov G., Rumes B., Steenbeek J. and Ojaveer H. 2018. A risk-based approach to cumulative effect assessments for marine management. *Science of the Total Environment* 612:1132-1140.
- Tanabe S., Iwata H. and Tatsukawa R. 1994. Global contamination by persistent organochlorines and their ecotoxicological impact on marine mammals. *Science of the Total Environment*. 154(2-3):163-177.
- Vos J.G., Bossart G.D., Fournier M. and O'Shea T.J. 2003. *Toxicology of Marine Mammals*. Taylor & Francis, London and New York.
- Weilgart L. 2007. A brief review of known effects of noise on marine mammals. *International Journal of Comparative Psychology* 20:159 - 168.
- Williams R., Cholewiak D., Clark C.W., Erbe C., George C., Lacy R., Leaper R., Moore S., New L., Parsons C., Rosenbaum H., Rowles T., Simmonds M., Stimmelmayer R., Suydam R.S. and Wright A. 2020. Chronic ocean noise and cetacean population models. *Journal of Cetacean Research and Management* 21:85-94

Annex II

**Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea
(Dark Habitats Action Plan)**

I. FOREWORD

1. The Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemosynthetic phenomena in the Mediterranean Sea follows a series of eight Action plans adopted by the Mediterranean countries within the framework of the Barcelona Convention, devoted to the conservation of species or groups of species. These Action plans are:

- Action Plan for the management of the monk seal
- Action Plan for the conservation of marine turtles
- Action Plan for the conservation of cetaceans
- Action Plan for the conservation of marine vegetation
- Action Plan for the conservation of bird species registered in annex II of the SPA/BD Protocol
- Action Plan for the conservation of cartilaginous fishes (Chondrichthyans) in the Mediterranean Sea
- Action Plan concerning species introduction and invasive species
- Action Plan for the conservation of the coralligenous and other calcareous bio-concretions in the Mediterranean Sea

2. Dark Habitats are considered as fragile and sensitive habitats requiring protection (Directive 92/43/EEC). They constitute veritable reservoirs of biodiversity that, therefore, must be protected and need further attention.

3. This draft Action plan was the result of a Meeting of the ad hoc group of Mediterranean experts, nominated in consultation with the Contracting Parties and relevant partner organizations (Marseilles (France), May 2013). It was reviewed and adopted by the Eleventh Meeting of Focal Points for SPAs (Rabat - Morocco, 2 – 5 July 2013).

4. The Action Plan was adopted in the Eighteenth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols (Istanbul - Turkey, 3-6 December 2013). The document of the Action Plan was first published in 2015 under the reference: UNEP-MAP-RAC/SPA, 2015. Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea. Dark Habitats Action Plan. Ed. RAC/SPA, Tunis: 17 pp.

5. This document is the draft update of the Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea as requested by the contracting Parties in their decision IG.24/07 (CoP 21 - Naples (Italy), 2-5 December 2019).

II. PRESENTATION

6. Dark habitats are those where either no sunlight arrives or where the light that does arrive is insufficient for the development of plant or algal assemblages. These are known as the aphotic and the disphotic or twilight zones. They are distributed throughout the Mediterranean basin and include both shallow marine dark caves⁴ and deep-sea habitats (usually at depths below 150-200 m, Figure 1). However, inventorying and monitoring initiatives focusing on marine caves should consider the cave habitat as a whole. Therefore, this document covers both semi-dark and dark caves. Diverse geomorphological structures such as underwater caves, canyons, slopes, isolated rocks, seamounts, abyssal plains and areas presenting chemosynthetic phenomena, can characterise the dark habitats and can support sensitive habitats and assemblages that are of unique scientific and conservation interest and require special protection.

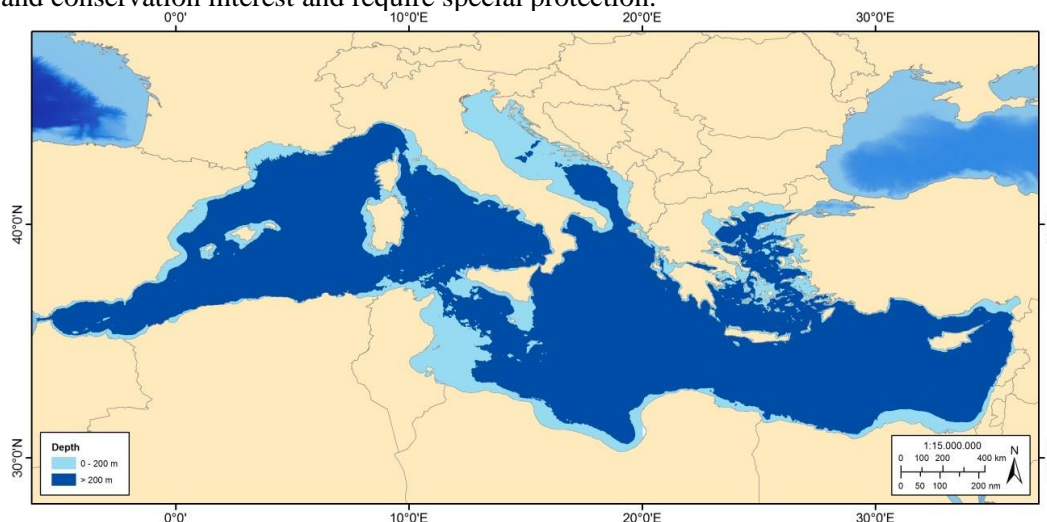


Figure 1: Deep-sea areas in the Mediterranean Sea below 200 m depth (from SPA/RAC-UN Environment/MAP & OCEANA, 2017; compiled by the authors based on data available from different sources)

III. STATE OF KNOWLEDGE

III.1 Distribution

III.1.1 Marine caves

7. To date approximately 3,000 marine caves have been recorded in the Mediterranean Sea (see Figure 2) (Giakoumi et al., 2013; SPA/RAC-UNEP/MAP, 2020). Most of these caves are located in the North Mediterranean, which encompasses a higher percentage of rocky coasts and has been more extensively studied for this particular habitat. Specifically, the highest numbers of known caves are in the Eastern Adriatic, Aegean, Tyrrhenian, Provençal and Ionian coasts, where they are sometimes densely concentrated on islands and rocky peninsulas (SPA/RAC-UNEP/MAP, 2020). Mapping initiatives have taken place in Italy (Cicogna et al., 2003), Corsica (CREOCEAN-DREAL, 2010), Croatia (Surić et al., 2010) and Greece (Gerovasileiou et al., 2015; Sini et al., 2017). Expeditions in the framework of the research projects MedKeyHabitats, MedMPAnet and LIFE BaHAR for N2K provided information on the distribution of marine caves in Algeria (PNUE/PAM-CAR/ASP, 2016a), Lebanon (SPA/RAC-UN Environment/MAP, 2017), Montenegro (UNEP-MAP-RAC/SPA, 2016a, b), Morocco (Espinosa et al., 2015; PNUE/PAM-CAR/ASP, 2016b), Malta and Gozo (Evans et al., 2016; Borg et al., 2017). The latter studies also extended the bathymetric distribution of the marine cave habitat to the deep sea (between 205 and 795 m). Numerous marine caves from the coasts of Turkey were also described in a recent publication (Öztürk, 2019). However, given the logistic difficulties in the inventorying of underwater caves, and especially the submerged ones, their number is assumed to be much

⁴ Semi-dark cave communities have been integrated into the Action Plan for the conservation of the coralligenous and other calcareous bio-concretions in the Mediterranean Sea (UNEP-MAP-RAC/SPA, 2008).

higher than we know (SPA/RAC-UNEP/MAP & OCEANA, 2017). Mapping efforts are required in order to fill current distribution gaps in the Eastern and Southern Mediterranean regions, and in deeper waters.

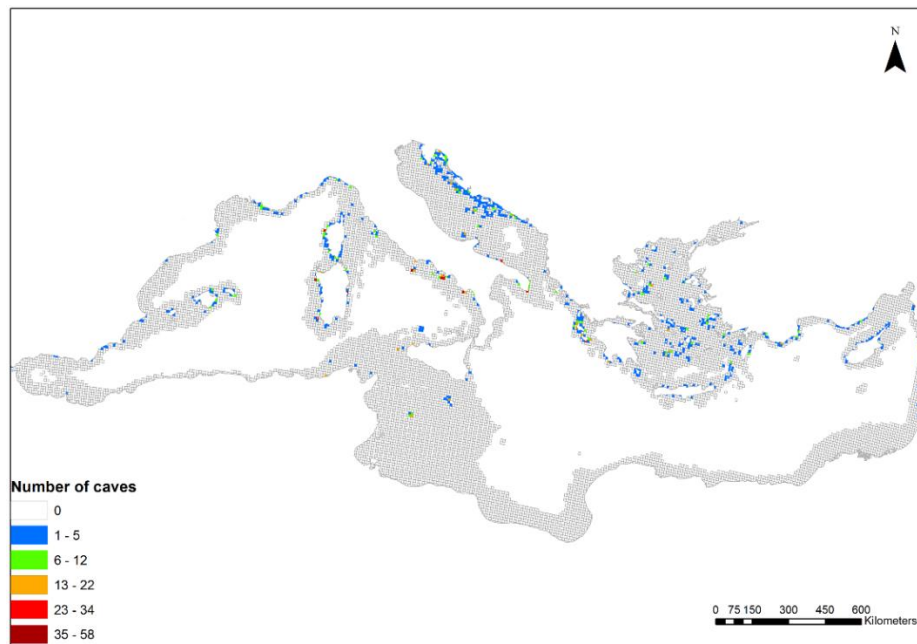


Figure 2: Distribution of marine caves in the Mediterranean Sea. Different colours indicate the number of caves recorded in cells of 10x10 km (from Giakoumi et al., 2013)

III.1.2 Deep sea

8. Geomorphologic structures such as canyons (Figure 3), seamounts (Figure 4) and rocky aphotic escarpments may be localized by the acquisition and study of high-resolution geomorphologic seafloor data. Spatial information on deep-sea geomorphologic structures such as canyons have been compiled at the Mediterranean scale (Würtz, 2012) and have been updated (Harris & Macmillan-Lawler, 2015). The distribution of seamounts and seamount-like structures have also been mapped in the Mediterranean (Würtz & Rovere, 2015).

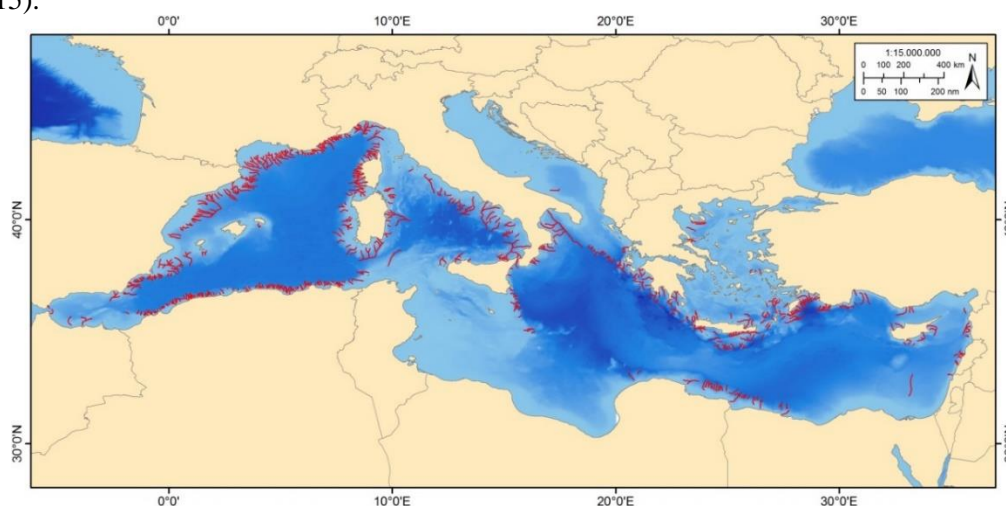


Figure 3: Distribution of Mediterranean submarine canyons (from SPA/RAC-UN Environment/MAP & OCEANA, 2017; compiled by the authors based on data available from different sources)

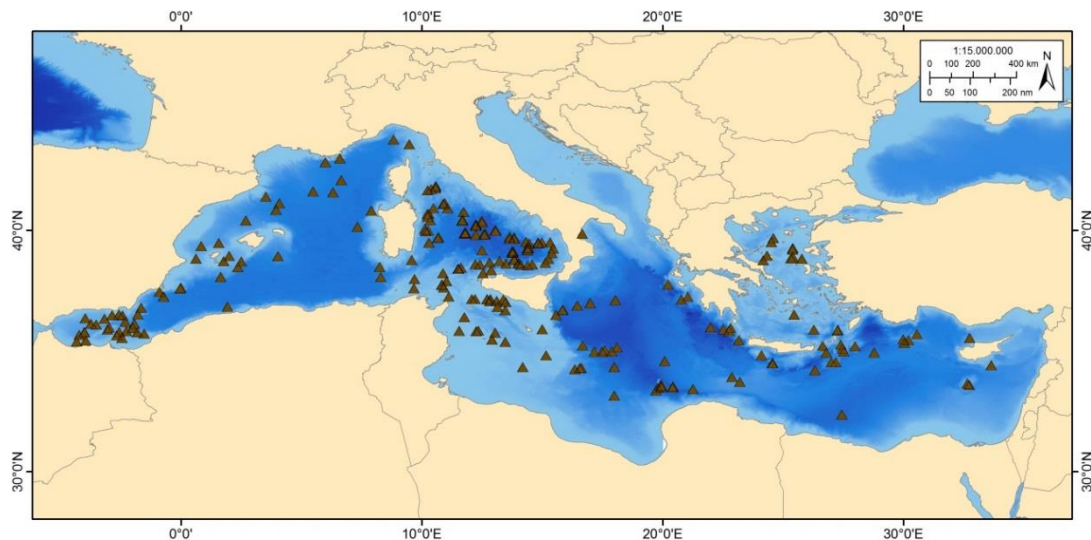


Figure 4: Distribution of Mediterranean seamounts (from SPA/RAC-UN Environment/MAP & OCEANA, 2017; compiled by the authors based on data available from different sources)

9. These structures offer heterogeneous habitats that enhance biodiversity and are considered as hotspots of biodiversity (Danovaro et al., 2010; Würtz & Rovere, 2015). They may harbour slow growing, long-living species, constitutive of sponge aggregations, coral forests and Cold-Water Corals (CWCs) that are considered as Vulnerable Marine Ecosystems (VMEs), according to *The International Guidelines for the Management of Deep-sea Fisheries in the High Seas* (FAO, 2009). Areas with chemosynthetic phenomena (e.g. cold seeps, mud volcanoes, hydrothermal fields, pockmarks, brine pools) (Figure 5), represent rare and fragile morphological structures and shelter unique ecosystems and species (e.g. Angeletti et al., 2015; Esposito et al., 2015; Beccari et al., 2020).

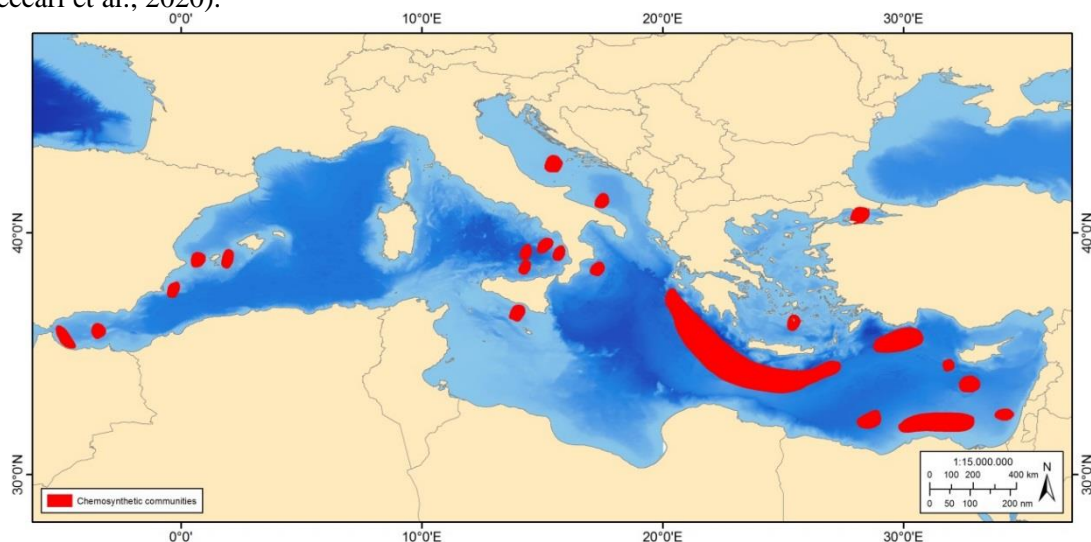


Figure 5: Identified areas with chemosynthetic assemblages (from SPA/RAC-UN Environment/MAP & OCEANA, 2017; compiled by the authors based on data available from different sources)

10. Recent exploration has uncovered unique deep-sea communities on the Israeli continental shelf at the "Palmahim Disturbance". Vast coral gardens are distributed along the margins of the Palmahim disturbance, CWC (Cold Water Coral) meadows grow in the compact sediments around the coral gardens and cold seep communities thrive in the deeper western zones of the site⁵. Recently, brine seepage and brine pools were documented in the north - west part of the proposed FRA⁶, with dense chemosynthetic tube-worm cover, and

⁵ See <https://www.sciencedirect.com/science/article/abs/pii/S0967064519300244?via%3Dihub>

⁶ See <http://mafish.org.il/wp-content/uploads/2021/05/FRA-Proposal-Palmahim-Disturbance-SPNI-revised-310521-.pdf>

their vicinity appears to function as a reproduction hotspot for blackmouth catshark (*Galeus melastomus*), with numerous eggs laid on the benthos. These benthic habitats form important deep-sea ecosystems, which are extremely rare in the eastern Mediterranean.

11. The distribution of one of the most emblematic and fragile Mediterranean deep-sea assemblages, the Cold-Water Corals (CWCs), has been mapped at the Mediterranean scale (see Figure 6 from Chimienti et al., 2019).



Figure 6: The actual information on the distribution of the Cold-Water Corals (CWCs) in the Mediterranean (Chimienti et al., 2019)

12. A recent book reviews the cold and deep coral habitats known to date in the Mediterranean Basin (see Orejas & Jiménez, 2019). The known distribution of the black coral *Leiopathes glaberrima* (Massi et al., 2018) as well as the scleractinian *Dendrophyllia cornigera* (Castellan et al., 2019) have also been published at the Mediterranean scale. These species are present in the Alboran, Ligurian and Tyrrhenian Sea, the Algero-Provençal Basin, the Sicily channel, the Ionian Sea, the Southern Adriatic, the Aegean Sea and the North Levantine (near Rhodes Island).

13. The spatial distributions of some other deep-sea benthic species have been published but they are limited to an area or a country (e.g. distribution of the bamboo coral *Isidella elongata* in the Aegean Sea (Gerovasileiou et al., 2019), 130 taxa from the French Mediterranean canyons and shelf brake (Fourt et al., 2017)).

14. The inventory of Mediterranean canyons, seamounts and areas with chemosynthetic phenomena is still not complete (Harris & Macmillan-Lawler, 2015; Würtz & Rovere, 2015), the distribution knowledge of associated assemblages and ecosystems presents therefore even larger gaps. Only part of the Mediterranean deep-sea habitats has been explored mainly in the north-western sector. To be in capacity of building a coherent Mediterranean network of protected deep-sea marine habitats, efforts are still needed to acquire basic data on spatial and bathymetric distribution of deep-sea habitats in the Mediterranean Sea.

III.2 Composition

III.2.1 Marine caves

15. Marine caves are acknowledged as “biodiversity reservoirs” and “refuge habitats” of great conservation value, as they harbour a rich biodiversity (32-71% of the Mediterranean sponge, anthozoan, bryozoan, tardigrade and brachiopod fauna) that includes several rare, exclusive, endangered, protected, as well as deep-sea species (Harmelin et al., 1985; Gerovasileiou & Voultsiadou, 2012; Gerovasileiou et al., 2015; Ouerghi et al., 2019; SPA/RAC-UNEP/MAP, 2020). A total of 2,369 taxa has been reported from ca. 350 marine caves in 15 Mediterranean countries (Gerovasileiou & Voultsiadou, 2014; Gerovasileiou & Bianchi, in press). Studies in Mediterranean marine caves are continuously bringing to light new species, several of which have not been

yet reported from other habitats, and thus can be considered as cave-exclusive *sensu lato* (Gerovasileiou & Voultsiadou, 2012). However, the majority of species found in marine caves are cryptobiotic or crevicular and deep-water species which secondarily colonize caves, originating from external dim-light and dark environments (*e.g.* coralligenous beds, circalittoral bottoms and deep-water habitats) (Gerovasileiou & Bianchi, in press). Therefore, marine dark caves have been considered as “natural laboratories” or “deep-sea mesocosms” in the littoral zone because they provide direct human access to bathyal-like conditions (Harmelin & Vacelet, 1997).

III.2.2 Deep sea

16. Remotely Operated underwater Vehicles (ROVs) have enabled a better exploration and understanding especially of rocky substrates. Extensive areas can be covered by photographs and video-footages allowing researchers to describe habitats and mega-benthic species composing the assemblages. ROVs, but also landers and dropping cameras can reveal precious information on the habitus, coloration and behaviour of species (Bo et al., 2020). Many explorations of deep-sea habitats, based on images and videos, allow qualitative/quantitative analysis of mega-benthic assemblages and description of the associated megafauna. Nevertheless, sampling is often necessary to assert species identifications and determine composition of small (not identifiable on images) species.

17. Recent publications have focused on the emblematic ecological role of CWC assemblages, describing their composition and function (Orejas & Jiménez, 2019). Other deep-sea anthozoan assemblages, described as gardens or forests because of their three-dimensional development, show a rich biodiversity (*e.g.* Bo et al., 2015; Ingrassia et al., 2016). In parallel, the composition of sponge aggregations has been studied in the western Mediterranean (see Maldonado et al., 2015; Santín et al., 2018).

18. Furthermore, ecosystem functioning and relations between deep-sea benthic and vagile species are more and more investigated. Publications suggest that fish are very abundant in CWC assemblages and canyons (D’Onghia et al., 2015; Capezzuto et al., 2018a, b). Besides, the nursery function of coral forests appears to be important as they are described as spawning areas for fish and sharks (see Cau et al., 2017).

19. To better understand the sensitivity of CWC communities to climate change impacts, relations between bacteria and CWC are also being investigated (Meistertzheim et al., 2016).

20. New species of the Mediterranean deep-sea are regularly described (*e.g.* Boury-Esnault et al., 2015, 2017; López-González et al., 2015; Fernandez-Leborans et al., 2017; Bo et al., 2020) but difficulty in collecting samples limits their identifications. Many species of the deep-sea assemblages are still to be discovered and their population dynamics and interrelations need more systematic and rigorous investigation.

IV. MAIN THREATS

IV.1 For marine caves

21. Considering marine caves as a whole (semi-dark and dark parts), they are fragile ecosystems with low resilience (Harmelin et al., 1985; Rastorgueff et al., 2015) that are vulnerable to seawater warming, unregulated visits by SCUBA divers and tourist boats (*e.g.* mechanical damages by unintentional contact, sediment resuspension and accumulation of exhaled air bubbles), red coral harvesting, spearfishing, urbanization and building of coastal structures, waste outflows, littering and non-indigenous species (Chevaldonné & Lejeune, 2003; Parravicini et al., 2010; Di Franco et al., 2010; Guarnieri et al., 2012; Giakoumi et al., 2013; Rastorgueff et al., 2015; Gerovasileiou et al., 2016; Nepote et al., 2017; SPA/RAC-UNEP/MAP, 2020).

22. Climate change effects (*e.g.* heat waves and temperature anomalies) and local disturbances caused by coastal interventions and constructions (*e.g.* extension of harbours and beach nourishments) have proved to

generate structural and functional homogenization of marine cave communities, such as the decrease of structural complexity and parallel increase of turf and sediment (Nepote et al., 2017; Montefalcone et al., 2018; Sempere-Valverde et al., 2019). Marine pollution and littering constitute additional threats especially in semi-submerged caves where litter often accumulate on internal beaches, drifted by wave action (Mačić et al., 2018) or dark cave zones where the lack of water movement may also favour the entrapment of litter (Gerovasileiou & Bianchi, in press).

23. An additional threat to Mediterranean marine cave communities involves the continuous spreading of non-indigenous species (NIS), especially in the south-eastern Mediterranean Sea (Gerovasileiou et al., 2016; Öztürk, 2019). NIS are mainly observed at the entrance and semi-dark zones of shallow and semi-submerged caves and less frequently in dark zones. However, their impact on cave communities is unknown and should be urgently monitored, especially in marine caves of the Levantine and Aegean ecoregions.

IV.2 For Mediterranean deep sea

IV.2.1 Trawling

24. The most important threats perhaps for deep-sea habitats are the direct and indirect impacts of trawling activities. In canyons, soft bottom corals undergo direct destruction by trawling activities (Petović et al., 2016; Lauria et al., 2017; Pierdomenico et al., 2018). *Isidella elongata*, the only Mediterranean Anthozoan considered as Critically Endangered (Otero et al., 2017), is directly threatened by trawling impacts (Pierdomenico et al., 2018). CWC assemblages represent a threat for bottom trawling and since the adoption of electronic maps and GPS navigation systems allowing trawlers to navigate precisely, these areas are generally avoided although the present direct trawling impact by destruction of the vulnerable structures of the main builders, is not excluded. Until the mid-1990s, when the GPS systems were not available on trawling boats and scientific knowledge on the CWC areas was minimal, trawlers hit most CWC areas causing severe damage (Tunisi et al., 2001).

25. Trawling also impacts indirectly canyon habitats and CWC assemblages by increasing water turbidity and sediment resuspension and deposit (Puig et al., 2015; Paradis et al., 2017; Arjona-Camas et al., 2019; Lastras et al., 2016; 2019). Thus, recent studies have shown that as well as displacing sediments, trawling affects the morphology of the seabed, as is known by high-resolution relief maps of seabed, causing damage comparable to that caused by ploughing farmland (Puig et al., 2012). Also, discards of vulnerable by-caught species from deep-sea trawling are not negligible (Gorelli et al., 2016).

26. In the Mediterranean Sea, the General Fisheries Commission for the Mediterranean (GFCM), led by the precautionary principal, banned bottom trawling activities in depths over 1000 m since 2005. However, CWC dwell also shallower than 1000 m depth, highlighting the ineffectiveness of this restriction for a large part of these vulnerable ecosystems. Therefore, the deep-sea habitats between 200 and 1000 m depth, especially along canyons, stay threatened and vulnerable to bottom trawling. To address this issue, in certain areas, GFCM has adopted Fisheries Restricted Areas (FRAs), ecosystem based spatial management measures that restrict fishing activities with a total closure to bottom trawling. FRAs ensure the protection of deep-sea sensitive habitats such as VMEs (it is the case of the *Lophelia* reef off Capo Santa Maria di Leuca in 2006; the Eratosthenes seamount in 2006; an area in the Nile delta with cold hydrocarbon seeps since 2006) and essential fish habitats (it is the case of the Eastern Gulf of Lion area in 2009; the three areas in the Strait of Sicily in 2016; and the Jabuka/Pomo Pit in the Adriatic in 2018).

IV.2.2 Other fishing activities

27. Practically every recent publication based on mega-benthic deep-sea observations mentions visible anthropogenic impacts with a high number of derelict fishing gear either on CWC assemblages, or on other coral assemblages (Angiolillo & Canese 2018; Capezzuto et al., 2018a; Chimienti et al., 2019; Giusti et al., 2019; Angiolillo & Fortibuoni, 2020). Presence and impact of lost fishing nets and longlines are especially

noticeable on deep-sea habitats that are close to the coast because more accessible to artisanal and recreational fishing activities.

IV.2.3 Industrial discharges and marine litter

28. Impacts of terrestrial human activities such as industrial discharges (Bouchoucha et al., 2019; Fontanier et al., 2020), dumping (Taviani et al., 2019), marine litter (Pierdomenico et al., 2019; Angiolillo & Fortibuoni, 2020) and transfer of pollutants to the deep-sea (Sanchez-Vidal et al., 2015) represent important pressures on deep-sea habitats and species.

29. Because of their geomorphology and the oceanographic currents occurring around submarine canyons, these structures tend to funnel, collect and accumulate litter at the base or in depression. This is particularly true for canyons that are close to the coast. The Mediterranean holds the submarine canyons with the highest concentration of plastic in Europe (Aguilar et al., 2020; Canals et al., 2021). The other deep-sea geomorphological structures undergo the impact of marine litter as well (see Aguilar et al., 2020).

IV.2.4 Climate change

30. Although poorly known, climate change impacts cumulated to the previous threats, could drive important changes in Mediterranean deep-sea ecosystem structures (Sweetman et al., 2017). The impacts of acidification combined to the increase of the sea temperature on reef building deep species such as scleractinian CWCs is not yet well known but the development of these species seems altered (see Maier et al., 2012; Hennige et al., 2014; Rodolfo-Metalpa et al., 2015; Gómez et al., 2018).

31. Benthic non-indigenous species (NIS) have rather rarely been reported in deep-sea habitats (Galil et al., 2019) and for the moment they do not represent the most important threat. Nonetheless, the rise of sea temperature attributed to climate changes occurs also in deep-sea and could contribute significantly to expand the bathymetric distribution of actual shallow NIS (see *e. g.* Innocenti et al., 2017).

IV.2.5 Other threats that could develop in the future.

32. Offshore oil and gas developments (exploration, offshore infrastructures, drilling operations and transport by pipelines and/or tankers) represent a direct and increasing threat for deep-sea ecosystems, especially for benthic habitats (Cordes et al., 2016). Discoveries of new hydrocarbon resources in the Mediterranean will probably lead to an increasing number of drilling licences as well as the development of pipelines crossing deep-sea benthic habitats and increasing tanker traffic in the Mediterranean.

33. Marine noise pollution (MNP) can be a side effects of such explorations and developments but can also originate from many other anthropogenic activities (*e. g.* maritime traffic, military activities). MNP have considerably increased since the second world war (Frisk, 2012) and can interfere with behaviour and vital processes of marine mammals (*e. g.* Erbe et al., 2018) but also have various impacts on deep-sea fauna including invertebrates (see Di Franco et al., 2020).

V. OBJECTIVES OF THE ACTION PLAN

34. The objectives of the Action Plan are to:

- develop and improve knowledge about dark habitats and their assemblages (*e. g.* distribution, species richness, composition, functioning, and ecology).
- conserve the habitats' integrity, functionality (favourable state of conservation) by maintaining the main ecosystem services (*e.g.* carbon sink, halieutic recruitment and production, biogeochemical cycles) and their interest in terms of biodiversity (*e.g.* specific diversity, genetics);
- encourage the natural restoration of degraded habitats (*e. g.* reduction of anthropogenic impacts)

VI. ACTIONS REQUIRED TO ATTAIN THE OBJECTIVES OF THE ACTION PLAN

VI.1 Improving inventories, location and characterisation

35. During recent decades, interest and concern for dark habitats has increased, and knowledge has been improved by newly available exploration technologies (see SPA/RAC-UN Environment/MAP & OCEANA, 2017). However, this knowledge is often scattered, even at national level, and spatially uneven throughout the Mediterranean. Efforts are made by the scientific community, international and national bodies to acquire information on the distribution and composition of marine caves and deep-sea benthic habitats. Still, the difficulty of access and the high cost of deep-sea scientific campaigns explain the large knowledge gaps on the distribution, biodiversity, ecosystem functioning, dynamics and ecological status of the various types of dark habitats and their assemblages. Yet, this information is vital for the implementation of an optimal management strategy on these ecosystems.

36. The following actions could help improve the lack of knowledge for all dark habitats:

- Aggregate the available knowledge, taking into account not only national and regional data (*e. g.* RAC/SPA, GFCM, IUCN, OCEANA, WCMC) but also scientific works. The information should be integrated within a geographical information system (GIS) and could be shared via online consultation.
- Identify geographical areas of interest presenting important knowledge gaps and enhance national capacities and international cooperation for investigation campaigns.
- Set up a database of people-resources in identified fields (*i. e.* caves, deep-sea populations), of institutes and bodies working in this field and of the available means of investigation.
- Quantify the proven or potential pressures (*e. g.* commercial and recreational fishing, leisure activities and diving, undersea prospecting). New knowledge must be acquired in areas of regional interest to promote a multidisciplinary approach and enhance international cooperation over these sites. Such joint action will permit the exchange of experience and the setting up of shared management strategies (building guidelines).
- Maintain regular theme-based workshops that bring together experts on dark habitats (biodiversity, methodology, monitoring, threats, conservation etc.).

VI.2 Building-up management measures

37. Management procedures involve enacting laws aimed at regulating human activities likely to affect dark habitats and permit their long-term conservation.

VI.2.1 Legislation

38. At national level, endangered and threatened species and populations of dark habitats should be identified in order to update corresponding national species lists. They can then be considered as protected species as defined in Article 11 of the Protocol on Specially Protected Areas and Biological Diversity (SPA/BD Protocol, 1995). Special consideration should be given to species of Vulnerable Marine Ecosystems (VMEs)⁷.

39. The regulations on impact studies must be strengthened to make compulsory the assessment of impacts on species and assemblages of dark habitats. The regulations should pay particular attention in the event of coastal development, the prospecting and exploiting of natural resources and the discharge and dumping of materials at sea.

⁷ See report of GFCM Working Group on Vulnerable Marine Ecosystems (WGVME), Malaga, Spain, 3-5 April 2017

40. Insofar as regulatory procedures already exist at international level to restrict or ban certain human activities, further actions are required in order to have them applied and develop new propositions. This is particularly so for the setting up of Fisheries Restricted Areas (FRA) as adopted in the context of the mandate of the General Commission on Mediterranean Fisheries, including the ban on trawling, in the Mediterranean, at depths of over 1,000 meters down (FAO-GFCM, 2006; GFCM, 2019). The Mediterranean states are invited to use and enhance, all means already available to ensure better conservation of dark habitats.

VI.2.2 Setting MPAs

41. Numerous Mediterranean MPAs encompass marine caves and in several cases, coastal areas with marine caves have been suggested for protection. Nevertheless, their number in MPAs remains unknown and - despite the establishment of new MPAs, EU environmental legislation and the Dark Habitats Action Plan - in most cases there is a lack of specific regulations or management plans for their protection, monitoring and restoration. Further specific regulations are needed for dark habitats within MPAs, especially marine caves.

42. Mediterranean deep-sea habitats are still poorly represented in MPAs partly due to the fact that these habitats are often distant from the coast and difficult to access, therefore their effective protection represents a real challenge. Adding to the difficulty of access, is the fact that deep-sea habitats are often areas beyond national jurisdiction (ABNJ).

43. Designation of Marine Protected Areas intended to permit more efficient conservation of these assemblages must be based on the identification of sites on the basis of the criteria such as uniqueness or rarity, particular importance for species biological stages, importance for threatened, endangered or declining habitats or species, vulnerability and reduced recuperative capacity after disturbance, biological productivity, biodiversity and naturalness as adopted in 2009 by the Contracting Parties (UNEP-MAP-RAC/SPA, 2009). At the Mediterranean level, the selection of sites to be protected must also be based on the ecosystem approach and take in consideration the patchy distribution of these habitats, as the only way to ensure a coherent and efficient network of MPAs for a sustainable management of the various types of dark habitats.

VI.2.3 Other management measures

44. Measures should be identified to reduce the pressures that hang over assemblages of dark habitats and to implement them. In the light of the precautionary principle, particular attention should be paid to the impacts that could arise as a result of the seawater temperature rise, acidification and/or fertilization of the oceans and the setting up of new emergent fisheries (border areas).

45. MPAs which host dark habitats (e. g. dark marine caves) should update their management plans to include measures adapted to their conservation.

46. Procedures aimed at assessing the efficiency of these measures, as a whole, should be defined in consultation with the organisations concerned by the management of these assemblages (e. g. international conventions, GFCM, IUCN, NGOs) to promote sustainable, adaptable and concerted management.

47. In sites that have not yet been studied, a state of reference ('zero state') is a necessary precondition for setting up a monitoring system for these assemblages. For the sites for which data already exists, monitoring procedures should be started.

VI.3 Strengthening national plans

48. To give greater efficiency to the measures for setting up the present Action Plan, the Mediterranean countries are invited to build-up national plans for the protection of dark habitats. Each national plan should propose appropriate legislative measures, particularly as regards impact studies for coastal development and check the activities that can affect these assemblages.

49. The national plan should be elaborated on the basis of the available scientific data and should include programmes for:

- (i) gathering and continuous updating of data,
- (ii) training and updating of specialists,
- (iii) education and awareness for the public, actors and decision makers, and
- (iv) conservation of dark habitats and their assemblages that are significant for the marine environment in the Mediterranean Sea.

50. These national plans must be brought to the attention of all the concerned actors and as far as possible ensure coordination with other permanent national plans (*e. g.* emergency plan against accidental pollution).

VI.4 Establishing monitoring plans

51. Recent technological advances have enhanced the possibilities of studying and monitoring deep-sea habitats by acoustic, visual or sampling methods. These methods must be combined to obtain the most cost-efficient monitoring of deep-sea habitats to reach the most accurate state of conservation. Plans for monitoring dark habitats and associated assemblages should be communicated at a Mediterranean scale to encourage transboundary exchanges, regional coherence, sharing effort and means of investigations (see Deep-sea exploration in France, Monaco and Italy in the framework of the international agreement Ramoge - Daniel et al., 2019).

52. The *Guidelines for inventorying and monitoring of Dark Habitats in the Mediterranean Sea* (SPA/RAC-UN Environment/MAP & OCEANA, 2017) details the methodologies and the IMAP common indicators selected for monitoring dark habitats. Monitoring of dark habitats should be based on these guidelines. Nevertheless, the absence of long time series depicting the past ecological status of dark habitats (*e. g.* marine caves) is a major impediment to the monitoring and evaluation of impacts and changes in their ecological status.

VI.5 Enhancing transboundary exchanges

53. In the light of the geographical distribution of many types of dark habitats in areas beyond national jurisdiction (ABNJ), and the difficulties of reaching them (bathymetric range, lack of knowledge, scientific means required and cost of study), it is important to:

- (i) encourage the establishment of international cooperation to create synergies between the various actors (decision makers, scientists, socio-professionals) and set up shared management.
- (ii) organise training courses and encourage the exchange of cross-border experience so as to enhance national capacities in the field.

VI.6 Developing public awareness and information

54. Information and awareness programmes to make dark habitats, their vulnerability and the interest in conservation better known should be crafted and continued for decision-makers, but also users such as SCUBA divers, fishermen and mine operators. Communication on these habitats should also be encouraged for the wider public. The participation of NGOs in these programmes should be encouraged.

VII. REGIONAL COORDINATION AND IMPLEMENTATION

55. Regional coordination of the implementation of the present Action Plan will be handled by the Secretariat of the Mediterranean Action Plan (MAP) via the Regional Activity Centre for Specially Protected Areas. The coordinating structure's main functions are:

- (i) gathering, summarizing and circulating knowledge at Mediterranean level and permitting this to be integrated within the available instruments (*e. g.* Standard Data-Entry Form - SDF);
- (ii) setting up and updating databases on people/resources, laboratories involved, and investigation means available;
- (iii) helping states identify and assess the pressures on the various types of dark habitats and their assemblages at national and regional level;
- (iv) promoting studies on dark habitats and making inventories of species in order to better figure out the way they function and better assess the ecosystem services they provide;
- (v) promote cross-border cooperation;
- (vi) back the setting up of monitoring networks for dark habitats;
- (vii) organise meetings of experts and training courses on dark habitats and their biodiversity;
- (viii) prepare reports on how implementation of the Action Plan is progressing, for submission to the Meeting of National Focal Points for SPAs and meetings of the Contracting Parties;
- (ix) establish a work programme for implementing the Action Plan over a five-year period, which will be submitted to the Contracting Parties for adoption.

56. At the end of this period, if necessary, after assessment and updating, it can be repeated. Implementing the present Action Plan is the responsibility of the national authorities of the Contracting Parties. At each of their meetings, the National Focal Points for SPAs shall assess how far the Action Plan is being implemented on the basis of national reports on the subject and a report made by RAC/SPA on implementation at regional level.

57. In the light of this assessment, the Meeting of National Focal Points for SPAs will suggest recommendations to be submitted to the Contracting Parties. If necessary, the Meeting of Focal Points will also suggest adjustments to the schedule that appears in the Appendix to the Action Plan.

VIII. PARTICIPATION IN THE IMPLEMENTATION

58. Supplementary work done by other international and/or non-governmental organisations, aiming at the same objectives, should be encouraged, encouraging their coordination and avoiding duplication of effort. At their ordinary meetings, the Contracting Parties could, at the suggestion of the Meeting of National Focal Points for SPAs, in order to encourage and reward implementation of the Action Plan, grant the title of 'Action Plan Partner' to any structure that may so request.

59. This label will be granted on the evidence of proven involvement in the implementing of the present Action Plan attested by concrete actions (*e. g.* conservation, management, research, awareness etc.).

60. The label can be extended at the same time as the multi-annual work programme on the grounds of an assessment of actions carried out during that period.

Implementation schedule

Actions	Time	Who
Making a summary of knowledge of dark habitats and their distribution around the Mediterranean in the form of a geo-referenced information system	As soon as possible and continuously	RAC/SPA & Contracting Parties
Setting up a database of people/resources and means of investigation available	As soon as possible and continuously	RAC/SPA
Identify and assess proven pressures on each of the various types of dark habitats	Year 1 and 2	RAC/ SPA, Partners and Contracting Parties
Gathering data and information on research activities	Continuously	RAC/SPA & Contracting Parties
Revise the reference list of types of marine habitats for the selection of sites for inclusion in the national inventories of natural sites of conservation interest, in order to take into account dark habitats	Year 1 and 2	Contracting Parties
Revise the list of endangered or threatened species in order to take account of species and assemblages of dark habitats	Year 1 and 2	RAC/SPA & Contracting Parties
Promote the identifying of areas of interest for the conservation of dark habitats in the Mediterranean and carry out concerted actions in national and/or cross-border sites	Year 1 and 2	RAC/SPA & Contracting Parties
Implement and/or extend MPAs to include already identified sites of interest that host dark habitats at a national level and in areas beyond national jurisdiction (ABNJ)	As soon as possible and continuously	RAC/SPA & Contracting Parties
Introduce national legislation to reduce negative impacts on dark habitats and associated assemblages (including impact studies procedures)	On adoption	Contracting Parties
Regularly hold theme-based workshops (in coordination with those of the 'Coralligenous' AP)	Every three years	RAC/SPA
Update guidelines suited to the inventorying and monitoring of dark habitats and associated assemblages	Every five years	RAC/SPA and Partners
Implement monitoring systems	As soon as possible	RAC/SPA & Contracting Parties
Develop detailed guidelines for effective management measures of dark habitats	Year 1 and 2	RAC/ SPA, Partners and Contracting Parties
Enhance cooperation actions with concerned organisations and in particular with GFCM	Continuously	RAC/SPA
Step up awareness and information about dark habitats and associated assemblages with the various actors	Continuously	RAC/ SPA, Partners and Contracting Parties
Enhance national capacities and improve skills in taxonomy and monitoring methods	As needed	RAC/SPA

IX. REFERENCES

- Aguilar, R., Marín, P., Álvarez, H., Blanco, J., & Sánchez, N. (2020). *Plastic in the deep: An invisible problem. How the seafloor becomes a plastic trap* (p. 24). Oceana. DOI: [10.5281/zenodo.3944737](https://doi.org/10.5281/zenodo.3944737)
- Angeletti, L., Mecho, A., Doya, C., Micallef, A., Huvenne, V., Georgiopoulou, A., & Taviani, M. (2015). First report of live deep-water cnidarian assemblages from the Malta Escarpment. *Italian Journal of Zoology*, 82(2), 291-297. <https://doi.org/10.1080/11250003.2015.1026416>
- Angiolillo, M., & Canese, S. (2018). Deep gorgonians and corals of the Mediterranean Sea. In *Corals in a changing world* (Vol. 29). IntechOpen Rijeka, Croatia; <https://doi.org/10.5772/intechopen.69686>.
- Angiolillo, M., & Fortibuoni, T. (2020). Impacts of Marine Litter on Mediterranean Reef Systems: From Shallow to Deep Waters. *Frontiers in Marine Science*, 7. <https://doi.org/10.3389/fmars.2020.581966>
- Arjona-Camas, M., Puig, P., Palanques, A., Emelianov, M., & Durán, R. (2019). Evidence of trawling-induced resuspension events in the generation of nepheloid layers in the Foix submarine canyon (NW Mediterranean). *Journal of Marine Systems*, 196, 86-96. <https://doi.org/10.1016/j.jmarsys.2019.05.003>
- Beccari, V., Basso, D., Spezzaferri, S., Rüggeberg, A., Neuman, A., & Makovsky, Y. (2020). Preliminary video-spatial analysis of cold sea bivalve beds at the base of the continental slope of Israel (Palmahim Disturbance). *Deep Sea Research Part II: Topical Studies in Oceanography*, 171, 104664. <https://doi.org/10.1016/j.dsr2.2019.104664>
- Bo, M., Al Mabruk, S. A. A., Balistreri, P., Bariche, M., Batjakas, I. E., Betti, F., Bilan, M., Canese, S., Cattaneo-Vietti, R., Corsini-Foka, M., Crocetta, F., Deidun, A., Dulčić, J., Grinyó, J., Kampouris, T. E., Ketsilis-Rinis, V., Kousteni, V., Koutsidi, M., Lubinevsky, H., Mavruk, S., Mytilineou, C., Petani, A., Puig, P., Salomidi, M., Sbragaglia, V., Smith, C. J., Stern, N., Toma, M., Tsiamis, K., Zava, B., & Gerovasileiou, V. (2020). New records of rare species in the Mediterranean Sea (October 2020). *Mediterranean Marine Science*, 21, 608-630. <https://doi.org/10.12681/mms.23674>
- Bo, M., Bavestrello, G., Angiolillo, M., Calcagnile, L., Canese, S., Cannas, R., Cau, A., D'Elia, M., D'Oriano, F., & Follesa, M. C. (2015). Persistence of pristine deep-sea coral gardens in the Mediterranean Sea (SW Sardinia). *PLoS ONE*, 10(3), e0119393. <https://doi.org/10.1371/journal.pone.0119393>
- Borg, J. A., Evans, J., Knittweis, L., & Schembri, P. J. (2017). *Report on the third analysis following the second surveying phase carried out through Action A3*. Valetta, Malta: LIFE BaHAR for N2K (LIFE12 NAT/MT/000845).
- Bouchoucha, M., Chekri, R., Leufroy, A., Jitaru, P., Millour, S., Marchond, N., Chafey, C., Testu, C., Zinck, J., Cresson, P., Mirallès, F., Mahe, A., Arnich, N., Sanaa, M., Bemrah, N., & Guérin, T. (2019). Trace element contamination in fish impacted by bauxite red mud disposal in the Cassidaigne canyon (NW French Mediterranean). *Science of The Total Environment*, 690, 16-26. <https://doi.org/10.1016/j.scitotenv.2019.06.474>
- Boury-Esnault, N., Vacelet, J., Dubois, M., Goujard, A., Fourt, M., Perez, T., & Chevaldonne, P. (2017). New hexactinellid sponges from deep Mediterranean canyons. *Zootaxa*, 4236(1), 118-134. <https://doi.org/10.11646/zootaxa.4236.1.6>
- Boury-Esnault, N., Vacelet, J., Reiswig, H. M., Fourt, M., Aguilar, R., & Chevaldonné, P. (2015). Mediterranean hexactinellid sponges, with the description of a new *Sympagella* species (Porifera, Hexactinellida). *Journal of the Marine Biological Association of the United Kingdom*, 95(7), 1353-1364. <https://doi.org/10.1017/S0025315414001891>
- Canals, M., Pham C. K., Bergmann M., Gutow L., Hanke G., Van Sebille E., Angiolillo M., Buhl-Mortensen L., Cau A., Ioakeimidis C., Kammann U., Lundsten L., Papatheodorou G., Purser A., Sanchez-Vidal A., Schulz M., Vinci M., Chiba S., Galgani F., Langenkämper D., Möller T., Nattkemper T. W., Ruiz M., Suikkanen S., Woodall L., Fakiris E., Molina Jack M. E., Giorgetti A. (2021). The quest for seafloor macrolitter: a critical review of background knowledge, current methods and future prospects. *Environmental Research Letters*, 16(2) doi: <https://iopscience.iop.org/article/10.1088/1748-9326/abc6d4>
- Capezzuto, F., Ancona, F., Carlucci, R., Carluccio, A., Cornacchia, L., Maiorano, P., Ricci, P., Sion, L., Tursi, A., & D'Onghia, G. (2018a). Cold-water coral communities in the Central Mediterranean: Aspects on megafauna diversity, fishery resources and conservation perspectives. *Rendiconti Lincei. Scienze Fisiche e Naturali*, 29(3), 589-597. <https://doi.org/10.1007/s12210-018-0724-5>

- Capezzuto, F., Sion, L., Ancona, F., Carlucci, R., Carluccio, A., Cornacchia, L., Maiorano, P., Ricci, P., Tursi, A., & D'Onghia, G. (2018b). Cold-water coral habitats and canyons as essential fish habitats in the southern Adriatic and northern Ionian Sea (central Mediterranean). *Ecological Questions*, 29(3), 9-23. <http://dx.doi.org/10.12775/EQ.2018.019>
- Castellan, G., Angeletti, L., Taviani, M., & Montagna, P. (2019). The yellow coral *Dendrophyllia cornigera* in a warming ocean. *Frontiers in Marine Science*, 6(692), 1-9. <https://doi.org/10.3389/fmars.2019.006992>
- Cau, A., Follesa, M. C., Moccia, D., Bellodi, A., Mulas, A., Bo, M., Canese, S., Angiolillo, M., & Cannas, R. (2017). *Leiopathes glaberrima* millennial forest from SW Sardinia as nursery ground for the small spotted catshark *Scyliorhinus canicula*. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 27(3), 731-735. <https://doi.org/10.1002/aqc.2717>
- Chevaldonné, P., & Lejeune, C. (2003). Regional warming-induced species shift in north-west Mediterranean marine caves. *Ecology Letters*, 6(4), 371-379. <https://doi.org/10.1046/j.1461-0248.2003.00439.x>
- Chimienti, G., Bo, M., Taviani, M., & Mastrototaro, F. (2019). 19 Occurrence and Biogeography of Mediterranean Cold-Water Corals. In Covadonga Orejas & C. Jiménez (Eds.), *Mediterranean Cold-Water Corals : Past, Present and Future : Understanding the Deep-Sea Realms of Coral* (p. 213-243). Springer International Publishing. https://doi.org/10.1007/978-3-319-91608-8_19
- Cicogna, F., Bianchi, C.N., Ferrari, G., Forti, P. (2003). *Le grotte marine: cinquant'anni di ricerca in Italia*. Roma: Ministero dell'Ambiente e della Tutela del Territorio.
- Cordes, E. E., Jones, D. O., Schlacher, T. A., Amon, D. J., Bernardino, A. F., Brooke, S., Carney R., DeLeo D. M., Dunlop K. M., Escobar-Briones E. G., Gates A. R., Génio L., Gobin J., Henry L-A., Herrera S., Hoyt S., Joye M., Karka S., Mestre N. C., Metaxas A., Pfeifer S., Sink K., Sweetman A. K., Witte U. (2016). Environmental impacts of the deep-water oil and gas industry: A review to guide management strategies. *Frontiers in Environmental Science*, 4, 58.
- CREOCEAN-DREAL. (2010). *Recensement des grottes submergées ou semi-submergées sur le littoral Corse*.
- D'Onghia, G., Capezzuto, F., Carluccio, A., Carlucci, R., Giove, A., Mastrototaro, F., Panza, M., Sion, L., Tursi, A., & Maiorano, P. (2015). Exploring composition and behaviour of fish fauna by *in situ* observations in the Bari Canyon (Southern Adriatic Sea, Central Mediterranean). *Marine Ecology*, 36(3), 541-556. <https://doi.org/10.1111/maec.12162>
- Daniel, B., Tunesi, L., Aquilina, L., & Vissio, A. (2019). RAMOGE explorations 2015 and 2018 : A cross-border experience of deep oceanographic explorations. In H. Langar & A. Ouerghi (Eds.), *Proceedings of the 2nd Mediterranean symposium on the conservation of dark habitats (Antalya, Turkey, 16 January 2019)*, 13-18.
- Danovaro, R., Company, J. B., Corinaldesi, C., D'Onghia, G., Galil, B., Gambi, C., Gooday, A. J., Lampadariou, N., Luna, G. M., Morigi, C., Olu, K., Polymenakou, P., Ramirez-Llodra, E., Sabbatini, A., Sardà, F., Sibuet, M., & Tselepidis, A. (2010). Deep-Sea Biodiversity in the Mediterranean Sea : The Known, the Unknown, and the Unknowable. *PLoS ONE*, 5(8), e11832. <https://doi.org/10.1371/journal.pone.0011832>
- Di Franco, A., Ferruzza, G., Baiata, P., Chemello, R., & Milazzo, M. (2010). Can recreational scuba divers alter natural gross sedimentation rate? A case study from a Mediterranean deep cave. *ICES Journal of Marine Science*, 67(5), 871-874. <https://doi.org/10.1093/icesjms/fsq007>
- Di Franco, E., Pierson, P., Di Iorio, L., Calò, A., Cottalorda, J. M., Derijard, B., Di Franco, A., Galvé, A., Guibbolini, M., Lebrun, J., Micheli, F., Priouzeau, F., Risso-de Faverney, C., Rossi, F., Sabourault, C., Spennato, G., Verrando P., Guidetti, P. (2020). Effects of marine noise pollution on Mediterranean fishes and invertebrates: A review. *Marine Pollution Bulletin*, 159, 111450. doi: [10.1016/j.marpolbul.2020.111450](https://doi.org/10.1016/j.marpolbul.2020.111450)
- Erbe, C., Dunlop, R., & Dolman, S. (2018). Effects of Noise on Marine Mammals. In H. Slabbekoorn, R. J. Dooling, A. N. Popper, & R. R. Fay (Eds.), *Effects of Anthropogenic Noise on Animals* (pp. 277-309). New York, NY: Springer. doi: [10.1007/978-1-4939-8574-6_10](https://doi.org/10.1007/978-1-4939-8574-6_10)
- Espinosa, F., Navarro-Barranco, C., González, A. R., Maestre, M., Alcántara, J. P., Limam, A., Benhoussa, A., & Bazairi, H. (2015). Assessment of conservation value of Cap des Trois Fourches (Morocco) as a potential MPA in southern Mediterranean. *Journal of Coastal Conservation*, 19(4), 553-559. <https://doi.org/10.1007/s11852-015-0406-8>
- Espósito, V., Giacobbe, S., Cosentino, A., Minerva, C. S., Romeo, T., Canese, S., & Andaloro, F. (2015). Distribution and ecology of the tube-dweller *Ampelisca ledoyeri* (Amphipoda: Ampeliscidae) associated with the hydrothermal field off Panarea Island (Tyrrhenian Sea, Mediterranean). *Marine Biodiversity*, 45(4), 763-768. <https://doi.org/10.1007/s12526-014-0285-5>

- Evans, J., Aguilar, R., Alvarez, H., Borg, J. A., Garcia, S., Knittweis, L., & Schembri, P. J. (2016). Recent evidence that the deep sea around Malta is a biodiversity hotspot. *Rapport du Congrès de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée*, 41, 463.
- FAO-GFCM. (2006). *Report of the thirtieth session*. Istanbul, Turkey, 24–27 January. GFCM Report. No. 30. Rome. [Link](#)
- FAO (2009). *International guidelines for the management of deep-sea fisheries in the high seas*. Rome: 74 pp. ISBN 978-92-5-006258-7
- Fernandez-Leborans, G., Román, S., & Martin, D. (2017). A new deep-sea suctorian-nematode epibiosis (Loricophrya-Tricoma) from the Blanes submarine Canyon (NW Mediterranean). *Microbial ecology*, 74(1), 15-21. <https://doi.org/10.1007/s00248-016-0923-5>
- Fontanier, C., Mamo, B., Mille, D., Duros, P., & Herlory, O. (2020). Deep-sea benthic foraminifera at a bauxite industrial waste site in the Cassidaigne Canyon (NW Mediterranean): Ten months after the cessation of red mud dumping. *Comptes Rendus. Géoscience*, 352(1), 87-101. <https://doi.org/10.5802/crgeos.5>
- Fourt, M., Goujard, A., Pérez, T., & Chevaldonné, P. (2017). *Guide de la faune profonde de la mer Méditerranée. Exploration des roches et canyons sous-marins des côtes françaises* (Museum national d'Histoire naturelle, Paris).
- Frisk, G. V. (2012). Noiseconomics: The relationship between ambient noise levels in the sea and global economic trends. *Scientific Reports*, 2(1), 1–4.
- Galil, B. S., Danovaro, R., Rothman, S. B. S., Gevili, R., & Goren, M. (2019). Invasive biota in the deep-sea Mediterranean: An emerging issue in marine conservation and management. *Biological Invasions*, 21(2), 281-288. <https://doi.org/10.1007/s10530-018-1826-9>
- Gerovasileiou, V., & Bianchi, C. N. (in press). Mediterranean marine caves : A synthesis of current knowledge. *Oceanography and Marine Biology - An Annual Review*, 59.
- Gerovasileiou, V., Chintiroglou, C., Vafidis, D., Koutsoubas, D., Sini, M., Dailianis, T., Issaris, Y., Akritopoulou, E., Dimarchopoulou, D., & Voutsiadou, E. (2015). Census of biodiversity in marine caves of the eastern Mediterranean Sea. *Mediterranean Marine Science*, 16(1), 245-265. <https://doi.org/10.12681/mms.1069>
- Gerovasileiou, V., Smith, C. J., Kiparissis, S., Stamouli, C., Dounas, C., & Mytilineou, C. (2019). Updating the distribution status of the critically endangered bamboo coral *Isidella elongata* (Esper, 1788) in the deep Eastern Mediterranean Sea. *Regional Studies in Marine Science*, 28, 100610. <https://doi.org/10.1016/j.rsma.2019.100610>
- Gerovasileiou, V., & Voultsiadou, E. (2012). Marine caves of the Mediterranean Sea: A sponge biodiversity reservoir within a biodiversity hotspot. *PLoS ONE*, 7(7), e39873. <https://doi.org/10.1371/journal.pone.0039873>
- Gerovasileiou, V., Voultsiadou, E. (2014), Mediterranean marine caves as biodiversity reservoirs: a preliminary overview. In C. Bouafif, H. Langar & A. Ouerghi (Eds.), *Proceedings of the 1st Mediterranean Symposium on the Conservation of Dark Habitats (Portorož, Slovenia, 31 October 2014)*. SPA/RAC publi., Tunis.
- Gerovasileiou, V., Voultsiadou, E., Issaris, Y., & Zenetos, A. (2016). Alien biodiversity in Mediterranean marine caves. *Marine Ecology*, 37(2), 239-256. <https://doi.org/10.1111/maec.12268>
- GFCM. (2019). *Report of the third meeting of the Working Group on Marine Protected Areas (WGMPA)*, FAO HQ, Italy, 18–21 February 2019. [Link](#)
- Giakoumi, S., Sini, M., Gerovasileiou, V., Mazor, T., Beher, J., Possingham, H. P., Abdulla, A., Çinar, M. E., Dendrinos, P., & Gucu, A. C. (2013). Ecoregion-based conservation planning in the Mediterranean: Dealing with large-scale heterogeneity. *PLoS ONE*, 8(10), e76449. <https://doi.org/10.1371/journal.pone.0076449>
- Giusti, M., Canese, S., Fourt, M., Bo, M., Innocenti, C., Goujard, A., Daniel, B., Angeletti, L., Taviani, M., & Aquilina, L. (2019). Coral forests and derelict fishing gears in submarine canyon systems of the Ligurian Sea. *Progress in Oceanography*, 102186. <https://doi.org/10.1016/j.pocean.2019.102186>
- Gómez, C. E., Wickes, L., Deegan, D., Etnoyer, P. J., & Cordes, E. E. (2018). Growth and feeding of deep-sea coral *Lophelia pertusa* from the California margin under simulated ocean acidification conditions. *PeerJ*, 6, e5671. <https://doi.org/10.7717/peerj.5671>
- Gorelli, G., Blanco, M., Sardà, F., & Carretón, M. (2016). Spatio-temporal variability of discards in the fishery of the deep-sea red shrimp *Aristeus antennatus* in the northwestern Mediterranean Sea: Implications for management. *Scientia Marina*, 80(1), 79-88. <https://doi.org/10.3989/scimar.04237.24A>

- Guarnieri, G., Terlizzi, A., Bevilacqua, S., & Fraschetti, S. (2012). Increasing heterogeneity of sensitive assemblages as a consequence of human impact in submarine caves. *Marine biology*, 159(5), 1155-1164. <https://doi.org/10.1007/s00227-012-1895-8>
- Harmelin, J.-G., & Vacelet, J. (1997). Clues to deep-sea biodiversity in a nearshore cave. *Vie et Milieu*, 4(47), 351-354.
- Harmelin, J.-G., Vacelet, J., & Vasseur, P. (1985). Les grottes sous-marines obscures : Un milieu extrême et un remarquable biotope refuge. *Téthys*, 11(3-4), 214-229.
- Harris, P., & Macmillan-Lawler, M. (2015). Geomorphology of Mediterranean submarine canyons in a global context-Results from a multivariate analysis of canyon geomorphic statistics. *CIESM Monograph*, 47, 23–35.
- Hennige, S., Wicks, L., Kamenos, N., Bakker, D., Findlay, H., Dumousseaud, C., & Roberts, J. (2014). Short-term metabolic and growth response of the cold-water coral *Lophelia pertusa* to ocean acidification. *Deep Sea Research Part II: Topical Studies in Oceanography*, 99, 27–35. <https://doi.org/10.1016/j.dsr2.2013.07.005>
- Ingrassia, M., Macelloni, L., Bosman, A., Chiocci, F. L., Cerrano, C., & Martorelli, E. (2016). Black coral (Anthozoa, Antipatharia) forest near the western Pontine Islands (Tyrrhenian Sea). *Marine Biodiversity*, 46(1), 285-290. <https://doi.org/10.1007/s12526-015-0315-y>
- Innocenti, G., Stasolla, G., Goren, M., Stern, N., Levitt-Barmats, Y., Diamant, A., & Galil, B. S. (2017). Going down together : Invasive host, *Charybdis longicollis* (Decapoda: Brachyura: Portunidae) and invasive parasite, *Heterosaccus dollfusi* (Cirripedia: Rhizocephala: Sacculinidae) on the upper slope off the Mediterranean coast of Israel. *Marine Biology Research*, 13(2), 229-236. <https://doi.org/10.1080/17451000.2016.1240873>
- Lastras, G., Canals, M., Ballesteros, E., Gili, J.-M., & Sanchez-Vidal, A. (2016). Cold-Water Corals and Anthropogenic Impacts in La Fonera Submarine Canyon Head, Northwestern Mediterranean Sea. *PLoS ONE*, 11(5), e0155729. <https://doi.org/10.1371/journal.pone.0155729>
- Lastras, G., Sanchez-Vidal, A., & Canals, M. (2019). 28 A Cold-Water Coral Habitat in La Fonera Submarine Canyon, Northwestern Mediterranean Sea. In Covadonga Orejas & C. Jiménez (Eds.), *Mediterranean Cold-Water Corals : Past, Present and Future : Understanding the Deep-Sea Realms of Coral* (p. 291-293). Springer International Publishing. https://doi.org/10.1007/978-3-319-91608-8_28
- Lauria, V., Garofalo, G., Fiorentino, F., Massi, D., Milisenda, G., Piraino, S., Russo, T., & Gristina, M. (2017). Species distribution models of two critically endangered deep-sea octocorals reveal fishing impacts on vulnerable marine ecosystems in central Mediterranean Sea. *Scientific Reports*, 7(1), 1-14. <https://doi.org/10.1038/s41598-017-08386-z>
- López-González, P. J., Grinyó, J., & Gili, J.-M. (2015). *Chironophthya mediterranea* n. sp. (Octocorallia, Alcyonacea, Nidaliidae), the first species of the genus discovered in the Mediterranean Sea. *Marine Biodiversity*, 45(4), 667-688. <https://doi.org/10.1007/s12526-014-0269-5>
- Maldonado, M., Aguilar, R., Blanco, J., Garcia, S., Serrano, A., & Punzon, A. (2015). Aggregated clumps of lithistid sponges: A singular, reef-like bathyal habitat with relevant paleontological connections. *PLoS ONE*, 10(5), e0125378. <https://doi.org/10.1371/journal.pone.0125378>
- Mačić, V., Dorđević, N., Petović, S., Malovrazić, N., Bajković, M. (2018). Typology of marine litter in „Papuča“ (Slipper) cave. *Studia Marina*, 31, 38-43.
- Maier, C., Watremez, P., Taviani, M., Weinbauer, M. G., & Gattuso, J. P. (2012). Calcification rates and the effect of ocean acidification on Mediterranean cold-water corals. *Proceedings of the Royal Society of London B*, 279(1734), 1716–1723.
- Massi, D., Vitale, S., Titone, A., Milisenda, G., Gristina, M., and Fiorentino, F. (2018). Spatial distribution of the black coral *Leiopathes glaberrima* (Esper, 1788) (Antipatharia: Leiopathidae) in the Mediterranean: a prerequisite for protection of Vulnerable Marine Ecosystems (VMEs). *The European Zoological Journal*, 85, 169–178.
- Meistertzheim, A.-L., Lartaud, F., Arnaud-Haond, S., Kalenitchenko, D., Bessalam, M., Le Bris, N., & Galand, P. E. (2016). Patterns of bacteria-host associations suggest different ecological strategies between two reef building cold-water coral species. *Deep Sea Research Part I: Oceanographic Research Papers*, 114, 12-22. <https://doi.org/10.1016/j.dsr.2016.04.013>

- Montefalcone, M., De Falco, G., Nepote, E., Canessa, M., Bertolino, M., Bavestrello, G., Morri, C., & Bianchi, C. N. (2018). Thirty-year ecosystem trajectories in a submerged marine cave under changing pressure regime. *Marine Environmental Research*, 137, 98-110. <https://doi.org/10.1016/j.marenvres.2018.02.022>
- Nepote, E., Bianchi, C. N., Morri, C., Ferrari, M., & Montefalcone, M. (2017). Impact of a harbour construction on the benthic community of two shallow marine caves. *Marine Pollution Bulletin*, 114(1), 35-45. <https://doi.org/10.1016/j.marpolbul.2016.08.006>
- Orejas, C., & Jiménez, C. (2019). *Mediterranean Cold-Water Corals: Past, Present and Future: Understanding the Deep-Sea Realms of Coral* (Vol. 9). Springer.
- Otero, M.M., Numa, C., Bo, M., Orejas, C., Garrabou, J., Cerrano, C., Kružić, P., Antoniadou, C., Aguilar, R., Kipson, S., Linares, C., Terrón-Sigler, A., Brossard, J., Kersting, D., Casado-Amezúa, P., García, S., Goffredo, S., Ocaña, O., Caroselli, E., Maldonado, M., Bavestrello, G., Cattaneo-Vietti, R. and Özalp, B. (2017). Overview of the conservation status of Mediterranean anthozoans. IUCN, Malaga, Spain. x + 73 pp.
- Ouerghi, A., Gerovasileiou, V., & Bianchi, C. N. (2019). Mediterranean marine caves: A synthesis of current knowledge and the Mediterranean Action Plan for the conservation of 'dark habitats'. In B. Öztürk (Ed.), *Marine Caves of the Eastern Mediterranean Sea. Biodiversity, Threats and Conservation* (p. 1-13).
- Öztürk, B. (2019). *Marine caves of the Eastern Mediterranean Sea. Biodiversity, threats and conservation*. (Biodiversity, Threats and Conservation. Turkish Marine Research Foundation (TUDAV) Publication, Vol. 53).
- Paradis, S., Puig, P., Masqué, P., Juan-Díaz, X., Martín, J., & Palanques, A. (2017). Bottom-trawling along submarine canyons impacts deep sedimentary regimes. *Scientific reports*, 7, 43332. <https://doi.org/10.1038/srep43332>
- Parravicini, V., Guidetti, P., Morri, C., Montefalcone, M., Donato, M., & Bianchi, C. N. (2010). Consequences of sea water temperature anomalies on a Mediterranean submarine cave ecosystem. *Estuarine, Coastal and Shelf Science*, 86(2), 276-282. <https://doi.org/10.1016/j.ecss.2009.11.004>
- Petović, S., Marković, O., Ikica, Z., Djurović, M., & Joksimović, A. (2016). Effects of bottom trawling on the benthic assemblages in the south Adriatic Sea (Montenegro). *Acta Adriatica*, 57(1), 79-90.
- Pierdomenico, M., Casalbone, D., & Chiocci, F. L. (2019). Massive benthic litter funnelled to deep sea by flash-flood generated hyperpycnal flows. *Scientific Reports*, 9(1), 1-10. <https://doi.org/10.1038/s41598-019-41816-8>
- Pierdomenico, M., Russo, T., Ambroso, S., Gori, A., Martorelli, E., D'Andrea, L., Gili, J.-M., & Chiocci, F. L. (2018). Effects of trawling activity on the bamboo coral *Isidella elongata* and the sea pen *Funiculina quadrangularis* along the Gioia Canyon (Western Mediterranean, southern Tyrrhenian Sea). *Progress in Oceanography*, 169, 214-226. <https://doi.org/10.1016/j.pocean.2018.02.019>
- PNUE/PAM-CAR/ASP. (2016a). *Algérie: Ile de Rachgoun. Cartographie des habitats marins clés de Méditerranée et initiation de réseaux de surveillance*. By A. Ramos Esplá, M. Benabdi, Y.R. Sghaier, A. Forcada Almarcha, C. Valle Pérez & A. Ouerghi (p. 113) [CAR/ASP - Projet MedKeyHabitats].
- PNUE/PAM-CAR/ASP. (2016b). *Maroc: Site de Jbel Moussa. Cartographie des habitats marins clés de Méditerranée et initiation de réseaux de surveillance*. By H. Bazairi, Y.R. Sghaier, A. Benhoussa, L. Boutahar, R. El Kamcha, M. Selfati, V. Gerovasileiou, J. Baeza, V. Castañer, J. Martin, E. Valriberas, R. González, M. Maestre, F. Espinosa & A. Ouerghi [CAR/ASP - Projet MedKeyHabitats].
- Puig, P., Canals, M., Company, J. B., Martín, J., Amblas, D., Lastras, G., Palanques, A., & Calafat, A. M. (2012). Ploughing the deep sea floor. *Nature*, 489(7415), 286-289.
- Puig, P., Martín, J., Masqué, P., & Palanques, A. (2015). Increasing sediment accumulation rates in La Fonera (Palamós) submarine canyon axis and their relationship with bottom trawling activities. *Geophysical Research Letters*, 42(19), 8106-8113. <https://doi.org/10.1002/2015GL065052>
- Rastorgueff, P.-A., Bellan-Santini, D., Bianchi, C. N., Bussotti, S., Chevaldonné, P., Guidetti, P., Harmelin, J.-G., Montefalcone, M., Morri, C., & Perez, T. (2015). An ecosystem-based approach to evaluate the ecological quality of Mediterranean undersea caves. *Ecological Indicators*, 54, 137-152. <https://doi.org/10.1016/j.ecolind.2015.02.014>
- Rodolfo-Metalpa R., Montagna P., Aliani S., Borghini M., Canese S., Hall-Spencer J. M., Foggo A., Milazzo M., Taviani M., Houlbrèque F. (2015). Calcification is not the Achilles' heel of cold-water corals in an acidifying ocean. *Global Change Biology*, 21(6): 2238-2248. <https://doi.org/10.1111/gcb.12867>

- Sanchez-Vidal, A., Llorca, M., Farré, M., Canals, M., Barceló, D., Puig, P., & Calafat, A. (2015). Delivery of unprecedented amounts of perfluoroalkyl substances towards the deep-sea. *Science of The Total Environment*, 526, 41-48. <https://doi.org/10.1016/j.scitotenv.2015.04.080>
- Santín, A., Grinyó, J., Ambroso, S., Uriz, M. J., Gori, A., Dominguez-Carrió, C., & Gili, J.-M. (2018). Sponge assemblages on the deep Mediterranean continental shelf and slope (Menorca Channel, Western Mediterranean Sea). *Deep Sea Research Part I: Oceanographic Research Papers*, 131, 75-86. <https://doi.org/10.1016/j.dsr.2017.11.003>
- Sempere-Valverde, J., Lorenzo, Á. S., Espinosa, F., Gerovasileiou, V., Sánchez-Tocino, L., & Navarro-Barranco, C. (2019). Taxonomic and morphological descriptors reveal high benthic temporal variability in a Mediterranean marine submerged cave over a decade. *Hydrobiologia*, 839(1), 177-194. <https://doi.org/10.1007/s10750-019-04005-2>
- Sini, M., Katsanevakis, S., Koukouroufli, N., Gerovasileiou, V., Dailianis, T., Buhl-Mortensen, L., Damalas, D., Dendrinis, P., Dimas, X., & Frantzis, A. (2017). Assembling ecological pieces to reconstruct the conservation puzzle of the Aegean Sea. *Frontiers in Marine Science*, 4, 347. <https://doi.org/10.3389/fmars.2017.00347>
- SPA/RAC–UN Environment/MAP & OCEANA. (2017). *Guidelines for inventorying and monitoring of dark habitats in the Mediterranean Sea* (SPA/RAC-Deep Sea Lebanon Project, Ed.).
- SPA/RAC–UN Environment/MAP. (2017). *Ecological characterization of potential new Marine Protected Areas in Lebanon: Batroun, Medfoun and Byblos*. By Ramos-Esplá, A.A., Bitar, G., Forcada, A., Valle, C., Ocaña, O., Sghaier, Y.R., Samaha, Z., Kheriji, A. & Limam, A. [MedMPA Network Project] (p. 93+Annexes). Tunis: SPA/RAC.
- SPA/RAC-UNEP/MAP. (2020). *Mediterranean marine caves : Remarkable habitats in need of protection*. By Gerovasileiou, V. & Bianchi, C.N. (p. 63+Annexes). Tunis: SPA/RAC.
- Surić, M., Lončarić, R., Lončar, N. (2010). Submerged caves of Croatia: distribution, classification and origin. *Environmental Earth Sciences*, 61: 1473-1480. <https://doi.org/10.1007/s12665-010-0463-0>
- Sweetman, A. K., Thurber, A. R., Smith, C. R., Levin, L. A., Mora, C., Wei, C.-L., Gooday, A. J., Jones, D. O. B., Rex, M., Yasuhara, M., Ingels, J., Ruhl, H. A., Frieder, C. A., Danovaro, R., Würzburg, L., Baco, A., Grupe, B. M., Pasulka, A., Meyer, K. S., Dunlop, K. M., Henry, L.-A., & Roberts, J. M. (2017). Major impacts of climate change on deep-sea benthic ecosystems. *Elementa: Science of the Anthropocene*, 5(0), 4. <https://doi.org/10.1525/elementa.203>
- Taviani, M., Angeletti, L., Cardone, F., Montagna, P., & Danovaro, R. (2019). A unique and threatened deep water coral-bivalve biotope new to the Mediterranean Sea offshore the Naples megalopolis. *Scientific Reports*, 9(1), 3411. <https://doi.org/10.1038/s41598-019-39655-8>
- Tunesi, L., Diviacco, G., Mo, G., (2001). Observation by submersible on the biocoenosis of the deep-sea corals off Portofino Promontory (north-western Mediterranean Sea). In: Martin Willison JH, et al (eds) Proceedings of the first international symposium on deep-sea corals, Ecology Action Centre and Nova Scotia Museum, Halifax: 76–87.
- UNEP-MAP-RAC/SPA. (2008). *Action plan for the conservation of the coralligenous and other calcareous bio-concretions in the Mediterranean Sea*. Tunis: RAC/ASP.
- UNEP-MAP-RAC/SPA. (2009). *Proposal regarding a regional working programme for the Coastal and Marine Protected Areas in the Mediterranean Sea*. Document UNEP (DEPI)/MED WG. 331/7 of the ninth meeting of Focal Points for SPAs (Floriana, Malta, 3-6 June 2009).
- UNEP-MAP-RAC/SPA. (2016a). *Montenegro: Platamuni and Ratac areas. Mapping of marine key habitats and initiation of monitoring network*. By G. Torchia, F. Pititto, C. Rais, E. Trainito, F. Badalamenti, C. Romano, C. Amosso, C. Bouafif, M. Dragan, S. Camisassi, D. Tronconi, V. Macic, Y.R. Sghaier & A. Ouerghi [RAC/ASP MedKeyHabitats Project].
- UNEP-MAP-RAC/SPA. (2016b). *Montenegro: Platamuni and Ratac Areas. Summary Report of the Available Knowledge and Gap Analysis*. By G. Torchia, F. Pititto, C. Rais, E. Trainito, F. Badalamenti, C. Romano, C. Amosso, C. Bouafif, M. Dragan, S. Camisassi, D. Tronconi, V. Macic, Y.R. Sghaier & A. Ouerghi [RAC/SPA MedKeyHabitats Project].
- Würtz, M. (Ed.). (2012). *Mediterranean submarine canyons : Ecology and governance* (Gland, Switzerland and Malaga, Spain: IUCN).
- Würtz, M., & Rovere, M. (Eds.). (2015). *Atlas of the Mediterranean seamounts and seamount-like structures* (Gland, Switzerland and Malaga, Spain: IUCN).

Draft Decision 25/14**Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides (Med SO_x ECA) pursuant to MARPOL Annex VI**

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res. 21 of 15 March 2019, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, in particular Article 6 thereof, whereby Contracting Parties shall take all measures in conformity with international law to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area caused by discharges from ships and to ensure the effective implementation in that Area of the rules which are generally recognised at the international level relating to the control of this type of pollution,

Having also regard to the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, in particular Article 4 paragraph 2 thereof, whereby the Parties shall take measures in conformity with international law to prevent the pollution of the Mediterranean Sea Area from ships in order to ensure the effective implementation in that Area of the relevant international conventions in their capacity as flag State, port State and coastal State, and their applicable legislation,

Acknowledging the role of the International Maritime Organization (IMO) and the importance of cooperating within the framework of this Organisation, in particular in promoting the adoption and the development of international rules and standards to prevent, reduce and control pollution of the marine environment from ships,

Having further regard to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997 (MARPOL), in particular Annex VI thereof on regulations for the prevention of air pollution from ships, as amended, and regulation 14 thereof on sulphur oxides (SO_x) and particulate matter, as well as Appendix III thereto on criteria and procedures for designation of emission control areas (ECAs),

Recalling Decision IG.24/8 on the Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides Pursuant to MARPOL Annex VI, within the Framework of the Barcelona Convention, hereinafter referred to as the “road map”, adopted by the Contracting Parties at their 21st Meeting (COP 21) (Naples, Italy, 2-5 December 2019), which outlines the process towards a proposal for the possible designation of the Mediterranean Sea, as a whole, as defined in Article 1 of the Barcelona Convention, as an Emission Control Area (ECA) for Sulphur Oxides (SO_x) pursuant to MARPOL Annex VI, within the framework of the Barcelona Convention, hereinafter referred to as the proposed Med SO_x ECA,

Recalling also the mandates of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the Mediterranean Pollution Assessment and Control Programme (MED POL) as well as the Plan Bleu Regional Activity Centre (PB/RAC) of the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP), as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and their relevance to the implementation of Decision IG.24/8,

Noting with concern the impacts of emissions of SO_x from ships on human health and the environment in the Mediterranean region and, *underlining* the importance of taking actions to deal with such an issue, including through the designation of the proposed Med SO_x ECA,

Recognising the willingness and benefits of designating the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides (SO_x ECA) pursuant to MARPOL Annex VI,

Noting with satisfaction that the Mediterranean Action Plan (MAP) Sulphur Oxides (SO_x) Emission Control Area (ECA)(s) Technical Committee of Experts, which is composed by representatives of all twenty-two Contracting Parties to the Barcelona Convention, has fully accomplished its mandate in time and due form, in line with the road map,

Noting with appreciation that the initial draft submission to the International Maritime Organization (IMO) for a proposal for the possible designation of the proposed Med SO_x ECA was updated in line with the road map and agreed by the Mediterranean Action Plan (MAP) Sulphur Oxides (SO_x) ECA(s) Technical Committee of Experts,

Recalling that the road map was adopted with the view of formally submitting the proposal for the possible designation of the proposed Med SO_x ECA to the seventy-eighth (78th) session of the International Maritime Organization (IMO)'s Marine Environment Protection Committee (MEPC 78) scheduled for 2022,

Recalling also that, according to the road map, the goal of the process is, *inter alia*, to have the proposed Med SO_x ECA effectively entering into force within a reasonable and practical timeframe, as defined by the Contracting Parties to the Barcelona Convention, and recommending that this date should be [1 March 2024] [1 January 2025],

Being aware that the Contracting Parties are fully committed to reduce emissions from ships, both to fight climate change and air pollution, encourage UNEP MAP, under the coordination of REMPEC, to progress on exploring the feasibility of a NO_x ECA in the Mediterranean Sea as a whole during the 2022-2023 biennium,

Having considered the report of the Fourteenth Meeting of the Focal Points of REMPEC (online, 31 May-2 June 2021),

1. *Agree* to submit the joint and coordinated proposal on the designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides (Med SO_x ECA), hereinafter referred to as “the proposal”, set out in the Annex to this Decision, to the seventy-eighth (78th) session of the International Maritime Organization (IMO)'s Marine Environment Protection Committee (MEPC 78) scheduled for 2022;
2. *Call upon* the Contracting Parties to coordinate the submission process to the International Maritime Organization (IMO), so that with the support of REMPEC and, in consultation with the Secretariat, the proposal is submitted before the International Maritime Organization (IMO) in a timely and effective manner and in accordance with the relevant rules and procedures, to formally designate the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides (Med SO_x ECA) with its effective entry into force on [1 March 2024] [1 January 2025];
3. *Encourage* the Contracting Parties to actively participate in the deliberations on the proposal and on the draft amendments to regulation 14 of, and Appendix VII to MARPOL Annex VI related to the designation of the proposed Med SO_x ECA, at the seventy-eighth (78th) session of the International Maritime Organization (IMO)'s Marine Environment Protection Committee (MEPC 78) scheduled for 2022, as well as at the following sessions of the International Maritime Organization (IMO)'s Marine Environment Protection Committee, as appropriate, in line with the road map;
4. *Urge* the Contracting Parties to ratify and effectively implement MARPOL Annex VI, if they have not yet done so, as soon as possible;
5. *Request* the Secretariat (REMPEC) to provide technical support for the implementation of this Decision, in synergy with the International Maritime Organization (IMO), and other relevant stakeholders, through technical cooperation and capacity-building activities, including financial support and resource mobilization activities;
6. *Encourage* all stakeholders, including the shipping industry and other Partners to contribute to and support the designation and implementation of the Med SO_x ECA.

ANNEX

**Joint and coordinated proposal on the designation of the Mediterranean Sea, as a whole, as an
Emission Control Area for Sulphur Oxides (Med SO_x ECA)**

**E**

MARINE ENVIRONMENT PROTECTION
COMMITTEE
78th session
Agenda item N

MEPC 78/N/I
Document date
Language: i.e. Original: ENGLISH
Pre-session public release:

AGENDA ITEM TITLE

Proposal to Designate the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides

Submitted by [list of co-sponsors]

SUMMARY

Executive summary: This document sets forth a proposal to designate the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides, hereinafter referred to as the proposed Med SO_x ECA, in accordance with regulation 14 and Appendix III to MARPOL Annex VI to take effect from [1 March 2024] / [1 January 2025].

This proposal shows that the designation of the proposed Med SO_x ECA is supported by a demonstrated need to prevent, reduce, and control emissions of sulphur oxides and particulate matter from ships. Moreover, the adoption of the proposed Med SO_x ECA will result in significant reductions in ambient levels of air pollution in the Mediterranean Sea, as a whole, and in the Mediterranean coastal States, which will achieve substantial benefits to human health and the environment.

The co-sponsors invite the Committee to review this proposal at this session with a view towards the adoption by the Parties to MARPOL Annex VI, at MEPC 79, of amendments to regulation 14.3 of, and Appendix VII to MARPOL Annex VI designating the Med SO_x ECA as a new Emission Control Area.

Strategic direction, if applicable: 4

Output: 4.1

Action to be taken: Paragraph 24

Related document: MEPC 76/INF.63

Introduction

1 With this document the [XXX/number] countries bordering the Mediterranean Sea – [list of relevant Mediterranean coastal States] set forth a proposal for the designation of the Mediterranean Sea, as a whole, as an Emission Control Area (ECA) to prevent, reduce and control emissions of sulphur oxides (SO_x) and particulate matter (PM) from ships pursuant to regulation 14 and Appendix III to Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL), hereinafter referred to as the proposed Med SO_x ECA.

2 The designation of the proposed Med SO_x ECA is necessary to protect public health and the environment in the Mediterranean Sea, regional waters, and coastlines, and in the communities of the Mediterranean coastal States by reducing exposure to harmful levels of air pollution resulting from these emissions. The designation of the proposed Med SO_x ECA provides additional needed benefits beyond those afforded by the implementation of the global fuel quality standards pursuant to MARPOL Annex VI, hereinafter referred to as MARPOL VI standards. The burden on international shipping is small compared to the improvements in air quality, the reductions in premature mortality and health incidences associated with this air pollution, and the other benefits to the environment resulting from the designation of the proposed Med SO_x ECA.

3 **Annex 1** to this proposal provides a complete analysis of how this proposal satisfies each of the eight criteria for designation of an ECA established under Appendix III to MARPOL Annex VI, as well as a comprehensive bibliography of all the information considered in preparing this proposal. **Annex 2** to this proposal sets forth a detailed description of the proposed Med SO_x ECA. **Annex 3** to this proposal presents a chart of the proposed area of application for the designation of the proposed Med SO_x ECA. The co-sponsors have also prepared draft amendments, presented in **Annex 4** to this proposal, to include the proposed Med SO_x ECA in regulation 14.3 of, and Appendix VII to MARPOL Annex VI.

Summary of Proposal

4 The designation of the proposed Med SO_x ECA will significantly reduce emissions from ships and deliver substantial benefits to large segments of the population, as well as to marine and terrestrial ecosystems. Air pollution from ships occurs not just in the Mediterranean ports and coastlines but is also carried hundreds of kilometres inland. When people breathe this polluted air, their health is adversely affected, leading to lost productivity due to increased illnesses, hospitalisations, and even premature deaths. In the Mediterranean region, 507 million people live in areas with air pollution at levels exceeding respective national ambient air quality standards, and/or levels which are unhealthy according to the World Health Organization (WHO). Moreover, scientists have not identified any ambient threshold for PM below which no damage to health is observed. Thus, air pollution below the WHO levels is still harmful and the health of millions of people in all areas can be enhanced by improving air quality further. In addition, the gains that have been made by extensive domestic regulations to control emissions from land-based sources over the last four decades could be eroded or even reversed by expected growth in human and economic activity, including shipping. To maintain and improve air quality, public health and the environment, decisive action must be taken to realise the benefits that can be gained from additional emissions reductions.

5 The co-sponsors have coordinated this proposal, in line with common interests, shared geography and interrelated economies. The co-sponsors governments have consulted with stakeholders, including representatives from the shipping industry, ports, master mariners, environmental interests, and representatives from state and provincial governments. This proposal takes into account the issues raised during consultations and strives to minimise the impact on the shipping community, while achieving needed environmental protection. It is believed that by acting at the international level to reduce the impacts of shipping on air quality, human health and ecosystems, the designation of the proposed Med SO_x ECA will remove pressure on regional, national, and sub-national jurisdictions to consider regulatory actions to reduce ship emissions.

Populations and Areas at Risk

6 Millions of people and many important ecosystems in the Mediterranean region are exposed to harm or damage by emissions from ships and are at risk of additional harm in the future. The Mediterranean region includes a combined population in excess of 500 million, over half of which reside in coastal communities. Further, because ship pollution travels great distances, much of the inland population is also affected by ship emissions and will benefit from the cleaner air made possible by ECA fuel and engine controls. These populations are at risk of increased harm from shipping if an ECA is not designated.

7 **Annex 1** to this proposal describes the ways in which air pollution from ships contributes to the impairment of various ecosystems, including: deposition of acidifying sulphate, and changes in visibility. SO_x emissions from ships are carried over land and their derivatives (including PM and sulphur containing compounds) are deposited on surface waters, soils, and vegetation. Importantly, air pollution can contribute a significant portion of the sulphur loading that an ecosystem receives. Some areas are more sensitive than others, and many have multiple stressors. Mediterranean ecosystems are sensitive especially to acidification due to sulphuric acids formed from SO_x which contributes to aquatic eutrophication that alters biogeochemical cycles and harms animal and plant life. Areas where ships' emissions are deposited are at risk of further damage in the future. The designation of the proposed Med SO_x ECA will help reduce the stresses on many sensitive ecosystems, including forests, grasslands, wetlands, rivers, lakes, estuaries, and coastal waters.

8 As established in MARPOL Annex VI, an ECA designation is intended to prevent and reduce the adverse impacts on human health and the environment in areas that can demonstrate a need to prevent, reduce, and control emissions of SO_x and PM. The Parties to MARPOL Annex VI chose this objective because of the known public health and environmental effects associated with SO_x and PM emissions. The designation of the proposed Med SO_x ECA directly furthers this objective by reducing the emissions of SO_x and PM from ships operating in the proposed area of application for the said designation. The proposed Med SO_x ECA is aimed at SO_x and PM controls.

Contributions from Ships to Adverse Impacts

9 In developing this proposal, the co-sponsors performed a comprehensive analysis to quantify the degree of human health risk and environmental degradation that is posed by air emissions from ships operating in the Mediterranean Sea. For gauging the risk to human populations, state-of-the-art assessment tools were used to apply widely accepted methods with advanced computer modelling techniques, and such methods produced highly reliable and replicable results. Estimating impacts of shipping on human health and the environment required analyses of detailed ship traffic data, fuel use estimates, pollutant emissions estimates, detailed meteorological data, physical dispersion and photochemical reactions, deposition of pollutants to sensitive ecosystems, and epidemiologic modelling of health effects attributable to pollutant exposure levels. According to the analysis conducted for this proposal, the proposed Med SO_x ECA achieves similar cost-effective pollution reductions and health benefits as reported for previously designated SECAs. Annual benefits include more than 1,000 avoided premature deaths, avoid more than 2,000 cases of childhood asthma, and benefit many sensitive ecosystems.

10 Emissions from ships contribute to substantially increase ambient concentrations of air pollutants over Mediterranean land and sea areas. The WHO reports that the “*highest ambient air pollution levels are in the Eastern Mediterranean Region..., with annual mean levels often exceeding more than 5 times WHO limits*”¹. Moreover, the WHO Ambient air quality database² indicates that 72.7% of cities in the Mediterranean coastal States exceed the WHO annual ambient PM with a mass median diameter less than 2.5 microns (µm) (PM_{2.5}) pollution guidelines of 10 µg/m³. **Section 3 of Annex 1** to this proposal presents a map that displays the air quality impact of shipping emissions on ambient concentrations of PM. The physical dispersion models used to create these maps account for the varying wind patterns over the course of a representative year and simulate the paths that SO_x or PM travel once emitted from the funnel of a ship operating in the Mediterranean Sea. Chemical and physical fate and transport models predict the extent to which SO_x molecules react to form very small particles, known as PM_{2.5}. These maps show that the increased ambient concentrations of PM_{2.5} due to ship emissions are largest along major shipping lanes and nearby Mediterranean coasts, where many of the most populous cities are located. The increase in particles (aerosols) also degrades visibility as measured by reduction in aerosol optical depth; this pollution may affect the clarity of vistas and views important to persons living near or tourists visiting Mediterranean historical and natural attractions. Emissions are also transported over large distances and have significant impacts well into the interior of European and North African countries.

11 Ship emissions contribute to adverse human health impacts in the Mediterranean coastal States, especially in densely populated coastal areas. Ships generate emissions that lead to elevated ambient concentrations of PM_{2.5} that contribute to avoidable disease and premature death. **Table 1** presents the annual reduction of ship-related adverse health impacts in 2020 that would result from applying the SECA standards. The figures in this table clearly illustrate the health benefits of the designation of the proposed Med SO_x ECA. The analysis conducted for this proposal shows that more than 1,000 annual premature deaths will be avoided, and more than 2,000 fewer children will suffer asthma annually. Moreover, these estimates apply cardiovascular and lung cancer mortality, and asthma morbidity. Independent studies considering all-cause disease and death indicate that estimates reported here under-estimate the total benefits of the Med SO_x ECA.

¹ <https://www.ccaoalition.org/en/news/world-health-organization-releases-new-global-air-pollution-data>.

² [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-\(pm2-5\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-(pm2-5)).

12 The co-sponsors have also determined that damage to sensitive ecosystems that is attributable to emissions from ships will be reduced by the designation of the proposed Med SO_x ECA. Different ecosystems can be sensitive to and harmed by different pollutants, including acidification or eutrophication. The sensitivity of an ecosystem to acidification depends on the ability of the soils and waters to neutralise (or buffer) the deposited acidic pollutants formed from SO_x (see **Table 2**). Modelling in support of the designation of the proposed Med SO_x ECA predicts that improving ship emissions from current performance to SECA standards will significantly reduce the amount of sulphur deposition in sensitive ecosystems. The designation of the proposed Med SO_x ECA will help the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the Barcelona Convention) meet their goals under the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP).

Description of the Proposed Area of Application

13 The proposed area of application for the designation of the proposed Med SO_x ECA is illustrated in **Section 2 of Annex 1** to this proposal. A detailed description of the proposed area of application, including select coordinates, is provided in **Annex 2** to this proposal, and a chart is presented in **Annex 3** thereto. The proposed area of application follows the International Hydrographic Organization (IHO) definition of the Mediterranean Sea³ as being bounded on the southeast by the entrance to the Suez Canal, on the northeast by the entrance to the Dardanelles, delineated as a line joining Mehmetcik and Kumkale lighthouses, and to the west by the meridian passing through Cap Spartel lighthouse, also defining the western boundary of the Straits of Gibraltar. The proposed area of application is identical to the geographic area described in Article 1.1 of the Barcelona Convention, which is hereinafter referred to as the Mediterranean Sea area. The waters of the proposed Med SO_x ECA involve the twenty-two (22) Contracting Parties to the Barcelona Convention, namely Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, the Syrian Arab Republic, Tunisia, Turkey, and the European Union.

Table 1. Summary of health benefits evaluated for the proposed Med SO_x ECA (model year 2020)

Scenario Results (Linear C-R Model)	Reduced Mortality (annual premature adult deaths)		Avoided Childhood Asthma (annual avoided incidents)	
Health benefits of the proposed Med SO_x ECA	Reduced Mortality		Reduced Asthma Morbidity	
	CV Mortality Avoided	969 (CI 95% 551; 1,412)	Avoided Childhood Asthma	2,314 (CI 95% 1,211; 3,406)
	LC Mortality Avoided	149 (CI 95% 32; 270)		
	Combined Avoided Mortality	1,118 (CI 95% 583; 1,682)		

³ https://iho.int/uploads/user/pubs/standards/s-23/S-23_Ed3_1953_EN.pdf.

Table 2. Summary of proxies for other benefits associated with the proposed Med SO_x ECA

Environmental Benefit Proxy	Relative Range of Change (%)	Areas of greater benefit shown:
Wet sulphate deposition	1 to 15% reduction	Percent decrease in annual wet sulphate deposition between MARPOL VI and Med SO _x ECA
Dry sulphate deposition	1 to 50% reduction	Percent decrease in annual dry sulphate deposition between MARPOL VI and Med SO _x ECA
Wet PM _{Total} deposition	0.5 to 5% reduction	Percent decrease in annual wet PM _{Total} deposition between MARPOL VI and Med SO _x ECA
Dry PM _{Total} deposition	0 to 10% reduction	Percent change in annual dry PM _{Total} deposition between MARPOL VI and Med SO _x ECA
Aerosol optical depth (PM-related)	1 to 6% increase	Percent Change in aerosol optical depth (PM species) between MARPOL VI and Med SO _x ECA

Ship Traffic and Meteorological Conditions

14 Ship traffic in the Mediterranean Sea area is substantial as it is navigated by more than thirty thousand vessels annually, with most vessels calling on Mediterranean ports and engaging in regional commerce among the Mediterranean coastal States. In addition, many vessels transit the Mediterranean Sea area near heavily populated areas collectively containing hundreds of millions of inhabitants.

15 Meteorological conditions in the Mediterranean Sea area transport to land a significant portion of emissions from ships at-sea and the resulting pollutants formed in the atmosphere. The emissions from ships of SO_x and their derivatives (including PM) can remain airborne for around five to ten days before they are removed from the atmosphere (e.g., by deposition or chemical transformation). During the time from being emitted into and removed from the air, pollutants can be transported hundreds of nautical miles over water and hundreds of kilometres inland by the winds commonly observed in the Mediterranean Sea area. The analysis conducted for this proposal indicates that winds frequently blow onshore in all areas of the Mediterranean Sea. Some wind patterns are more common than others, thus the impact of air pollution from ships at-sea is larger on some areas than on others. Further, airborne transport of SO_x and PM from ships crosses national boundaries, adversely affecting large portions of the Mediterranean coastal States.

Land-Based Emissions Controls

16 Nearly all Mediterranean coastal States have already imposed stringent restrictions on emissions of SO_x, PM, and other air pollutants from a wide range of industrial, commercial and transportation activities. Examples of industrial and commercial sources subject to emissions restrictions include large and small manufacturing plants, smelting and refining facilities, chemical and pharmaceutical companies, and combustion sources at factories and power plants. Examples of transportation sources subject to emissions restrictions and fuel quality standards include automobiles, trucks, buses, locomotives, and domestic commercial and recreational watercraft. **Figure 1** illustrates the trend in land-side SO_x emissions for Mediterranean coastal States that are Member States of the European Union and Turkey.

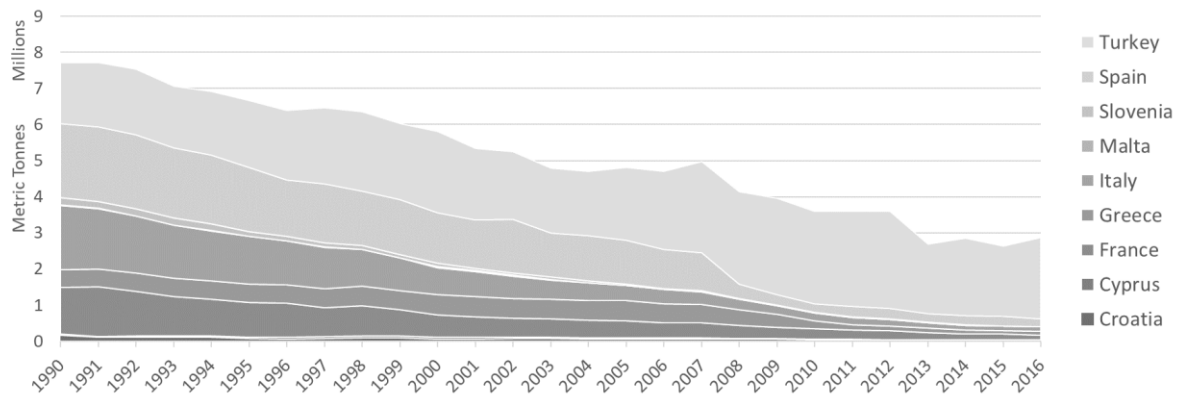


Figure 1: Trend in Land-side SO_x Emissions for Mediterranean coastal States that are Member States of the European Union and Turkey

17 The European and North African national air pollution control programmes for sources of air pollution other than ships have been highly successful. European countries reduced their SO_x emissions by nearly two-thirds since 1990, by more than half since 2000, and an additional 20% since 2010, without direct economic impact on net growth and cyclic recession recovery. According to the United Nations National Baseline Pollution Budgets (NBB), countries like Israel “*will be reducing indirect atmospheric emissions to the marine environment of NO_x and SO_x by 90% due to the planned installation of scrubbers in 6 coal powered units of the main coastal power stations as well as the closure of 4 coal power units*”, by 2022, relative to the 2012 baseline. The Egyptian State of the Environment Reports for 2012 and 2016 indicate that SO_x emissions have reduced more than 75% since 1999. Even so, the WHO indicates the Egyptian Delta Region exceeds its PM_{2.5} guidelines and Annex indicates that SO_x emissions from ships contribute to PM_{2.5} in that region. The Mediterranean coastal States continue to find cost-effective reductions that can be achieved from additional controls on the remaining sources. Most importantly, as land-side sectors control emissions, the relative contribution of ship emissions to national air quality problems increases the need for SECA controls. The designation of the proposed Med SO_x ECA will greatly reduce emissions from the increasingly significant ocean transportation sector.

Estimated Costs, Benefits, and Cost-effectiveness

18 As marginal costs for next-step measures typically increases for land-side emissions sources, cost-effective control of ship emissions appears both technically feasible and cost-effective. The costs of implementing and complying with the proposed Med SO_x ECA are expected to be small both absolutely and compared to the costs of achieving similar emissions reductions through additional controls on land-based sources. The co-sponsors estimate the total costs of improving ship emissions from current performance to SECA standards will be approximately US\$ 1.7 billion in 2020; along with global MARPOL VI standards, this achieves a 95% net reduction in SO_x and a 62% net reduction in PM_{2.5} from ships operating in the proposed Med SO_x ECA. If equivalent or greater reductions can be achieved using abatement technologies and/or advanced fuels – and if these technologies can save money for some vessels – then total compliance costs may be less. Consistent with prior experience in other SECA regions and following the insights and findings of the final report of the Assessment of fuel oil availability (MEPC 70/INF.6) (IMO Secretariat, 2016), hereinafter referred to as the IMO Fuel Availability Study, appropriate fuels and technologies will be available in sufficient quantities to meet the agreed-to SECA emission limit implementation dates.

19 The monetary value of small changes in mortality risks using SECA compliant fuels can be considered in terms of an economic term called the “value of a statistical life” or VSL. Formally, VSL is the monetary value of small changes in mortality risks, scaled up to reflect the value associated with one expected fatality in a large population. The value of avoided impacts may be considered to include the monetised sum of:

Value of avoided impacts

$$= \text{Avoided Mortality } (\$V_{\text{Mortality}}) + \text{Avoided Morbidity } (\$V_{\text{Illness+Care}}) \\ + \text{Avoided Deposition Damages } (\$V_{\text{Acidification}}) \\ + \text{Improved Visibility } (\$V_{\text{Haze}}) + \text{etc.}$$

20 While the value of all these benefits has been estimated in other studies using European monetary values (as presented in a model called Alpha RiskPol), this proposal presents a more conservative estimate limited only to the monetised benefits of avoided mortality associated with cardiovascular disease and lung cancer. Moreover, this proposal calibrates the VSL to the economies of the Mediterranean coastal States. Therefore, these under-estimated benefits are presented in terms of their potential sufficiency for the designation of the proposed Med SO_x ECA, acknowledging that additional benefits described above remain non-monetised. **Table 3** presents results of that analysis, indicating that the monetised benefits of avoided mortality singly exceed the total costs of implementing the proposed Med SO_x ECA.

Table 3. Mortality-weighted VSL for Mediterranean coastal States

Policy Regime	Mortality-weighted VSL for Mediterranean coastal States (\$ Millions)
No Action	2.157
MARPOL VI	1.094
Med SO _x ECA	1.818

21 Cost-effectiveness also indicates support for the designation of the proposed Med SO_x ECA, as illustrated in **Table 4**. The costs for each tonne of SO_x and PM avoided are estimated at US\$ 13,400 and US\$ 155,000, respectively. These costs per tonne are a measure of cost-effectiveness and are comparable or favourable to the cost-effectiveness of the controls imposed on many land-based sources. When compared with prior SECA proposals, such as the North American ECA, the net cost-effectiveness to achieve 0.10% Sulphur (S) m/m fuel limits from pre-2020 IMO standards is very similar. Improving current ship emission levels to SECA standards is one of the most cost-effective measures available to obtain necessary improvements to the air quality in the proposed Med SO_x ECA and for the Mediterranean coastal States individually.

Table 4. Cost-effectiveness comparison with North American ECA⁴

Benefit Type	U.S. estimates for North American ECA	North American ECA results with adjusted fuel prices ⁵	Med SO _x ECA combining MARPOL VI and SECA results
Control Target			
Abated SO _x emissions	\$4,500 /MT SO _x	\$14,000 /MT SO _x	\$8,900 /MT SO _x
Abated PM _{2.5} emissions	\$43,000 /MT PM _{2.5}	\$128,000 /MT PM _{2.5}	\$94,000 /MT PM _{2.5}
Health Outcome			
Avoided mortality ⁶	\$0.410 M/Δ Mortality	\$1.229 M/Δ Mortality	\$0.353 M/Δ Mortality
Avoided asthma illnesses ⁷	\$16 k/Δ Morbidity	\$49 k/Δ Morbidity	\$21 k/Δ Morbidity

22 The economic impacts of complying with the program on ships engaged in international trade are expected to be modest. As in other SECA regions, ship operators are expected to be able to pass additional costs associated with complying with the SECA fuel sulphur control measures to the purchasers of marine transportation services. Transportation costs ultimately are embedded in prices for the goods being shipped. Potential price impacts are expected to be small because transportation is only a small share of total production costs for finished goods.

Conclusion

23 Ship emissions contribute significantly to air pollution, adverse human health outcomes and ecosystem damage in the Mediterranean Sea area. The designation of the proposed Med SO_x ECA will reduce these effects and improve public health and the environment within the Mediterranean coastal States. The Mediterranean coastal States have already implemented emission controls on land-based sources of air pollution. Applying SECA standards to vessels engaged in international shipping in the Mediterranean Sea area will achieve substantial benefits at comparable, and reasonable, costs.

Action requested of the Committee

24 The Committee is invited to consider the information presented in this document and to approve the proposed Med SO_x ECA, with a view towards the adoption by the Parties to MARPOL Annex VI, at MEPC 79, of amendments to regulation 14.3 of, and Appendix VII to MARPOL Annex VI, as shown in **Annex 4**, to formally designate the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides, taking effect on [1 March 2024] / [1 January 2025].

⁴ Combined MARPOL VI and the proposed Med SO_x ECA costs for the analysis conducted for this proposal compared with United States (U.S.) NO_x and PM data to reduce ship fuel from pre-MARPOL VI conditions to 0.10% S m/m Med SO_x ECA conditions.

⁵ Given that the 2009 North American proposal to designate an ECA used a fuel price difference of \$145/MT to shift from HFO to SECA compliant fuel, and the analysis conducted for this proposal uses a fuel price difference of ~\$434/MT, the U.S. cost-effectiveness estimates (column 2, above) was multiplied by the ratio of these price differences to match with fuel price changes used for the analysis conducted for this proposal.

⁶ North American mortality methods are similar to those used here, although they may use a health risk equation similar to the log-linear equation discussed and compared in Sofiev et al, Nature Communications 2018 (1).

⁷ For comparison purposes with the childhood asthma illness results of the analysis conducted for this proposal, the set of childhood asthma related diseases reported separately by the U.S. was summed.

ANNEX 1

Information responding to the criteria in Appendix III to MARPOL Annex VI⁸

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⁸ The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations, the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP), the Mediterranean Pollution Assessment and Control Programme (MED POL), the Plan Bleu Regional Activity Centre (PB/RAC), the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), or the International Maritime Organization (IMO), concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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Abbreviations and Definitions

Term	Explanation
cm	Centimetre
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DM	Distillate marine fuels
ECA	Emission Control Area
EERA	Energy and Environmental Research Associates, LLC
EMEA	Europe, Middle East, and Africa
EGCS	Exhaust gas cleaning system
EU	European Union
FMI	Finnish Meteorological Institute
g	Grams
GHG	Greenhouse gas
GHO	Global Health Observatory
HFO	Heavy fuel oil
HSHFO	High sulphur heavy fuel oil
IEA	International Energy Agency
IER	Integrated Exposure Response
IFO	Intermediate fuel oil
IHO	International Hydrographic Organization
IIASA	International Institute for Applied Systems Analysis
IMO	International Maritime Organization
k	Thousands (as in Thousands of Dollars)
km	Kilometres
kW	Kilowatt
kWh	Kilowatt-hour
LNG	Liquefied Natural Gas
LSFO	Low sulphur fuel oil
M	Millions (as in Millions of Dollars)
m/m	Mass by mass
mm	Millimetre
MARPOL	International Convention for the Prevention of Pollution from Ships
MARPOL VI	MARPOL Annex VI
MDO	Marine distillate oil
Med SO _x ECA	Mediterranean Sea SO _x ECA
MEPC	Marine Environment Protection Committee
MGO	Marine gas oil
MMT	Million metric tonnes
MT	Metric tonne (1,000 kg)
MTCs	Maritime Transport Costs
NECA	NO _x Emission Control Area
NO _x	Nitrogen Oxides
passenger-km or p-km	Passenger-kilometres
pH	A measure of the acidity of a solution

PM	Particulate Matter
PM ₁₀	PM with a mass median diameter less than 10 µm
PM _{2.5}	PM with a mass median diameter less than 2.5 µm
PM _{Total}	Total PM
ppm	Parts per million
REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
RM	Residual marine fuels
RoPax	Roll-on Passenger
S	Sulphur
SECA	SO _x Emission Control Area
SILAM	System for Integrated modeLling of Atmospheric composition
SO ₂	Sulphur dioxide
SO _x	Sulphur Oxides
STEAM	Ship Traffic Emission Assessment Model
tonne-km or ton-km or t-km	Tonne-kilometres
U.S.	United States (of America)
ULSFO	Ultra-low sulphur fuel oil
UNFCCC	United Nations Framework Convention on Climate Change
VLSFO	Very low sulphur fuel oil
VSL	Value of a statistical life (or monetary value to reduce risk of a statistical premature death)
WHO	World Health Organization
µm	micrometre or micron

1 Introduction

The information in this annex supports the proposal by [list of co-sponsors] for the designation of the Mediterranean Sea, as a whole, as an Emission Control Area (ECA) to prevent, reduce and control emissions of sulphur oxides (SO_x) and particulate matter (PM) from ships pursuant to regulation 14 and Appendix III to Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL), hereinafter referred to as the proposed Med SO_x ECA.

1.1 Countries Submitting this Proposal

The [XXX/number] countries bordering the Mediterranean Sea – [list of relevant Mediterranean coastal States] share a common interest in the Mediterranean Sea and in addressing emissions from ships along their coastlines. These countries ask the Committee to consider this proposal at MEPC 78 and refer it for adoption by the Parties to MARPOL Annex VI, meeting under the auspices of MEPC 79.

As of [10 September 2021], among the Mediterranean coastal States, Albania, Croatia, Cyprus, France, Greece, Italy, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, the Syrian Arab Republic, Tunisia, and Turkey, ratified MARPOL Annex VI. Algeria, Bosnia and Herzegovina, Egypt, Israel, Lebanon, and Libya have not yet ratified MARPOL Annex VI (**Table 1.1-1**).

[PLACEHOLDER FOR DESCRIPTION OF FURTHER ACTIONS TOWARDS RATIFICATION]

Table 1.1-1. Status of ratification of MARPOL Annex VI by Mediterranean coastal States (as of [10 September 2021])

Country	Party to MARPOL Annex VI
Albania	X
Algeria	
Bosnia and Herzegovina	
Croatia	X
Cyprus	X
Egypt	
France	X
Greece	X
Israel	
Italy	X
Lebanon	
Libya	
Malta	X
Monaco	X
Montenegro	X
Morocco	X
Slovenia	X
Spain	X
Syrian Arab Republic	X
Tunisia	X
Turkey	X

1.2 Criteria for Designation of an Emission Control Area

Under MARPOL Annex VI, an ECA may be considered by the International Maritime Organization (IMO) if supported by a demonstrated need to prevent, reduce, and control air pollution from ships. The following eight criteria are laid out under Section 3 of Appendix III to MARPOL Annex VI, as quoted:

3.1.1	a clear delineation of the proposed area of application, along with a reference chart on which the area is marked;
3.1.2	the type or types of emission(s) that is or are being proposed for control (i.e. NO _x or SO _x and particulate matter or all three types of emissions);
3.1.3	a description of the human populations and environmental areas at risk from the impacts of ship emissions;
3.1.4	an assessment that emissions from ships operating in the proposed area of application are contributing to ambient concentrations of air pollution or to adverse environmental impacts. Such assessment shall include a description of the impacts of the relevant emissions on human health and the environment, such as adverse impacts to terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The sources of relevant data including methodologies used shall be identified;
3.1.5	relevant information pertaining to the meteorological conditions in the proposed area of application, to the human populations and environmental areas at risk, in particular prevailing wind patterns, or to topographical, geological, oceanographic, morphological, or other conditions that contribute to ambient concentrations of air pollution or adverse environmental impacts;
3.1.6	the nature of the ship traffic in the proposed emission control area, including the patterns and density of such traffic;
3.1.7	a description of the control measures taken by the proposing Party or Parties addressing land-based sources of NO _x , SO _x and particulate matter emissions affecting the human populations and environmental areas at risk that are in place and operating concurrent with the consideration of measures to be adopted in relation to provisions of regulations 13 and 14 of Annex VI; and
3.1.8	the relative costs of reducing emissions from ships when compared with land-based controls, and the economic impacts on shipping engaged in international trade.

1.3 Fuel Sulphur Content and Terminology

Prior to implementation, most analyses presumed marine distillate oil (MDO) would be the main fuel pathway to compliance with the IMO 2020 0.50% S m/m global sulphur cap. Subsequently, the market has met demand for 0.50% S m/m fuels using fuel blends containing several streams of residuals and lighter products, termed low sulphur fuel oil (LSFO). Very low sulphur fuel oil (VLSFO) has a maximum sulphur content of 0.50% S m/m and ultra-low sulphur fuel oil (ULSFO) has a maximum sulphur content of 0.10% S m/m. Distillate marine fuels (DM) include MDO and marine gas oil (MGO). While prior work referred to MDO as the compliant pathway for IMO 2020 0.50% S m/m fuels, the market has moved towards LSFOs as the compliant pathways, with references to MDO being in parallel to 0.50% S m/m LSFO fuels.

Generally, references to heavy fuel oil (HFO) or intermediate fuel oil (IFO) in prior work are referring to fuels with a sulphur content $\geq 0.50\%$ S m/m. MDO generally refers to fuels $\leq 0.50\%$ S m/m but $\geq 0.10\%$ S m/m, and MGO refers to fuels $\leq 0.10\%$ S m/m.

Terminology has varied among IMO regulations, ISO standards, and the fuel prices described in the market, further complicating the comparison of fuels and prices over time. Per resolution MEPC.320(74) on the *2019 Guidelines for consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI* (IMO, 2020)⁹, marine fuels are described as shown in **Table 1.3-1**.

As outlined in resolution MEPC.320(74), shipowners/operators should be aware that the viscosity of blended residual fuels (LSFOs) is such that they require heating for cleaning and combustion, and thus cannot be used in distillate-only fuel systems, with fully segregated systems for distillate fuels and LSFOs recommended. The IMO recommends that ships have a comingling procedure, with new bunkers loaded into empty tanks to the extent possible, and onboard comingling only occurring when the compatibility between the bunkers has been determined.

Table 1.3-1. Definitions of marine fuel oils from resolution MEPC.320(74)

Fuel Category	ISO Standard	Fuel Sulphur Limit	Alternate Terminology
DM	ISO 8217:2017	1.0% S m/m maximum	MGO if $\leq 0.10\%$ S m/m MDO if $\leq 0.50\%$ S m/m
Residual marine fuels (RM)	ISO 8217:2017	As per statutory requirements	IFO HFO
High sulphur heavy fuel oil (HSHFO)		$> 0.50\%$ S m/m	HFO
VLSFO	ISO 8217:2017	$\leq 0.50\%$ S m/m	MDO Compliant Blend
ULSFO	ISO 8217:2017	$\leq 0.10\%$ S m/m	MGO MDO Compliant Blend

⁹ <https://www.imo.org/en/MediaCentre/PressBriefings/Pages/10-MEPC-74-sulphur-2020.aspx>.

2 Description of the Proposed Area of Application

This section presents information that addresses criteria 3.1.1, 3.1.2 and 3.1.3 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.1	a clear delineation of the proposed area of application, along with a reference chart on which the area is marked;
Criterion 3.1.2	the type or types of emission(s) that is or are being proposed for control (i.e. NO _x or SO _x and particulate matter or all three types of emissions);
Criterion 3.1.3	a description of the human populations and environmental areas at risk from the impacts of ship emissions;

2.1 Proposed Area of Application

The Mediterranean is an important region for international shipping and commercial navigation. The Mediterranean Sea represents approximately 0.7% of navigable seas and oceans, and Mediterranean ship traffic accounts for about 7% of global shipping activity, energy use, and emissions. Based on AIS observations, more than 30,000 vessels are observed to operate annually in the Mediterranean Sea. Based on the analysis conducted for this proposal, shipping CO₂ emissions represent about 10% of the Mediterranean coastal States' CO₂ inventories, as reported to the United Nations Framework Convention on Climate Change (UNFCCC).

The proposed area of application for the designation of the proposed Med SO_x ECA, as modelled in this document, is illustrated in **Figure 2.1-1**. The proposed area of application follows the International Hydrographic Organization (IHO) definition of the Mediterranean Sea¹⁰ as being bounded on the southeast by the entrance to the Suez Canal, on the northeast by the entrance to the Dardanelles, delineated as a line joining Mehmetcik and Kumkale lighthouses, and to the west by the meridian passing through Cap Spartel lighthouse, also defining the western boundary of the Straits of Gibraltar. The proposed area of application is identical to the geographic area described in Article 1.1 of the Barcelona Convention, which is hereinafter referred to as the Mediterranean Sea area. The waters of the proposed Med SO_x ECA involve the twenty-two (22) Contracting Parties to the Barcelona Convention, namely Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, the Syrian Arab Republic, Tunisia, Turkey, and the European Union. Additional detail on the proposed area of application is included in **Annex 2** to this proposal.

¹⁰ https://iho.int/uploads/user/pubs/standards/s-23/S-23_Ed3_1953_EN.pdf.



Figure 2.1-1: Contracting Parties to the Barcelona Convention (in grey) and proposed area of the Med SO_x ECA (in dark blue)

2.2 Types of Emissions Proposed for Control

This proposal supports designation of an ECA to control SO_x and PM emissions from ships. SO_x is a precursor to fine PM formation. **Section 4** provides details on the health impacts associated with PM, and **Section 5** provides details on the impacts to ecosystems from deposition of PM and compounds containing wet and dry sulphate.

2.2.1 SO_x and PM Pollution

SO_x pollution is formed during marine engine combustion, from available sulphur in marine fuel. SO_x emissions from ship exhausts contribute to the formation of sulphate (SO₄) aerosols, which are small particles. Small sulphate aerosol particles, along with other PM species, are able to penetrate deep into the lungs of living organisms, including humans, contributing to increased lung cancer and cardiovascular disease mortality and asthma morbidity. In addition, deposition of SO₄ particles contribute to increased acidification of surface waters and terrestrial systems, which is deleterious to the environment.

2.3 Populations and Areas at Risk from Exposure to Ship Emissions

The Mediterranean Sea area is enclosed on all sides by land masses with significant coastal populations. The Mediterranean coastal States are home to 507.5 million people, many of whom live in coastal towns and cities (**Figure 2.3-1**). The Mediterranean Sea is an essential shipping route for goods travelling from East Asia to European, West Asian, and North African markets, meaning that many people live near one of the world's major shipping gateways.

The Mediterranean Sea area is home to many sites of significant cultural heritage, including sensitive ecosystems and ancient ruins. Because ship pollution can travel great distances, transported by atmospheric processes, large inland populations and ecosystems will benefit from the proposed Med SO_x ECA, in addition to populations, sites, and ecosystems in coastal locations.

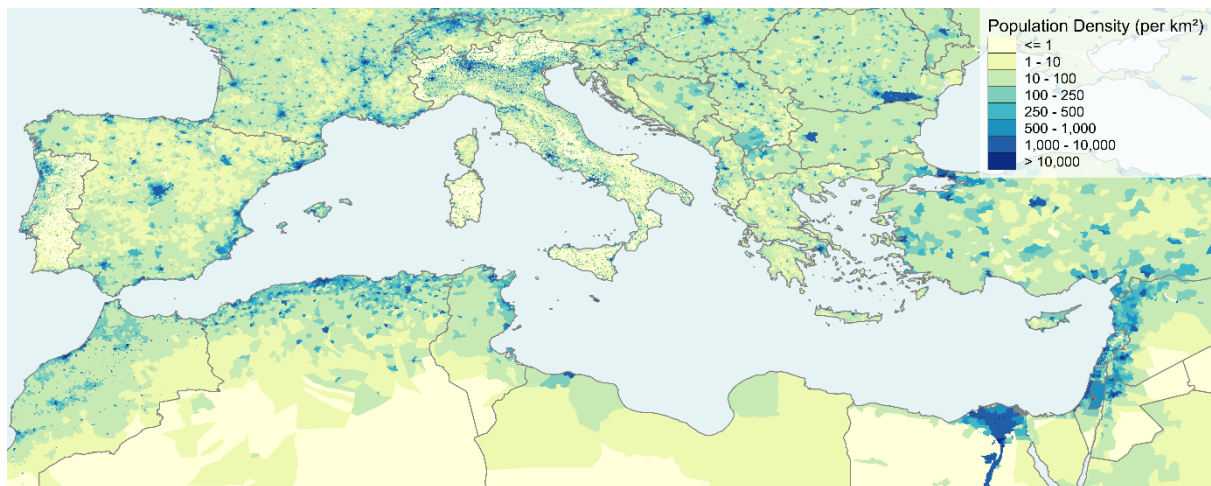


Figure 2.3-1: Gridded population in the Mediterranean coastal States

2.4 Summary of Description of the Proposed Area of Application

Based on the information presented in the previous **Section 2.1**, **Section 2.2**, and **Section 2.3**, this proposal fulfils criteria 3.1.1, 3.1.2, and 3.1.3 of Appendix III to MARPOL Annex VI.

3 Contribution of Ships to Air Pollution and Other Environmental Problems

This section presents information that addresses criterion 3.1.4 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.4	an assessment that emissions from ships operating in the proposed area of application are contributing to ambient concentrations of air pollution or to adverse environmental impacts. Such assessment shall include a description of the impacts of the relevant emissions on human health and the environment, such as adverse impacts to terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The sources of relevant data including methodologies used shall be identified;
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3.1 Synopsis of the Assessment

SO_x and PM emissions from ships have a significant impact on air quality in the Mediterranean Sea area. Furthermore, modelling shows that the proposed Med SO_x ECA would lead to widespread benefits throughout the Mediterranean Sea area and far inland due to the long-range nature of pollution from ships. SO_x and PM_{2.5} emissions from ships would be reduced by 78.7% and 23.7%, respectively, under the proposed Med SO_x ECA, leading to health and environmental benefits through reduced environmental exposure to the pollutants. The proposed Med SO_x ECA is expected to lead to air quality improvements throughout the Mediterranean Sea region and beyond, leading to thousands of avoided premature deaths and incidences of childhood asthma annually. The proposed Med SO_x ECA will improve visibility in the region and reduce sulphate and PM deposition, both of which cause damage to sites of significant cultural heritage, and harm sensitive ecosystems and fisheries.

3.2 The Mediterranean Sea area Emissions Inventory Summary

Lower-sulphur fuels that would be required under the proposed Med SO_x ECA would result in lower emissions than current practices, and lower emissions compared with global MARPOL VI 2020 limits. SO_x reductions are directly proportion to the shift from 0.50% S m/m to 0.10% S m/m fuel. PM reductions depend primarily on the fraction of ship-emitted PM that results from fuel-sulphur content.

MARPOL VI standards will reduce SO_x emissions by approximately 75% from typical operations using residual fuels. Implementing SECA standards would achieve about a 95% reduction in SO_x emissions from ships compared with current operations. PM reductions of about 51% are associated with MARPOL VI, and SECA standards would increase that to about 62% reduction in emissions.

Baseline SO_x and PM_{2.5} emissions are estimated to be 681,000 and 97,500 MT in 2016. Under the MARPOL VI scenario emissions of these species fall by 75.3% and 50.7% respectively. Emission inventory results under the proposed Med SO_x ECA 2020 scenario for SO_x and PM_{2.5} species are reduced by a further 78.7% and 23.7% compared to MARPOL VI 2020 (**Table 3.2-1**).

3.2.1 Emissions Inventory Modelling and Inputs for 2020 Scenario and Future Years

International ship power systems currently consume mainly petroleum-based fuel products and by-products, with limited use of liquefied natural gas. Most of the fleet consumes residual fuel, also known as HFO, which includes several grades of blended petroleum by-products of refining (2). Current limits prescribed under MARPOL VI will require marine vessels to adopt fuels meeting a global limit of 0.50% S m/m in 2020. This proposal models default compliance with MARPOL VI to result from a switch from non-compliant fuel (average 2.40% S m/m) to MARPOL VI compliant (0.50% S m/m) fuel. All future year scenarios consider technical and economic feasibility of the proposed Med SO_x ECA to be compared with conditions defined using MARPOL VI compliant fuel.

Table 3.2-1. Baseline and 2020 scenario criteria and greenhouse gas (GHG) pollution emissions

MT	Med 2016 Baseline	MARPOL VI 2020	Proposed Med SO _x ECA 2020
Total SO _x	681,000	168,000	35,800
Total PM _{2.5}	97,500	48,100	36,700
Total NO _x	1,330,000	1,160,000	1,170,000
Total CO ₂	58,070,000	51,700,000	51,880,000

In considering the proposed Med SO_x ECA, compliance alternatives modelled in this document begin by assuming a switch from MARPOL VI compliant fuel to SECA compliant fuel. In other words, the proposed Med SO_x ECA would result in a shift from 0.50% S m/m to 0.10% S m/m marine fuel. Recognising that SECA compliance can be achieved through alternative compliance mechanisms, this document considers these mainly as part of the economic feasibility (**Section 9.3.1** and **Section 9.3.2**); fleet operators would be expected to adopt compliance alternatives to fuel switching where the long-run costs of SECA compliance were reduced. Alternative approaches to SECA compliance consider adoption of exhaust abatement technology or advanced fuel alternatives. This document models onboard sulphur exhaust gas cleaning systems (EGCS), also termed scrubbers, as the primary exhaust abatement technology to meet lower-sulphur limits of the proposed Med SO_x ECA. This document models liquefied natural gas (LNG) as the advance fuel alternative to meet lower-sulphur limits of the proposed Med SO_x ECA. Acknowledging that other technologies and fuels may be specified, this document utilises an analytical framework that can be applied to investigate more specifically other compliance strategies (e.g., various EGCS designs, methanol, hydrogen, or other marine fuel-power combinations).

This document uses the Ship Traffic Emission Assessment Model (STEAM) to model the activity-based fuel consumption and emissions of over 30,000 vessels operating annually in the Mediterranean Sea area. Informed by Ship Automated Identification System (AIS) for the year 2016, the STEAM model integrates vessel activity, technology and design characteristics, and fuel type inputs to estimate vessel-specific energy requirements, fuel consumption, and emissions. These estimates are aggregated by vessel type and within the Mediterranean Sea area to produce annual fuel and emissions estimates for a base year 2016. The STEAM Model also produces a set of future-year estimates for 2020, 2030, 2040, and 2050, employing assumptions about future fleet demand, vessel economies of scale, improvements in fuel economy, and fleet replacement rates.

3.3 Shipping Contribution to Ambient Air Quality

3.3.1 Shipping Contribution to Ambient PM_{2.5} Air Pollution in the Mediterranean Sea area

Air quality modelling shows that SO_x and PM emissions from ships have a significant impact on air quality in the Mediterranean Sea area. Furthermore, modelling shows that the proposed Med SO_x ECA would lead to widespread benefits throughout the Mediterranean Sea area and far inland due to the long-range nature of pollution from ships.

3.3.2 Improvement of Ambient Air Quality with the proposed Med SO_x ECA (PM_{2.5})

Figure 3.3-1 shows the geospatially modelled annual average difference in PM_{2.5} concentration due to implementation of the proposed Med SO_x ECA compared to the MARPOL VI 2020 baseline. Areas in blue show places where PM_{2.5} under MARPOL VI is greater than for the proposed Med SO_x ECA scenario, i.e. where the proposed Med SO_x ECA leads to a reduction in PM_{2.5}. As shown, all water areas of the Mediterranean Sea experience reductions in PM_{2.5} concentration of between 0.05 and 0.6 µg/m³, with coastal land benefits being realised primarily along the North African coastline, Spain, France, Italy, Malta, and Greece. Areas with the greatest expected reductions in PM_{2.5} concentrations attributable to ships are at the western Mediterranean Sea, along the coastlines of Spain and Morocco, in the central Mediterranean Sea to the south of Sicily and over Malta, to the south and east of Greece, and along the north coast of Egypt approaching the entrance to the Suez Canal.

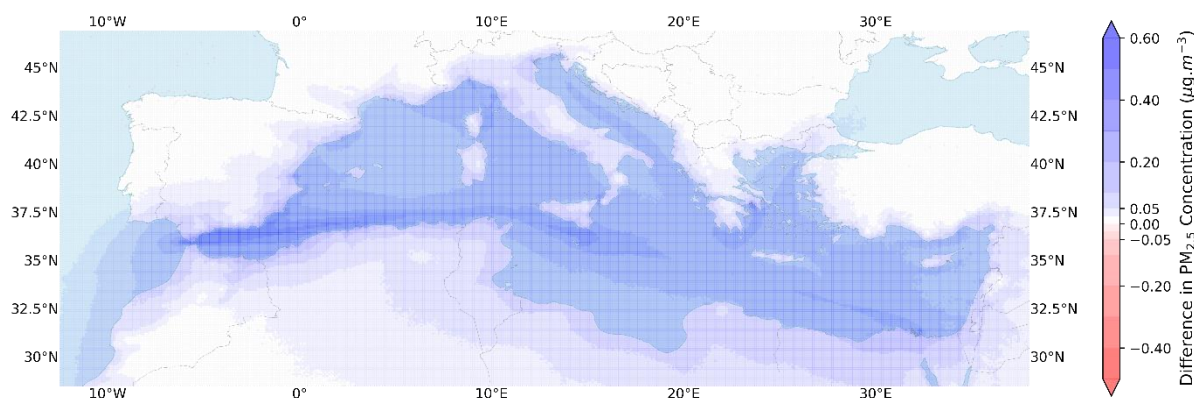


Figure 3.3-1: Difference in PM_{2.5} concentration between MARPOL VI and the proposed Med SO_x ECA scenarios

3.4 Summary of Shipping Contribution to Ambient Air Quality

As the data in **Figure 3.3-1** shows, a SECA established under regulation 14 would yield benefits for all coastal communities surrounding the proposed Med SO_x ECA, and also benefit communities far inland. The air quality benefits of the proposed Med SO_x ECA have been clearly demonstrated and fulfil the contributions of ships to air quality portion of criterion 3.1.4 of Appendix III to MARPOL Annex VI.

4 Impact of Emissions from Ships on Human Health

This section presents further information building on **Section 3**, which addresses criterion 3.1.4 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.4	an assessment that emissions from ships operating in the proposed area of application are contributing to ambient concentrations of air pollution or to adverse environmental impacts. Such assessment shall include a description of the impacts of the relevant emissions on human health and the environment, such as adverse impacts to terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The sources of relevant data including methodologies used shall be identified;
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4.1 Health Effects Related to Exposure to Air Pollutants

The expected avoided lung cancer and cardiovascular disease mortality, and childhood asthma morbidity, associated with the proposed Med SO_x ECA were estimated using the state-of-the-art health model, recently published in *Nature Communications* (1), and referenced in document MEPC 70/INF.34. This model produces high resolution (10 km x 10 km) mortality and morbidity estimates, corresponding to the resolution of underlying concentration grids provided by the System for Integrated modelLing of Atmospheric coMposition (SILAM) model. The high-resolution modelling approach reduces under and over estimation of mortality and morbidity inherent with coarser (50 km x 50 km) models of emissions and population. The model outputs include high resolution gridded estimates of mortality and morbidity, and country-specific burdens of disease for the countries shown in **Figure 2.1-1**. Country-specific population growth estimates, disease incidence rates, and age structures, as well as global gridded population and socioeconomic data from the National Aeronautics and Space Administration (NASA)'s Socioeconomic Data and Applications Center (SEDAC) (3) were used.

4.2 Nature of PM Health Effects

PM with a mass median diameter less than 10 microns (μm) (PM₁₀) can be breathed deep into the lungs and contribute to disease. Specifically, PM with a mass median diameter less than 2.5 μm (PM_{2.5}) can pass through the lung barrier and enter the blood stream which increases the risk of cardiovascular and respiratory disease, including lung cancer. Chronic exposure to high concentrations of PM is associated with greater risk of cardiovascular and lung cancer disease than exposure to low concentrations, however, no lower threshold has been identified, with increased risk of disease at all levels of exposure to PM.

4.3 Methodology for Estimating Health Effects

The methodology for modelling health impacts follows the approach discussed in previous work (4, 5). Earlier work applied mortality risk functions identified in Ostro (2004) (6), which in turn builds on work developed out of the U.S. Harvard Six Cities study conducted earlier by Pope, et al. (7-9).

PM_{2.5} exposure concentrations in the Mediterranean Sea area are similar to those in the Harvard Six Cities study, indicating that premature mortality risk functions derived from the Harvard Six Cities study can be applied to the said area.

This health impacts assessment follows work published in *Nature Communications* in 2018 that employs a concentration-response (C-R) function from Lepeule, et al. (2012), which updates epidemiology from the Harvard Six Cities study (10). Health outcomes are estimated using a linear C-R function, which reflects updated understanding of the relationship between health and exposure to air pollution and

provides improved estimates of health outcomes where ambient concentrations of PM_{2.5} exceed WHO guidelines (>20 µg/m³). Health outcome estimates focus on cardiovascular and lung cancer mortality responses in populations aged over 30 years old, aligned with Lepeule, et al. (2012). As in earlier work (Sofiev et al., 2018), an assessment of childhood (<14 years) asthma morbidity, which uses similar concentration-response equations based on reported asthma incident rates by country (11), was included.

Gridded population data for 2020 are from SEDAC Population of the World, Version 4.10 (3). These data provide gridded population counts, which were resampled to 0.1° x 0.1° resolution (~10 km x 10 km) to reflect regional differences in population counts. These population data are built upon UN statistics and apply sub-national rates of population change (growth/decline) to estimate population counts in the future. Country-level age cohort fractions directly to the population counts for each Member State of the United Nations were applied to determine the age cohort populations by country (12). A uniform population age structure was assumed across each country, multiplying the population grid by the country-specific fraction of population under the age of 14 and between the ages of 30 and 99. This approach likely does not account for regional differences in age cohorts, but represents the best available practice given the paucity of country-specific age-cohort data.

Country-specific incidence rates for cardiovascular disease and lung cancer are derived from data from the World Health Organization's Global Health Observatory (GHO) (Table 4.3-1) (13, 14). To determine overall health outcomes associated with ship emissions and the proposed Med SO_x ECA, we calculate avoided mortality based on the change in PM_{2.5} concentration between the 2020 MARPOL VI (0.50% S m/m) scenario and the proposed Med SO_x ECA (0.10% S m/m) scenario.

Table 4.3-1. WHO cardiovascular and lung cancer disease mortality, and childhood asthma morbidity rates

Country	Cardiovascular (Disease Per 100,000)	Lung Cancer (Disease Per 100,000)	Asthma (Disease Percent, Age <14)
Albania	330.0	26.0	3.6
Algeria	220.3	8.7	7.1
Bosnia and Herzegovina	277.8	29.1	9.9
Croatia	208.0	22.9	5.2
Cyprus	142.3	20.7	9.9
Egypt	412.3	7.6	5.2
France	70.6	27.8	12.6
Greece	135.1	31.8	9.8
Israel	77.1	20.3	10.3
Italy	103.2	22.9	11.4
Lebanon	295.0	17.0	11.6
Libya	324.0	19.0	9.9
Malta	138.5	20.9	14.1
Monaco	70.6	27.8	9.9
Montenegro	329.2	36.6	9.9
Morocco	260.3	12.8	13.3
Slovenia	138.5	28.7	9.9
Spain	82.1	23.8	13.9
Syrian Arab Republic	377.5	17.0	5.1
Tunisia	278.5	15.7	9.3
Turkey	202.6	29.8	9.9

Country-specific incidence rates for childhood asthma are provided in the Global Asthma Report 2014 (15). For Asthma disease, the “Asthma Ever” data in the 13-14 year-old age group reported in the 2014 Global Asthma Report 2014 (15) was used, and this percentage was applied to the population fraction under the age of 14. Zheng et al (11) provide relative risk (RR) factors for childhood asthma from exposure to PM_{2.5} pollution (Table 2 of Zheng), which were converted to β coefficients.

Avoided mortality and morbidity due to changes in Total Particulate Matter (PM_{Total}) concentrations were calculated using approaches mentioned above, consistent with other recent work in this area (5, 16). The total effect (E) of changes for each grid cell is given as:

$$E = AF \cdot B \cdot P$$

where B represents the incidence rate of the given health effect (**Table 4.3-1**); P is the relevant population, weighted by the age cohort; and AF is the attributable fraction of disease due to the shipping-related PM pollution, and is given by:

$$AF = \frac{RR-1}{RR}$$

For a “linear” C-R model, the response RR is given by the function (17):

$$RR = e^{\beta \cdot (C_1 - C_0)}$$

And therefore,

$$AF = 1 - e^{\beta \cdot (C_0 - C_1)}$$

which leads to:

$$E = [1 - e^{\beta \cdot (C_0 - C_1)}] \cdot B \cdot P$$

where $\beta = 0.023111$ (95% CI = 0.013103, 0.033647) for cardiovascular mortality; $\beta = 0.031481$ (95% CI = 0.006766, 0.055962) for lung cancer related mortality (8, 10, 18); and where $\beta = 0.002469$ (95% CI = 0.001291, 0.003633) for childhood asthma morbidity (11).

This approach follows WHO guidelines in the 2016 Global Burden of Disease (19) by combining WHO-derived health incidence data with gridded population and ambient air quality data. The functional form of the integrated exposure response (IER) follows a modified, but functionally similar, form of the IER recommended by the WHO.

4.4 Quantified Human Health Impacts from Exposure to Ship Emissions

4.4.1 Avoided Cardiovascular and Lung Cancer Mortality

Health outcomes are improved in all coastal areas of all Mediterranean coastal States. **Figure 4.4-1** shows the combined avoided lung cancer and cardiovascular mortality associated with implementing the proposed Med SO_x ECA. In many cases, health outcomes are improved hundreds of miles inland. Modelling results show a reduction in cardiovascular disease mortality of ~970 deaths/year and a reduction in lung cancer mortality of ~150 deaths/year. Due to the interaction between air quality improvements, population centres, and country-specific incidence rates, hotspots where avoided mortality from reduced ship emissions is greater are seen. Clusters of these hotspots can be seen in North Africa as well as areas of the eastern Mediterranean.

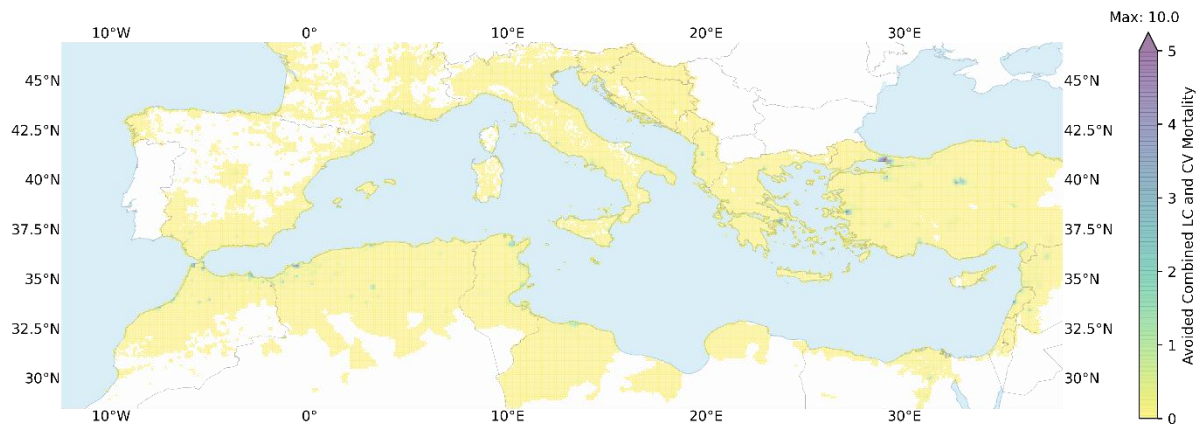


Figure 4.4-1: Combined avoided lung cancer and cardiovascular mortality with the proposed Med SO_x ECA

4.4.2 Childhood Asthma Morbidity

Childhood asthma health outcomes are improved in all Mediterranean coastal States. **Figure 4.4-2** shows the avoided childhood asthma morbidity associated with implementing the proposed Med SO_x ECA. Avoided morbidity in this case refers to the number of children experiencing one or more ship-pollution induced asthma events each year. In many instances, improved health outcomes are observed hundreds of miles inland, and in many Mediterranean coastal States experience the benefits of the proposed Med SO_x ECA over the entirety of their land area. Modelling results show a reduction in childhood asthma morbidity of ~2,300 children experiencing one or more ship-pollution induced asthma events per year. As for morbidity, health outcomes are improved across large areas of the Mediterranean coastal States, with a hotspot of avoided asthma morbidity seen in North Africa and the eastern Mediterranean.

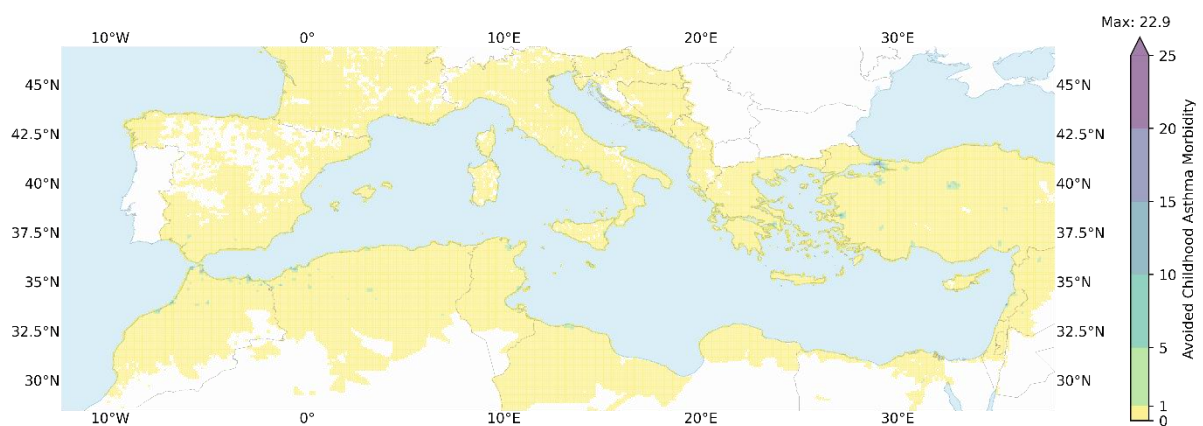


Figure 4.4-2: Avoided childhood asthma morbidity with the proposed Med SO_x ECA

4.4.3 Summary of Evaluated Health Benefits

The health effects estimated in this document are shown in **Table 4.4-1**, along with 95% confidence intervals. It is estimated that improving to SECA standards from MARPOL VI would result in 969 avoided cases of cardiovascular mortality, and 149 cases of lung cancer mortality. Furthermore, childhood asthma morbidity would be reduced in 2,314 children under the age of 14 each year.

Table 4.4-1. Summary of health benefits evaluated for the proposed Med SO_x ECA (model year 2020)

Scenario Results (Linear C-R Model)	Reduced Mortality (annual premature adult deaths)		Avoided Childhood Asthma (annual avoided incidents)	
Health benefit of the proposed Med SO_x ECA	Reduced Mortality		Reduced Asthma Morbidity	
	CV Mortality Avoided	969 (CI 95% 551; 1412)	Avoided Childhood Asthma	2314 (CI 95% 1211; 3406)
	LC Mortality Avoided	149 (CI 95% 32; 270)		
	Combined Avoided Mortality	1,118 (CI 95% 583; 1682)		

4.5 Summary of Impact of Emissions from Ships on Human Health

As described above, emissions from ships contribute to many adverse human health impacts. The designation of the proposed Med SO_x ECA would reduce the risk of premature mortality and contribute to the avoidance of many morbidity-related health impacts. Thus, this proposal fulfils the human health portion of criterion 3.1.4 of Appendix III to MARPOL Annex VI.

5 Impact of Emissions from Ships on Ecosystems

This section presents further information building on **Section 3** and **Section 4**, which addresses criterion 3.1.4 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.4	an assessment that emissions from ships operating in the proposed area of application are contributing to ambient concentrations of air pollution or to adverse environmental impacts. Such assessment shall include a description of the impacts of the relevant emissions on human health and the environment, such as adverse impacts to terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The sources of relevant data including methodologies used shall be identified;
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5.1 Overview of Deposition Resulting from SO_x and PM Emissions from Ships

Air quality modelling shows widespread reductions in wet and dry SO_x and PM_{2.5} deposition resulting from fuel sulphur reductions due to the proposed Med SO_x ECA. This indicates that sensitive ecosystems and areas of cultural heritage around the Mediterranean Sea area would benefit from improvements to environmental health resulting from the proposed Med SO_x ECA.

5.2 Environmental and Ecosystem Impacts and Areas at Risk

SO_x pollution is formed during marine engine combustion, from available sulphur in marine fuel. SO_x emissions from ship exhausts contribute to the formation of sulphate (SO₄) aerosols, which are small particles. Sulphate aerosols are acidic. They can be transported while airborne over land or water, where they may be deposited through wet (e.g. rain) or dry (e.g. gravitational settling) processes. Increased acid deposition associated with SO_x emissions leads to deleterious effects on aquatic and terrestrial ecosystems. Sulphate deposition to water leads to lower pH levels in aquatic environments. Lower pH levels alter sensitive ecosystems as acid-intolerant flora and fauna species are adversely affected, which can lead to wider trophic changes and ecosystem shifts. Sulphate deposition to terrestrial environments is damaging to plants, as increased acid deposition can lead to reductions in minerals and nutrients necessary for plant growth, as well as damaging foliage, which reduces photosynthetic capacity. Furthermore, atmospheric sulphate has a light scattering effect, which can lead to increased haze and reduced visibility. In addition to environmental impacts, acid deposition can damage the material of built structures and statues.

5.2.1 Sulphate (SO₄) Deposition

Decreases in wet (**Figure 5.2-1** and **Figure 5.2-2**) and dry (**Figure 5.2-3** and **Figure 5.2-4**) sulphate (SO₄) deposition associated with the proposed Med SO_x ECA show similar orders of magnitude, but follow different patterns. Decreases in wet sulphate deposition are largest in the western and northern Mediterranean and show reductions in SO₄ deposition occurring far inland. Reductions in dry sulphate deposition are more closely correlated to the high traffic shipping lanes. Taking the Mediterranean Sea as a whole, the average reduction in wet sulphate deposition is 43.3 g.ha⁻¹.yr⁻¹, and the maximum observed reduction is 3,127.8 g.ha⁻¹.yr⁻¹. The maximum percent decrease in wet sulphate deposition observed is 14.23% (**Figure 5.2-2**), which occurred over the Straits of Gibraltar. The average percent decrease in wet sulphate deposition estimated for the Mediterranean Sea area is 1.16%.

The maximum percent decrease in dry sulphate deposition observed is 48.13% (**Figure 5.2-4**), which occurred over the Straits of Gibraltar and extending eastwards towards Algiers in Algeria. The average percent decrease in dry sulphate deposition estimated for the Mediterranean Sea area is 1.95%.

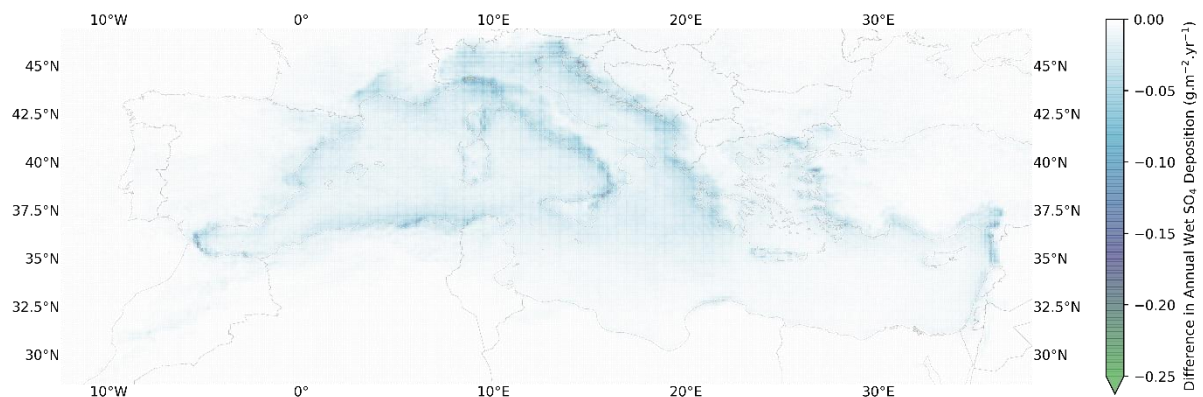


Figure 5.2-1: Decrease in annual wet sulphate deposition between MARPOL VI and the proposed Med SO_x ECA

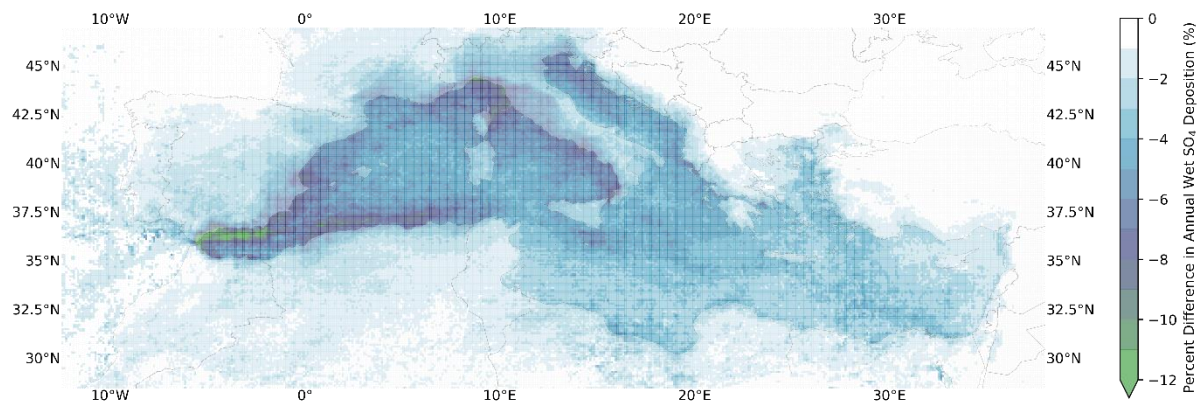


Figure 5.2-2: Percent decrease in annual wet sulphate deposition between MARPOL VI and the proposed Med SO_x ECA

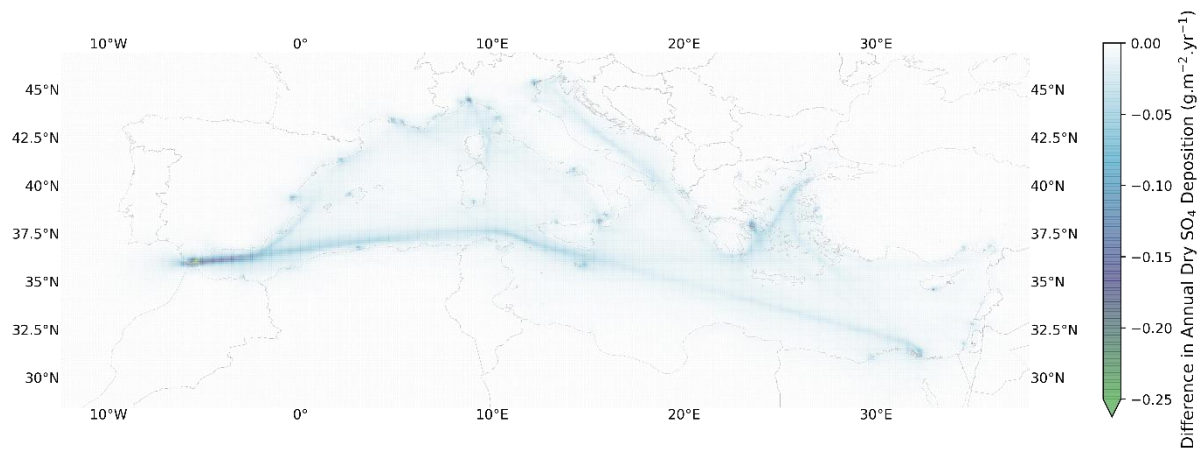


Figure 5.2-3: Decrease in annual dry sulphate deposition between MARPOL VI and the proposed Med SO_x ECA

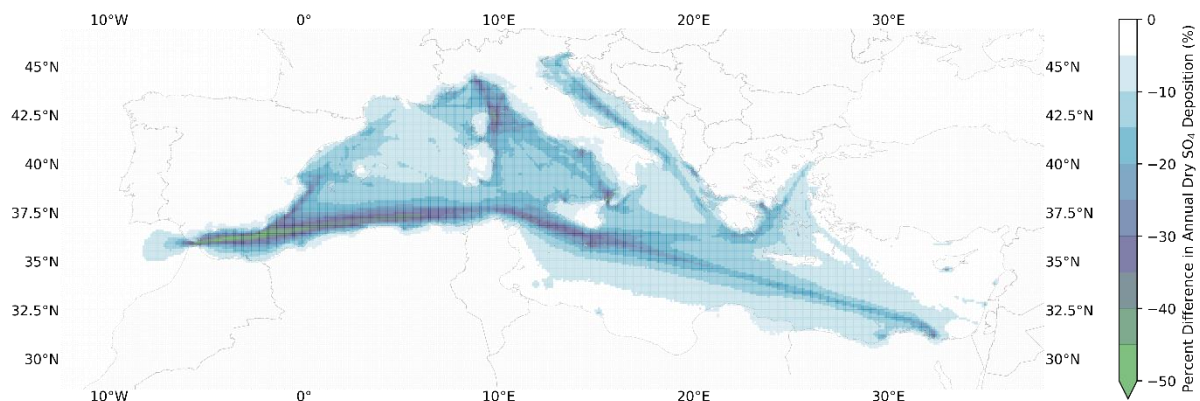


Figure 5.2-4: Percent decrease in annual dry sulphate deposition between MARPOL VI and the proposed Med SO_x ECA

5.2.2 PM_{Total} Deposition

Changes in wet (Figure 5.2-5 and Figure 5.2-6) PM_{Total} deposition associated with the proposed Med SO_x ECA are two orders of magnitude greater than decreases in dry deposition and follow different geographic distributions. Decreases in wet PM_{Total} deposition are largest in the western and northern Mediterranean and show reductions in PM_{Total} deposition far inland. Reductions in dry PM_{Total} deposition (Figure 5.2-7 and Figure 5.2-8) are more geographically limited to western Spain, northern Algeria, the Alps, and isolated areas in Greece, and dry PM_{Total} deposition actually increases over water along the main shipping lane through the Straits of Gibraltar, past Malta and over towards the Suez.

The maximum percent decrease in wet PM_{Total} deposition observed is 4.58% (Figure 5.2-6), which occurred over the Straits of Gibraltar. The average percent decrease in wet PM_{Total} deposition estimated for the Mediterranean Sea area is 0.25%.

The maximum percent increase in dry PM_{Total} deposition observed is 8.45% (Figure 5.2-8), which occurred over the Straits of Gibraltar and extending eastwards towards Algiers. The average percent change in dry sulphate deposition estimated for the Mediterranean Sea area is 0.66%, indicating that dry PM_{Total} deposition increases overall when going from MARPOL VI to the proposed Med SO_x ECA, but shows significant geographic variation.

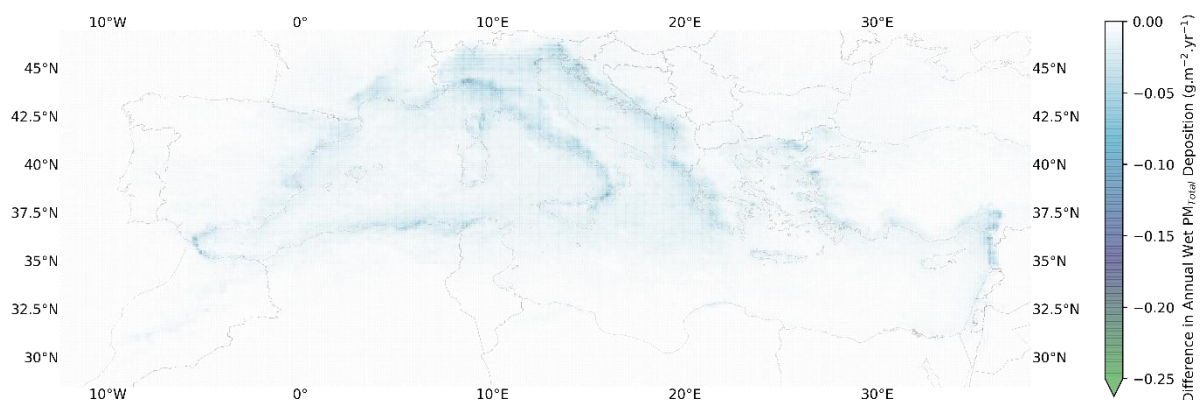


Figure 5.2-5: Decrease in annual wet PM_{Total} deposition between MARPOL VI and the proposed Med SO_x ECA

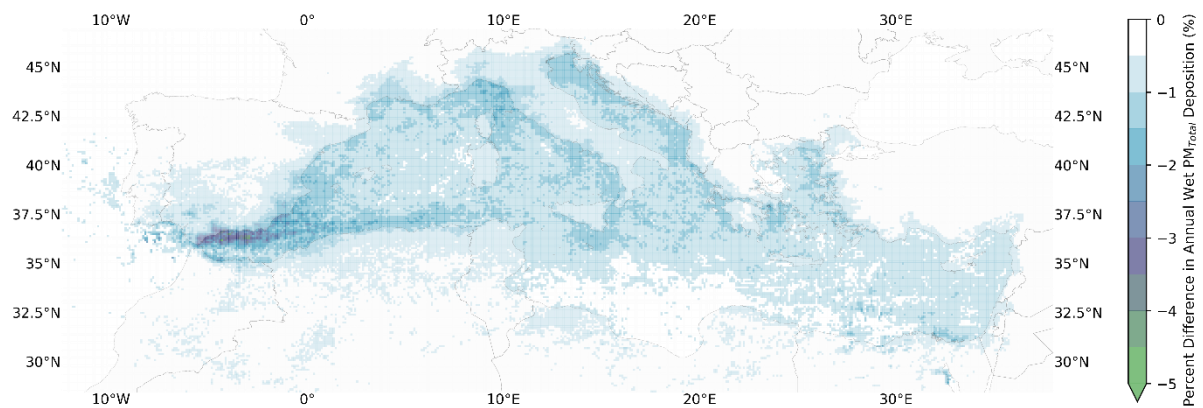


Figure 5.2-6: Percent decrease in annual wet PM_{Total} deposition between MARPOL VI and the proposed Med SO_x ECA

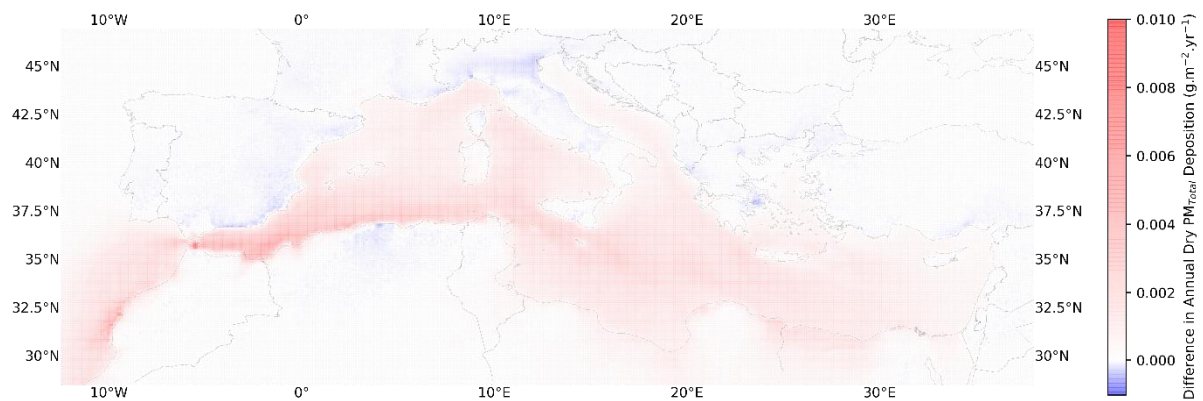


Figure 5.2-7: Change in annual dry PM_{Total} deposition between MARPOL VI and the proposed Med SO_x ECA

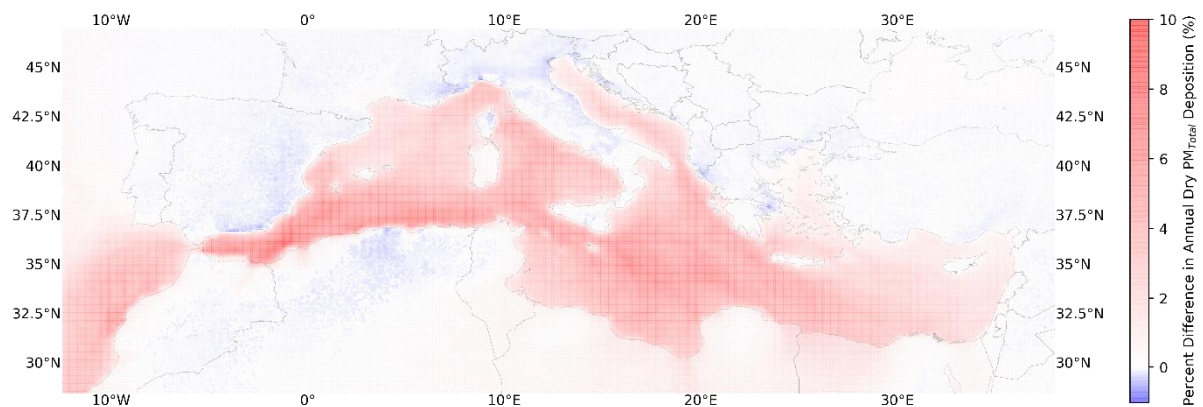


Figure 5.2-8: Percent change in annual dry PM_{Total} deposition between MARPOL VI and the proposed Med SO_x ECA

5.2.3 Change in Visibility

The estimated percent increase in PM aerosol optical depth is shown in **Figure 5.2-9**. Increases in aerosol optical depth are associated with reduced haze and increased visibility. This figure shows a widespread increase in aerosol optical depth over water areas of the Mediterranean Sea and extending far inland over North Africa. That greatest increases in PM aerosol optical depth occur over the Straits of Gibraltar and northern Morocco and Algeria, and along the main shipping lane connecting the Straits of Gibraltar, Malta, and towards the Suez.

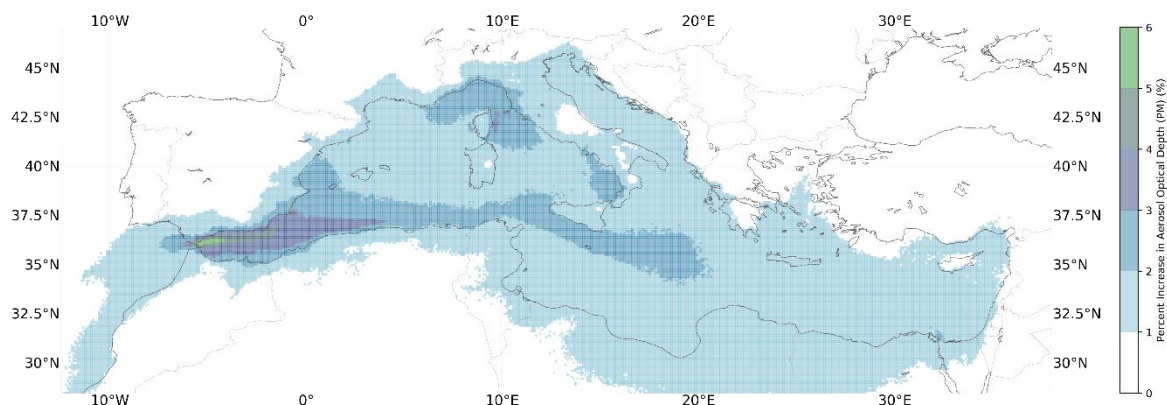


Figure 5.2-9: Percent Change in aerosol optical depth (PM species) between MARPOL VI and the proposed Med SO_x ECA

5.3 Impacts Associated with Deposition of PM_{2.5} and Air Toxics

Deposition of PM_{2.5} and toxic air compounds can contribute to create acidifying deposits, contribute to eutrophication, lead to lower pH levels in surface waters, ports, and harbours and lead to increases in heavy metals and polycyclic aromatic hydrocarbons (PAHs). Deposition can occur in either wet or dry form. Wet deposition occurs when PM, acidifying compounds, and toxic substances are deposited through precipitation, serving as cloud condensation nuclei, and dry deposition occurs when particles transmitted by atmospheric processes settle on terrestrial or marine environments. Coastal areas receive the greatest deposition of oxidised sulphur from ships, potentially up to 70%. On a country-wide basis, coastal areas of countries where this deposition from ships may occur may account for 5-70% of total sulphur deposition in Mediterranean coastal States [CITE Jonson et al 2020], depending on the country, size, and proximity to shipping traffic.

The Mediterranean is identified as a sensitive ecosystem [Turley1999] and as a region of high marine biodiversity, with more than 17,000 listed marine species occurring in the region [Coll 2010]. The Mediterranean is subject to a suite of anthropogenically driven challenges to its biodiversity, including habitat loss and degradation, fishing impacts, climate change, invasive species, and pollution [Coll 2010]. The pH of the Mediterranean Sea has been decreasing rapidly [Flecha et al 2015] with acid deposition from ships contributing to the acidification of the region [Jonson 2020, Teuchies 2020].

Deposition of PM_{2.5} and other substances in ship emissions contributes to acidification of marine and freshwaters [CITE Hasselov et al., 2013, Jonson et al 2020] and terrestrial ecosystems [CITE Cerro2020]. Acidification alters biogeochemical cycles and affects aquatic and terrestrial animal and plant species [Jakovljevic et al 2019]. Furthermore, acidification of marine environments reduces the acid buffering capacity of the waters, which coupled with acidification-altered physiology and nutrient cycling, can lead to altered food chains and fish stocks [Hilmi et al 2014, Dupont and Portner, 2013]. Fisheries in the Mediterranean Sea and Black Sea generate annual revenues of USD 2.8 billion, directly employ around 250,000 people onboard fishing vessels, and feed hundreds of thousands of people in the region [FAO 2018]. Around half (47%) of fish stocks in the Mediterranean Sea are characterised as having low biomass, with another 31% characterised as having intermediate biomass, and most stocks in the region are overexploited [FAO, 2018].

Cleaner fuels may also contain fewer heavy metals and toxic chemical compounds. Air toxics include chemical compounds such as Polycyclic Aromatic Hydrocarbons (PAHs) and heavy metals, which are present in marine fuels and are released to the atmosphere during combustion. Heavy metals released during combustion of marine fuels include nickel, vanadium, cadmium, iron, lead, copper, zinc, and aluminium [Agrawal2008]. PAHs and heavy metals are known to cause several detrimental conditions in terrestrial and aquatic organisms, including physiological impairments, negatively altered growth and population dynamics, and mortality. PAHs and heavy metals are known to bioaccumulate, affecting multiple levels of trophic webs [Hasselov2020, Logan 2007], with apex predator marine mammals accumulating high levels of PAHs and metals in their tissues [Monteiro2020].

The Mediterranean coastal States are home to numerous areas of cultural heritage, including many sites thousands of years old. Wet and dry deposition of acidic substances are known to react with carbonate stone, including marble and limestones [Livingstone2016], that are found throughout the Mediterranean and widely used in the construction of cultural heritage sites [Calvo and Regueiro 2010]. The karst effect, carbonate stone naturally dissolving in rainwater since calcite is soluble in water, can be accelerated by deposition of anthropogenic air pollution. Reduced sulphur and PM emissions from ships mitigates this effect.

The Mediterranean Sea area is home to abundant biodiversity in terrestrial and aquatic ecosystems, fisheries that generate billions of dollars annually for the regional economy and employ and feed hundreds of thousands of people, and a rich cultural heritage. The benefits of the proposed Med SO_x ECA summarised in **Section 5.4** and **Table 5.4-1** show widespread reductions in wet and dry sulphate and PM deposition, as well as improved visibility. The implications of reductions in sulphate and PM deposition are clear. The proposed Med SO_x ECA will lead to improved ecosystem health and fisheries, reduced impacts to the sensitive biodiversity in the region, and improved longevity of important sites of cultural heritage in the region.

5.4 Summary of Environmental Benefits

Sulphate deposition reductions are a proxy indicator for potential change in pH acidification to aquatic and terrestrial ecosystems. PM_{Total} deposition reductions are a proxy indicator for potential change in other particle and nutrient effects. Note that Dry PM_{Total} deposition indicated some regions with small increases in deposition, due to non-linear PM formation responses with the reduction of sulphates, consistent with findings reported in science literature. Aerosol optical depth is a proxy for increased suspended particles affecting regional haze and visibility impairment, an increase in aerosol optical depth indicates an improvement in visibility.

It is also noted that while this analysis focuses on benefits to the Mediterranean coastal States, human health and environmental benefits may extend to countries outside the Mediterranean Sea area.

Table 5.4-1. Summary of proxies for other benefits associated with the proposed Med SO_x ECA

Environmental Benefit Proxy	Relative Range of Change (%)
Wet sulphate deposition	1 to 15 % reduction
Dry sulphate deposition	1 to 50 % reduction
Wet PM _{Total} deposition	0.5 to 5 % reduction
Dry PM _{Total} deposition	0 to 10 % reduction
Aerosol optical depth (PM-related)	1% to 6 % increase

5.5 Summary of Impact of Emissions from Ships on Environment

As described above, emissions from ships contribute to an increased deposition of acidifying species and PM. The designation of the proposed Med SO_x ECA would reduce deposition of acidifying and particulate species across the Mediterranean Sea area and lead to improvements in visibility. Thus, this proposal fulfils the environmental health portion of criterion 3.1.4 of Appendix III to MARPOL Annex VI.

6 Role of Meteorological Conditions in Influencing Air Pollution

Criterion 3.1.5	relevant information pertaining to the meteorological conditions in the proposed area of application, to the human populations and environmental areas at risk, in particular prevailing wind patterns, or to topographical, geological, oceanographic, morphological, or other conditions that contribute to ambient concentrations of air pollution or adverse environmental impacts;
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Meteorological conditions in the Mediterranean Sea area transport to land a significant portion of emissions from ships at-sea and the resulting pollutants formed in the atmosphere. The emissions from ships of SO_x and their derivatives (including PM) can remain airborne for around five to ten days before they are removed from the atmosphere (e.g., by deposition or chemical transformation). During the time from being emitted into and removed from the air, pollutants can be transported hundreds of nautical miles over water and hundreds of kilometres inland by the winds commonly observed in the Mediterranean Sea area. The analysis conducted for this proposal indicates that winds frequently blow onshore in all areas of the Mediterranean Sea. Some wind patterns are more common than others, thus the impact of air pollution from ships at-sea is larger on some areas than on others. Further, airborne transport of SO_x and PM from ships crosses national boundaries, adversely affecting large portions of the Mediterranean coastal States.

7 Shipping Traffic in the Proposed Area of Application

This section presents information that addresses criterion 3.1.6 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.6	the nature of the ship traffic in the proposed emission control area, including the patterns and density of such traffic;
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7.1 Shipping Traffic Patterns

Geographically, fuel consumption is driven by regional shipping patterns. The highest fuel consumption is observed at the western end of the Mediterranean Sea at the entrance to the Straits of Gibraltar, in the central Mediterranean Sea off of the north coast of Tunisia, and at the eastern end of the Mediterranean Sea at the entrance to the Suez Canal (**Figure 7.1-1**). Relative fuel consumption patterns are unchanged in the various scenario years.

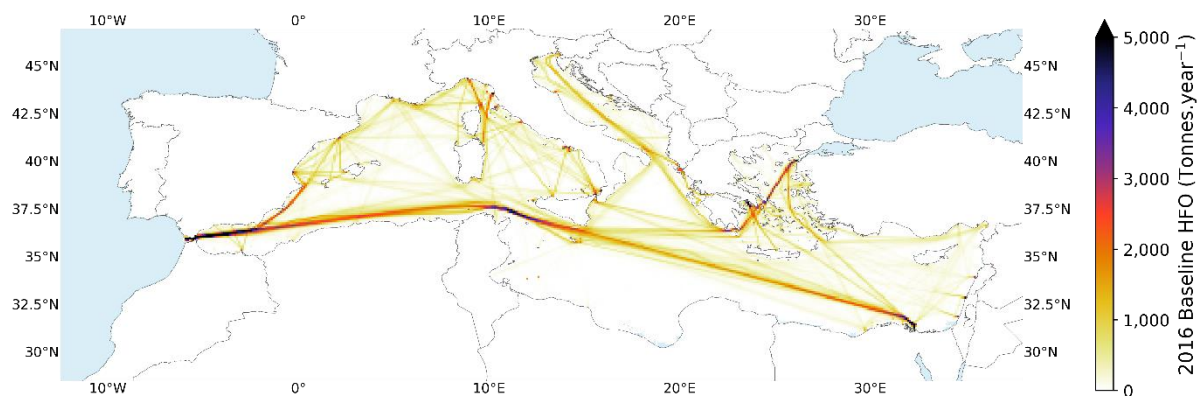


Figure 7.1-1: Baseline 2016 HFO fuel use

Baseline (2016) fuel use inventories show total fuel use of 19.16 million tonnes in the Mediterranean Sea area (**Table 7.1-1**). AIS data show 33,163 unique vessels operating in the Mediterranean in the baseline 2016 year.

The dominant fuel used in 2016 was HFO (78.8%). MDO was the next most commonly used fuel (17.2%), and MGO and LNG comprised a small fraction of overall fuel usage (2.8% and 1.3%, respectively). The STEAM model predicts that under MARPOL VI, the Mediterranean Sea area overall fuel mix will switch to 95.5% MDO and 3.1% MGO, and 0.8% LNG. HFO fuel use falls to 0.6% under MARPOL VI conditions, and continues to be used by a small number of vessels currently equipped with EGCSs. STEAM modelling outputs indicate that improvements in power system fuel economy and vessel economies of scale result in 10.8% overall fuel consumption decreases in 2020 from 2016, accompanied by fuel switching.

Under the proposed Med SO_x ECA scenario, the STEAM model estimates total fuel use equivalent to the MARPOL VI scenario, but changes to 97.7% MGO and 1% MDO fuel mix. HFO and LNG fuel usage is unchanged in the proposed Med SO_x ECA scenarios compared to the MARPOL VI fuel consumption (**Table 7.1-2**).

Table 7.1-1. Baseline year (2016) fuel usage and projected 2020 fuel usage under MARPOL VI and the proposed Med SO_x ECA scenarios

MT	Med 2016 Baseline	MARPOL VI 2020	Proposed Med SO_x ECA 2020
Total Fuel	19,160,000	17,100,000	17,100,000
MGO	542,000	522,000	16,700,000
MDO	3,290,000	16,340,000	164,000
HFO	15,090,000	99,900	94,700
LNG	243,000	141,000	138,000

Table 7.1-2. Fuel mix percentages for the Mediterranean Sea area in 2016 and under MARPOL VI and the proposed Med SO_x ECA scenarios

Fuel Allocation	Pre-MARPOL VI Baseline Fuel Mix	MARPOL VI Fuel Mix	Proposed Med SO_x ECA Fuel Mix
MGO	2.8%	3.1%	97.7%
MDO	17.2%	95.5%	1.0%
HFO	78.8%	0.6%	0.6%
LNG	1.3%	0.8%	0.8%

7.2 Summary of Shipping Traffic in the Proposed Area of Application

The nature, patterns, and density of ship traffic in the proposed Med SO_x ECA have been described. These shipping patterns form the basis for fuel use and emissions inventory modelling, which is an input to air quality modelling. Thus, this proposal fulfils criterion 3.1.6 of Appendix III to MARPOL Annex VI.

8 Control of Land-Based Sources

This section presents information that addresses criterion 3.1.7 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.7	a description of the control measures taken by the proposing Party or Parties addressing land-based sources of NO _x , SO _x and particulate matter emissions affecting the human populations and environmental areas at risk that are in place and operating concurrent with the consideration of measures to be adopted in relation to provisions of regulations 13 and 14 of Annex VI; and
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8.1 An Identification of Existing Land-Based Measures for the Control of SO_x and PM Emissions in the Mediterranean Coastal States

This section presents a systematic review of air quality and pollution abatement policies undertaken country-by-country for the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention.

All Mediterranean coastal States have adopted measures for the control of emissions from land-based sources. The extent and implementation of these measures varies across the region, with European Union (EU) standards representing the strictest standards for ambient air quality and emission reductions. In total, the effect of land-based regulations has led emissions from transport and non-transport sources in the Mediterranean coastal States overall to decline by around half since 1975, with larger reductions on a country-by-country basis.

Land-based measures include those that regulate stationary and mobile sources of pollution on land. Analysis of land-based measures is presented in three phases. First, a systematic review of available public policies, laws and regulations identifies the set of policies, by country, aimed at reducing SO_x and PM pollution from land-based sources. Land-based sources of pollution include stationary sources, such as power generation facilities and industrial plants, and mobile sources, such as trucks, cars, and buses. Land-based emissions also include non-point source emissions, though those are typically not relevant for anthropogenic sulphur dioxide (SO₂) and PM_{2.5} emissions. Second, analysis of emission inventory data identifies sectoral reductions in SO₂ and PM emissions. Third, analysis of regional data from air quality monitoring stations identifies compliance with PM_{2.5} standards.

Criterion 3.1.7 of Appendix III to MARPOL Annex VI requires a description of the control measures taken by the proposing parties to address land-based sources of SO_x and PM emissions affecting human populations. This section presents a synthesis of national and international-level policies, describing land-based efforts for SO_x and PM abatement in the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention, including those relevant to transportation and stationary sources. Existing measures are reported on a country-by-country basis, where available.

The Contracting Parties to the Barcelona Convention are Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, the Syrian Arab Republic, Tunisia, Turkey, and the European Union. There are eight countries that are both Contracting Parties to the Barcelona Convention and Member States of the European Union. These countries are Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain.

Country-level descriptions are included in the following sections and summarised in **Table 8.1-1**, denoting the presence of laws and regulations related to stationary and mobile source control of SO₂ and PM_{2.5}.

Table 8.1-1. Land-based measures identified at the country-level for SO₂ and PM_{2.5} pollution control

Country	Member State of the European Union	Transportation	Stationary Sources
Albania	Candidate country	X	X
Algeria		X	
Bosnia and Herzegovina		X	X
Croatia	X	X	X
Cyprus	X	X	X
Egypt		X	X
France	X	X	X
Greece	X	X	X
Israel		X	X
Italy	X	X	X
Lebanon		X	X
Libya		X	
Malta	X	X	X
Monaco		X	X
Montenegro	Candidate country	X	X
Morocco		X	X
Slovenia	X	X	X
Spain	X	X	X
Syrian Arab Republic		X	
Tunisia		X	X
Turkey	Candidate country	X	X

8.1.1 Albania

Albania is in the process of applying to become a Member State of the European Union. Albania has been prioritising measures to align national air quality legislation with EU policies and has fully transposed the EU Directive 2008/50/EC into national law by the adoption of law no.162/2014 "On protection the ambient air quality" and DCM No. 352 dated 29.04.2015 "On air quality assessments and requirements concerning certain pollutants" that prescribes reference methods for air quality assessment. On 21 March 2007 Decision 147, governing the sulphur content in fuels, was adopted. Decision 147 limited the sulphur content of fuels to 10 ppm, aligned with the EU standards.

8.1.2 Algeria

The average fuel sulphur content for transportation gasoline fuels is 100 - 150 ppm and diesel is restricted to 2,500 ppm in Algeria¹¹. This is equivalent to Euro 3/III emission standards for gasoline, and Euro 1/I standards for diesel. Only new vehicles leaving the factory are admitted for sale in Algerian territory.

¹¹<https://wedocs.unep.org/bitstream/handle/20.500.11822/25233/FuelQualityEmissionStandardDevelopments.pdf?sequence=3&isAllowed=y>.

8.1.3 Bosnia and Herzegovina

Ambient air quality standards in Bosnia and Herzegovina are aligned with EU standards, though implementation and enforcement of the legal framework for air quality are in development (UN 2017). The Law on Air Protection (OG FBiH No. 33/03, 4/10) provides for monitoring of emissions from stationary sources, development of monitoring plans, and the development of monitoring networks. Furthermore, Continuous emissions measurement at large combustion plants is provided for in Article 18.

8.1.4 Egypt

The primary law governing air pollution in Egypt is Law 4/1994¹². Under Law 4, Article 35, the law provides that emissions of air pollutants should not exceed those permitted by the regulations. Law 4 does not specify those standards, directly, and they are instead prescribed by executive regulations. The Draft Executive Regulation for Law 9/2009 sets out the ambient air quality standards for Egypt as shown in **Table 8.1-2**.

Table 8.1-2. PM₁₀ and SO₂ ambient air quality standards in Egypt

Pollutant	Period	Standard
PM ₁₀	24h	150 µg/m ³
	1yr	100 µg/m ³
PM _{2.5}	24h	100 µg/m ³
	1yr	70 µg/m ³
SO ₂	1h, Industrial	300 µg/m ³
	1h, Urban	350 µg/m ³
	24h, Industrial	125 µg/m ³
	24h, Urban	125 µg/m ³
	1yr, Industrial	50 µg/m ³
	1yr, Urban	60 µg/m ³

In 2004 the national air quality strategy framework was formulated by Egypt in collaboration with USAID in order to improve urban air quality (World Bank 2013). Egypt implemented legislation requiring catalytic converters in imported vehicles and has endorsed the use of compressed natural gas (CNG) as a transportation fuel due to its lower pollutant emissions profile (Abbass, Kumar, and El-Gendy 2018). Egypt implemented a strategy to address the issue of open waste burning and as of 1994 the cement industry has been subject to emissions regulations set by Law 4/1994 (Abbass, Kumar, and El-Gendy 2018).

8.1.5 European Union

The European Union introduced their first air quality directive in 1970. Since then, the EU has implemented policymaking to improve air quality, by controlling the emission of pollutants to the atmosphere, improving quality of transport fuels, and cross-sectoral environmental protection measures. Clean air policy is based on three central tenets:

1. Ambient air quality standards;
2. National emission reduction commitments; and
3. Emission and energy efficiency standards for key sources of air pollution.

The air quality legislations of Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain are fully aligned and harmonised with European Union legislation, described in this section.

¹² <http://www.ecaa.gov.eg/en-us/laws/envlaw.aspx>.

The Clean Air Programme for Europe¹³ is aimed at tackling poor air quality in the short term through a range of measures, including light-duty diesel engines, tightening existing legislation, enhancing technical capabilities, and the ambient air quality directive. In the long term, the Clean Air Programme for Europe is expected to reduce premature mortality by 37% and reduce ecosystem damage through eutrophication by 21% in 2025.

There are eight countries that are both Contracting Parties to the Barcelona Convention and Member States of the European Union. These countries are Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain. The national legislations of these countries fully transpose and are fully harmonised with the EU legal provisions.

Recently, the EU has undertaken the 2019 European Green Deal (COM/2019/640 final), Europe's 2030 climate ambition (COM(2020) 562) and the Sustainable and Smart Mobility Strategy (COM(2020) 789 final, SWD(2020) 331 final), and undertakes to act on a set of environmental policies, including climate change, biodiversity loss, circular economy, oceans health, including to reduce pollution from ships. Under the Green deal, the ongoing revision of the Ambient Air Quality Directive (AAQD) will set increasingly stringent standards for air quality and provide guidance for facilitating meeting those standards. A recent report from the European Environment Agency shows significant proportion of the burden of disease in Europe continues to be attributed to environmental pollution resulting from human activity¹⁴. To address this, in June 2021 the EU will adopt the Zero Pollution Action plan.

Marine vessels are included in EU policymaking. On the sea-going vessel side, the EU Sulphur Directive (Directive 2016/802) requires that vessels calling any European ports have an obligation to switch to 0.10% S m/m at berth for calls longer than 2 hours. This obligation to use less polluting fuel oil in the ports, is in force since 2005 (Directive 1999/32). Additional to the at-berth requirement, prior to IMO 2020 going into effect, passenger vessels on regular service were required to use 1.50% S m/m fuels. On the port side, the Fuel EU Maritime initiative¹⁵ and the revision of the Alternative Fuel Infrastructure Directive the Alternative Fuel Directive will contain mandatory provisions for shore power and alternative fuels to significantly reduce ship emissions in ports as well as coastal areas.

8.1.5.1 EU Ambient Air Quality Standards

The Ambient Air Quality Directive (2008/50/EC) sets limits for atmospheric concentrations of pollutant species in the EU, including SO₂ and airborne PM₁₀ and PM_{2.5}. These standards are implicitly linked with transport and stationary source emission standards (EEA 2020b).

Ambient Air Quality Directives require Member States of the European Union to assess air quality in their territories and implement plans to maintain compliant air quality or reduce emissions and improve air quality in regions where standards are not met.

Atmospheric concentrations of PM₁₀, PM_{2.5}, and SO₂ are each governed by the EU Ambient Air Quality Directives and are subject to the temporal standards laid out in **Table 8.1-3**.

¹³ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0918&from=EN>.

¹⁴ <https://www.eea.europa.eu/publications/healthy-environment-healthy-lives>.

¹⁵ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12312-FuelEU-Maritime->.

Table 8.1-3. Selected EU Ambient Air Quality Directive pollution concentration standards

Pollutant	Period	Concentration	Notes
PM ₁₀	1 Day	50 µg/m ³ limit	For no more than 35 days per year
	Calendar Year	40 µg/m ³ limit	
PM _{2.5}	Calendar Year	25 µg/m ³ limit	
		20 µg/m ³	Concentration exposure obligation
SO ₂	1 Hour	350 µg/m ³ limit	For no more than 24 hours per year
		500 µg/m ³	Alert threshold for 3 hours in 100 km ² zone
	1 Day	125 µg/m ³ limit	For no more than 3 days per year

8.1.5.2 EU National Emission Reduction Commitments

National emission reduction commitments were established in the 2016 National Emission Ceilings (NEC) Directive (EU 2016), which require Member States of the European Union to develop air pollution control measures to meet their commitments¹⁶. Under the NEC Directive the EU-28 committed to dropping SO₂ emissions from 24,747 Gg¹⁷ in 1990 to 2,031.4 Gg in 2018, and PM_{2.5} emissions from 1,981.7 Gg in 1990 to 1,253.5 Gg in 2018 (**Figure 8.1-1**). These commitments represent emission reductions of 91.8% for SO₂ and 36.7% for PM_{2.5} (UNECE 2019).

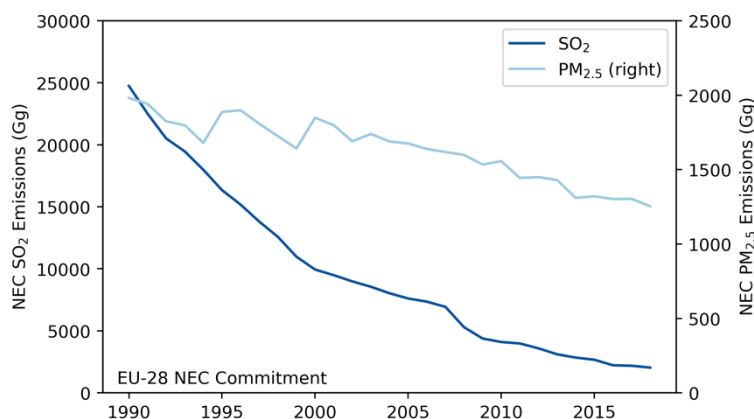


Figure 8.1-1: EU-28 National Emission Ceiling Commitments 1990-2018

All Member States of the European Union are working to remain in compliance with their NEC commitments for SO₂. Cyprus is the only Member State of the European Union and Contracting Party to the Barcelona Convention that is not on track to meet their 2020 commitment for SO₂. Additionally, Cyprus and Slovenia are not on track to meet their PM_{2.5} commitments in 2020 (European Commission 2020). Spain is projected to comply with their NEC commitments for PM_{2.5} for 2020 under their existing policies and measures, and with their 2030 commitments under the additional measures scenario¹⁸. The 2nd Clean Air Outlook¹⁹ has shown prospects for the air pollution situation in the EU up to 2030 and beyond.

¹⁶ <https://www.eea.europa.eu/data-and-maps/dashboards/necd-directive-data-viewer-3>.

¹⁷ 1 Gg = 1,000 metric tons.

¹⁸ https://eur-lex.europa.eu/resource.html?uri=cellar:7199e9c2-b7bf-11ea-811c-01aa75ed71a1.0007.02/DOC_2&format=PDF.

¹⁹ https://ec.europa.eu/environment/air/clean_air/outlook.htm.

8.1.5.3 Emission and Energy Efficiency Standards

EU Directive 98/70/EC lays out initial emission standards for petrol and diesel fuels intended for the use of vehicle propulsion. Under articles 3 and 4, the directive requires a maximum sulphur content of 10 mg/kg (10 ppm) for petrol and diesel fuels in Member States of the European Union.

Since 1 January 2016, large combustion plants have been regulated in the EU through the Industrial Emissions Directive (IED) (2010/75/EU), which imposes minimum requirements for emissions of nitrogen oxides (NO_x), SO₂ and dust. Under IED 2010/75/EU combustion plants are required to use the best available techniques (BATs), or equivalent techniques for emission control. As emission limits are tied to BATs, which are updated over time, there is not any overarching prescriptive standard beyond those referenced in BAT reference documents (BREFs).

Energy efficiency is governed by the Energy Efficiency Directive (2012/27/EU) in the EU, which sets out an energy efficiency goal of 20% by 2020, relative to the 2005 baseline. The Energy Efficiency Directive was revised upwards in 2018 (EU Directive 2018/2002), setting a new energy efficiency target of 32.5% by 2030, including an annual reduction of 1.5% in national energy sales. In 2017, 16 states were aligned with their energy consumption trajectories, which if maintained, would allow those states to meet their 2020 final energy targets. Overall, final energy consumption in the EU-28 was 5.7% lower in 2017 than in 2005²⁰.

Policies related to large combustion plants (LCPs) decreased total fuel use in the EU by one fifth, while thermal capacity increased by one tenth between 2004 and 2015. Facilities with more LCPs powered by solid and liquid fuels were generally less efficient than LCPs with a greater share of biomass and natural gas. These policies led to a 77% decrease in SO₂ emissions from 2004 to 2015²¹.

8.1.6 Israel

The Clean Air Law²² came into effect in January 2011 in Israel (Ministry of Environmental Protection 2019). The law provides a comprehensive framework for the reduction and prevention of air pollution by establishing emission limits, creating a system for permitting emissions, publishing air quality data and forecasts, and monitoring air pollutants. The Clean Air Law set an average ambient air concentration of SO₂ at an average of 350 µg/m³ over an hour, 50 µg/m³ over a 24-hour period and 20 µg/m³ annually. PM₁₀ average limits were set at 50 µg/m³ over a year and 130 µg/m³ over 24 hours. (Negev, 2020)

On the transport side, vehicle emission standards are aligned with EU standards, with diesel and petrol sulphur content limited to 10 ppm.

8.1.7 Lebanon

In the transportation sector, Decree 8442/2002 defines the sulphur standards for gasoline at 0.05% (500 ppm) by weight, and diesel oil at 0.035% (350 ppm), as amended by decree No. 3795 dated 30/6/2016 stating the modification of the table No. 3 in the law No. 8442, by requiring an additional test the ratio/percentage of FAME biodiesel up to a maximum limit not exceeding 7% volumetric on the applicable laboratory tests for Diesel Oil according to the test method ASTM D7371 or ASTM D7963; along with additional laws designed to reduce air pollution from the transport sector by discouraging imports of older vehicles (Law 341, Law 380, and Law 453) and incentivise the use of public transport (Decree 8941/2012)) (MoE 2017).

²⁰ <https://www.eea.europa.eu/data-and-maps/indicators/final-energy-consumption-by-sector-11/assessment>.

²¹ <https://www.eea.europa.eu/data-and-maps/data/industrial-reporting-under-the-industrial-2>.

²² <https://main.knesset.gov.il/Activity/Legislation/Laws/Pages/LawPrimary.aspx?t=lawlaws&st=lawlaws&lawite mid=2000055>.

In the energy and industrial sectors, MoE Decision 8/1-2001 defines emission limits for stack emissions and effluents from new and existing combustion plants and industrial establishments generating emissions.

Ambient air quality standards for Lebanon are shown in **Table 8.1-4**.

Table 8.1-4. PM₁₀ and SO₂ ambient air quality standards in Lebanon

Pollutant	Period	Standard
PM ₁₀	24h	80 µg/m ³
SO ₂	1h	350 µg/m ³
	24h	120 µg/m ³
	1yr	80 µg/m ³

8.1.8 Libya

Libya has been heavily affected by regime change in recent years. Air pollution in Libya has previously been regulated under Article 10-17 of law no. 15 of 2003 (UNEP 2015a). Environmental law 15 stipulates that vehicles pass internal combustion and fuel quality tests, though exhaust gas tests are not performed. UNEP identify a 10,000-ppm sulphur limit in Libya, though they also note that the dominant fuel in the market has a sulphur content of 1,500 ppm.

8.1.9 Monaco

Sustainable development in Monaco is reflected in Act No. 1.456 of 12/12/2017 concerning the Environment Code, which covered all aspects of pollution, energy, and environmental management (Principaute de Monaco 2019). Under the Kyoto Protocol, Monaco set a target of improving energy efficiency by 20% by 2020 and transitioning 20% of final energy consumption to renewable sources. Furthermore, Monaco has set a goal to be carbon neutral by 2050, with an interim goal of 50% by 2030, compared to 1990 levels.

In Part II of the Code of the Sea, Chapter V specifies that all ships equipped with diesel engines must use fuels compliant with 0.10% S m/m standards, or alternatively be equipped with closed loop EGCS.²³

8.1.10 Montenegro

Montenegro is a candidate country for entry into the EU and is in the process of integrating EU legislation into the system of national laws. Once a member of the EU, air quality policies in Montenegro will be harmonised with the EU system of laws.

In 2010 Montenegro enacted the Law on Air Protection (OG 25/10, 40/11) to define a framework for air protection. The law lays out a range of measures for improving air quality, including setting emission limits for stationary and mobile sources and setting national emission ceilings for specific pollutants (UNECE 2015). Where air quality targets are not met, regional authorities should adopt air quality plans to mitigate emissions.

Montenegro has also enacted a 2005 law on Integrated Prevention and Control of Environmental Pollution (OG 80/5, 54/09, 40/11), which lays out the policies for permitting potential sources of environmental pollution.

²³ <https://journalde Monaco.gouv.mc/en/Journaux/2018/Journal-8393/Ordonnance-Souveraine-n-7.004-du-20-juillet-2018-relative-a-la-prevention-de-la-pollution-de-l-atmosphere-par-les-navires-et-completant-certaines-dispositions-du-Code-de-la-mer>.

8.1.11 Morocco

As of 2018, the maximum sulphur content in gasoline fuels in Morocco was 50 ppm, and 15 ppm for diesel²⁴. Morocco has also implemented a set of urban transportation initiatives aimed at reducing GHG emissions by up to 50 MMT CO₂e (carbon dioxide equivalent). These strategies include tramway extensions, modal shifts to low carbon transport systems, and expansion of alternative fuels and renewable energy.

Though details on the air quality benefits of these programs are not available, they will likely have beneficial effects on air quality in Morocco, in addition to quantified GHG benefits.

8.1.12 Syrian Arab Republic

The energy sector in the Syrian Arab Republic has been heavily affected by conflict, which caused damage and destruction to energy infrastructure, including production plants, treatment facilities, and pipelines. Furthermore, the energy sector has been affected by economic sanctions imposed on the country. In parallel with these events the Syrian Arab Republic has seen CO₂ emissions from the energy sector drop from around 75 MMT CO₂e in 2011 to around 30.5 MMT CO₂e in 2016. Similarly, energy demand has fallen by over 50% from 25 MMT in 2011 to 10 MMT in 2016.

The Syrian Arab Republic adopted national ambient air quality standards in 2011 and in 2012 under Environment Law No. 12. Though fuel sulphur limits are high in the Syrian Arab Republic (6,500 ppm) (UNEP 2015b), the Syrian Arab Republic is engaging a transportation strategy to mitigate emissions in the transport sector emission standards, improved fuel quality, and encouraging the use of gas powered buses and alternatively fuelled vehicles (Syrian Arab Republic 2018).

8.1.13 Tunisia

Article 8 of Tunisia's Air Pollution and Noise Emissions Law No. 88-91 dictates that any industrial, agricultural, or commercial establishment as well as any individual or corporate entity carrying out activity that may cause pollution to the environment is obliged to eliminate or reduce discharges. Tunisia is a member of ISO and adopted ISO 14,000 series standards²⁵.

As of 2018, the maximum sulphur content in gasoline fuels in Tunisia was < 10 ppm²⁶, and diesel sulphur content is limited to 50 ppm. Tunisia has an import restriction on vehicles over 5 years old.

8.1.14 Turkey

In the transport sector, Euro 6 vehicle 6 emission standards became applicable in Turkey in 2017, and fuel sulphur is aligned with EU directives and regulated at 10 ppm (UNEP 2015c).

According to information provided by Turkey for this report, the Ministry of Environment and Urbanisation started to prepare strategical air quality maps to facilitate the decision-making process. Clean Air Action Plans of the provinces are being monitored electronically for the measures taken for air quality.

In order to comply with the EU regulations, Turkey is integrating the policies under the topic of air quality step-by-step into national legislation. The "Technical Assistance for Transposition of the Large Combustion Plants Directive for Better Air Quality" Project was resulted on addressing the compliance status and needs of large combustion plants under the scope of the industrial emissions directive (IED).

²⁴ See footnote 11.

²⁵ <http://www.infoprod.co.il/country/tunis2i.htm>.

²⁶ See footnote 11.

In this project, an inventory of large combustion plants in Turkey, a web-based database for reporting and RIA report were prepared.

The “Support to the Implementation of Integrated Pollution Prevention and Control Directive in Turkey” (IPPC) project, has been conducted by MoEU during 2011-2014. In order to determine the compliance status of installations in Turkey with the IED, sectoral projects (large combustion plants, automotive, cement, iron and steel, glass, and paper) were conducted. According to Turkey’s correspondence for this report, review of the waste management sector is underway.

The “Project for Determination of Industrial Emissions Strategy of Turkey in Accordance with Integrated Pollution Prevention and Control (DIES Project)” started in 2020. The DIES Project aims to increase the technical and institutional capacity of the competent authorities for the effective implementation of the IPPC approach in Turkey in line with the EU Industrial Emissions Directive.

8.2 Assessment of the SO_x and PM Emission Reductions from Land-Based Measures

Evaluation of emissions abatements, based on national level inventories, uses two primary data sources, the Emissions Database for Global Atmospheric Research (EDGAR)²⁷ (Crippa et al. 2020), and data from the European Environment Agency (EEA)²⁸. EEA consolidated national total and sectoral emissions of air pollutants consistent with the European Union’s air pollutant emission inventory methodology for submission to the Convention on Long-range Transboundary Air Pollution (LRTAP). Pollutants relevant to this analysis include both SO_x and PM_{2.5}. The EEA LRTAP inventories represent the most up-to-date and best available estimates for emissions activity by the Member States of the European Union. Both EDGAR and EEA datasets delineate inventories such that we can evaluate stationary and mobile source emissions.

EDGAR data are useful for comparing emissions in the Mediterranean Sea area for a few reasons. First, the data source is consistent, meaning that similar methodologies are applied for all regions, reducing the potential for bias or inaccuracies when comparing emission estimates generated using different methodologies. Second, the time series available from EDGAR is long, with data available from 1975 to 2015. While this data series does not cover the most recent years, it does allow for analysis and discussion of long-run trends in emissions. Third, the data set is highly pedigreed, developed by the European Commission Joint Research Centre (JRC), and peer reviewed (Crippa et al. 2020) over many years, leading to a high level of confidence in the quality of the data. EDGAR emission estimates are calculated using a technology-based emission factor approach, where sector-specific country-level emissions are estimated by species based on geospatially gridded inventories of human activity. EDGAR data are used to describe time trends in emissions when country-level inventories are unavailable. Where EEA LRTAP inventory data are available those emission estimates are presented using solid lines graphs. For the Mediterranean coastal States where EEA LRTAP data are not available, EDGAR emission estimates are presented using dashed line graphs.

Land based emission reduction policies, and their associated emission reductions, are then put in the context of air quality changes, using station-level geospatial data available from the 2018 World Health Organisation (WHO) Air Quality Database²⁹. Station-level data from 2016, the most recent complete year of data available, are plotted geospatially county-by-country to illustrate areas of compliance with WHO PM_{2.5} guidelines ($\leq 10 \mu\text{g}/\text{m}^3$) and EU standards ($\leq 25 \mu\text{g}/\text{m}^3$). Time series data for countries in the European Union are also evaluated against EU standards and WHO guidelines.

²⁷ https://data.europa.eu/doi/10.2904/JRC_DATASET_EDGAR.

²⁸ <https://www.eea.europa.eu/data-and-maps/dashboards/air-pollutant-emissions-data-viewer-3>.

²⁹ <https://www.who.int/airpollution/data/en/>.

8.3 An Assessment of the SO_x and PM Emission Reductions from Land-Based Measures

Criterion 3.1.7 of Appendix III to MARPOL Annex VI (MEPC.176(58)) requires a description of the control measures taken by the proposing parties to address land-based sources of SO_x and PM emissions affecting human populations. This section presents results from analysis of trends in national-level emissions, in order to describe land-based efforts for SO_x and PM abatement. The trends discussed in this section focus on land-based transportation specific emissions³⁰, and emissions from all land-based sources, not including waterborne navigation³¹ or aviation³².

EDGAR data show that overall SO₂ emissions from all sources, not including waterborne transportation³³, are falling among the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention. From a peak of 9,567 Gg in 1980, SO₂ emissions fell to 5,068 Gg in 2015, an overall reduction of 47% compared to the peak emissions. Emission reductions are non-uniform in the region, however, with the downward trend being driven by larger reductions in Member States of the European Union. Meanwhile, overall emissions of SO₂ from other Mediterranean coastal States are flat or slightly increasing since around the year 2000.

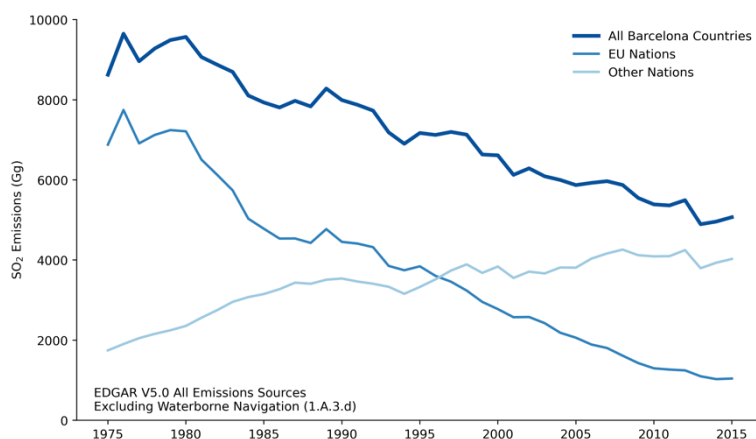


Figure 8.3-1: All sources of SO₂ emissions among Mediterranean coastal States that are Contracting Parties to the Barcelona Convention

Looking in more detail at the transportation sector, excluding waterborne transit as well as aviation, EDGAR data show that overall transport related SO₂ emissions have fallen in recent years in the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention. Overall emissions of SO₂ have fallen from 222 Gg in 1978 to 70 Gg in 2015, an overall reduction of over 68%.

³⁰ IPCC sectors 1.A.3.b, 1.A.3.c, and 1.A.3.e.

³¹ IPCC emission sector code 1.A.3.d.

³² IPCC emission sector code 1.A.3.a.

³³ IPCC emission sector code 1.A.3.d.

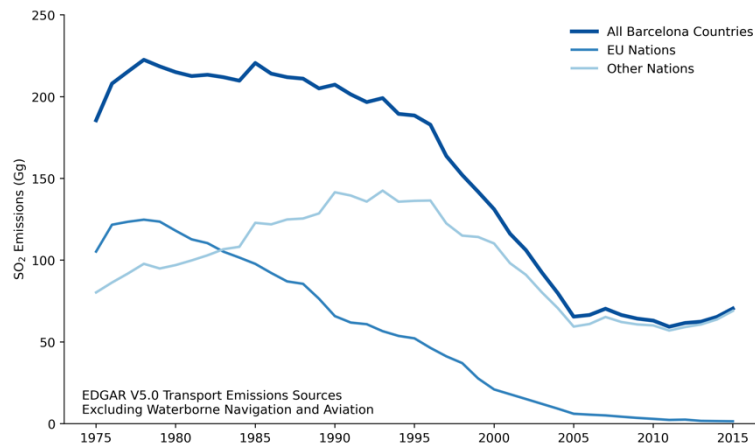


Figure 8.3-2: Transport emissions of SO₂ in the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention (excluding waterborne navigation and aviation)

Figure 8.3-1 and Figure 8.3-2 show a large overall reduction in SO₂ emissions among the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention, both in stationary sources and the transportation sector. These results show that, regionally, the Mediterranean coastal States that are Contracting Parties to the Barcelona Convention are undertaking land-based measures to control land-based sources of SO₂ and PM_{2.5} emissions. The following sections provide a brief overview of the country-specific trends in emissions.

As shown in Figure 8.3-2, SO₂ emissions from the transportation sector have fallen across the region, in both the Member States of the European Union and other Mediterranean coastal States. SO₂ emissions from the Member States of the European Union have fallen to very low levels in recent years, and emissions from other Mediterranean coastal States decreased until 2005 and are not increasing since.

8.3.1 Regional Ambient Air Quality Observations

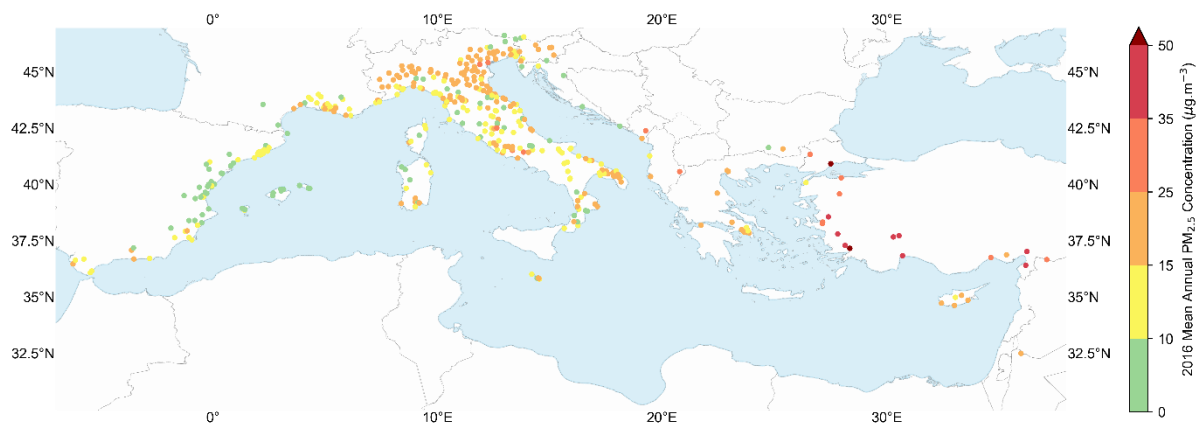


Figure 8.3-3: Mean annual air quality (PM_{2.5} µg/m³) observed at coastal observation stations (within 100 km of the coastline)

Figure 8.3-3 shows mean annual ambient air quality ($\text{PM}_{2.5}$ $\mu\text{g}/\text{m}^3$) observed at stations within 100 km of the coastline of the Mediterranean Sea from the World Health Organization's Ambient Air Pollution, Concentrations of fine particulate matter ($\text{PM}_{2.5}$) database³⁴. Subsequent sections present country-level observations from the WHO data, where available, and do not limit observations solely to those stations within 100 km of the coastline. The WHO data are the most complete set of observations for the Mediterranean coastal States, with 2016 as the most recent year of data available. All maps shown in this section are based on the WHO Ambient Air Quality database. As shown, air quality in the region varies greatly, with many coastal stations $\text{PM}_{2.5}$ concentrations exceeding WHO guidelines of $10 \mu\text{g}/\text{m}^3$. Country-level time series data shown in this section are derived from station-level data provided by the European Environment Agency³⁵.

Figure 8.3-4 shows a histogram of station counts by their annual $\text{PM}_{2.5}$ concentrations. Most coastal observing stations report ambient measurements that do not meet WHO guidelines of $10 \mu\text{g}/\text{m}^3$, with only 19.9% of stations meeting that threshold. The EU standard is set at $25 \mu\text{g}/\text{m}^3$, which 94.4% of stations do comply with. Notably, the geographic distribution of stations is non-uniform, with a high concentration of monitoring stations in northern and western Mediterranean coastal States, and comparatively lower numbers in southern and eastern Mediterranean coastal States. As such, measurements at these air quality observations are best taken in context, with consideration for the differences in sampling between the Mediterranean coastal States.

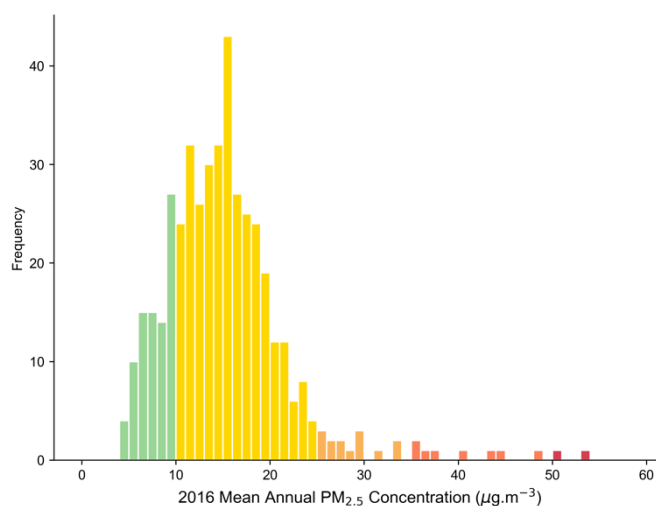


Figure 8.3-4: Histogram of WHO mean annual air quality ($\text{PM}_{2.5}$ $\mu\text{g}/\text{m}^3$) observed at coastal observation stations (within 100 km of the coastline)

8.3.2 Albania

Transportation related emissions of SO_2 in Albania peaked in 1980 at 0.94 Gg and have subsequently declined to very low levels (0.008 Gg in 2015). The trend in SO_2 emission reductions has been consistent since 1999 and demonstrates a high level of control of SO_2 emissions from transportation sources. In total emissions in 2015 had declined by over 99% relative to their peak in 1980.

³⁴ [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-\(pm2-5\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-(pm2-5)).

³⁵ <https://www.eea.europa.eu/data-and-maps/data/aqereporting-8>.

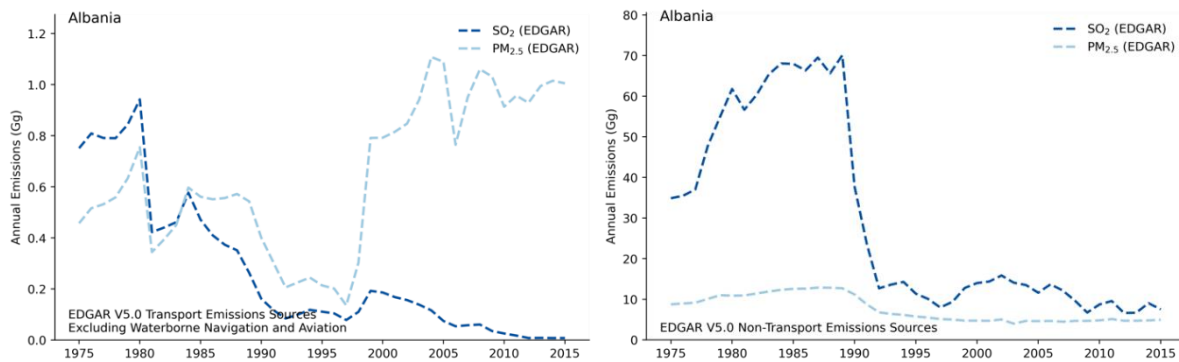


Figure 8.3-5: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Albania

Transportation related PM_{2.5} emissions have not followed a similar trajectory to SO₂ emissions in Albania. After 1997 PM_{2.5} emissions grew sharply, though they have remained flat since the mid-2000s.

All sources of SO₂ emissions fell sharply in Albania after 1990 and have remained flat since then. This reduction in SO₂ was accompanied by a similar decline in non-transport PM_{2.5}, which has also remained flat in Albania since around the year 2000 (**Figure 8.3-5**).

Mean annual PM_{2.5} concentrations from 2016 (**Figure 8.3-6**) show that all stations meet EU PM_{2.5} concentrations (<25 µg/m³), though all three stations do exceed WHO PM_{2.5} guidelines (<10 µg/m³).

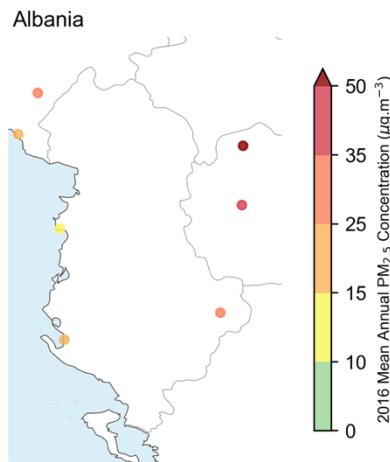


Figure 8.3-6: WHO mean annual PM_{2.5} concentration observations in Albania (2016)

8.3.3 Algeria

Transportation related emissions of SO₂ in Algeria peaked in 1991 at 27.70 Gg followed by a decline to 8.26 Gg in 2005, a 70% reduction over that time period. The trend in SO₂ emissions has been rising since 2005, to 12.93 Gg in 2015, equivalent to a 53.3% reduction compared to 1991 peaks. Transportation related PM_{2.5} has also grown in Algeria since 1975.

All source emissions of SO₂ declined in later years, from 2012 to 2015, though the general trend in both SO₂ and PM_{2.5} emissions in Algeria is upward (**Figure 8.3-7**).

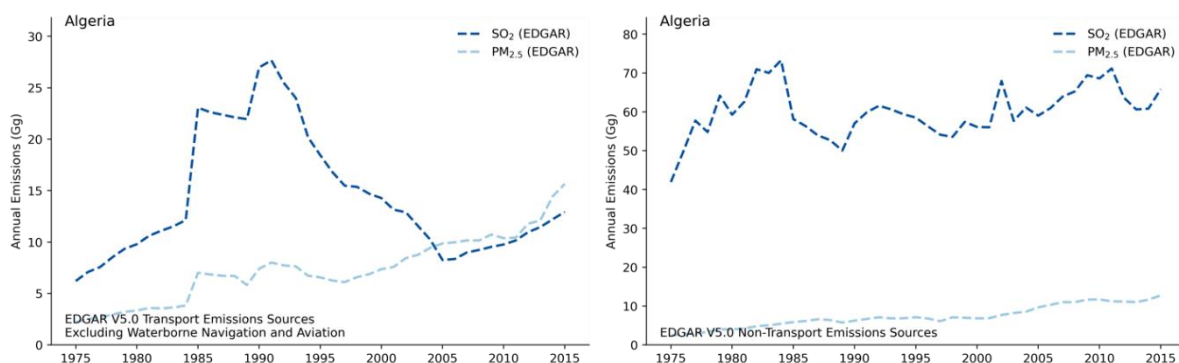


Figure 8.3-7: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Algeria

8.3.4 Bosnia and Herzegovina

Transportation related emissions of SO₂ in Bosnia and Herzegovina peaked in 1979 at 1.74 Gg and have subsequently declined to very low levels (0.01 Gg in 2015). The trend in SO₂ emission reductions has been consistent since 1999 and demonstrates a high level of control of SO₂ emissions from transportation sources. In total emissions in 2015 had declined by over 99% relative to their peak in 1979. Transportation-related emissions of PM_{2.5} have declined since 2010, though they have increased slightly since 1975.

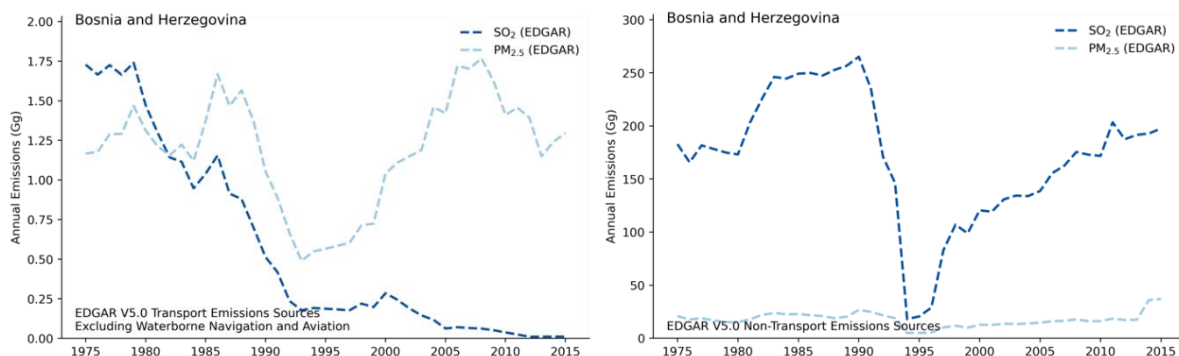


Figure 8.3-8: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Bosnia and Herzegovina

Overall emissions of PM_{2.5} have been low in Bosnia and Herzegovina, since 1975, however overall SO₂ emissions have been rising steadily since 1994 (Figure 8.3-8).

Mean annual PM_{2.5} concentrations from 2016 (Figure 8.3-9) show that 1 of 5 stations in Bosnia and Herzegovina meets EU PM_{2.5} concentrations (<25 µg/m³), and concentrations at all stations exceed WHO PM_{2.5} guidelines (<10 µg/m³).

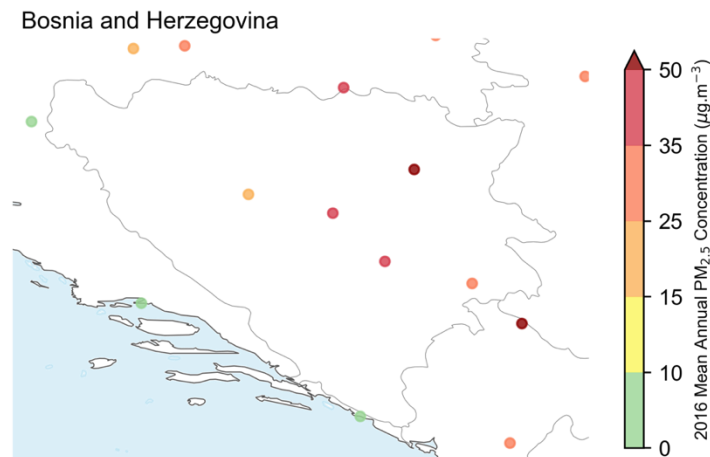


Figure 8.3-9: WHO mean annual $PM_{2.5}$ concentration observations in Bosnia and Herzegovina (2016)

8.3.5 Croatia

Transportation related emissions of SO_x in Croatia peaked (over this time series) in 2003 at 5.95 Gg and have subsequently declined to very low levels (0.03 Gg in 2018). The trend in SO_x emission reductions has been consistent since 2003 and demonstrates a high level of control of SO_x emissions from transportation sources.

Non-transport emissions of $PM_{2.5}$ have been flat in Croatia since 1990 and non-transport SO_x declined around >90% from 1990 levels. Non-transport emissions of SO_x declined from 162.83 Gg in 1990 to 10.25 Gg in 2018 (**Figure 8.3-10**).

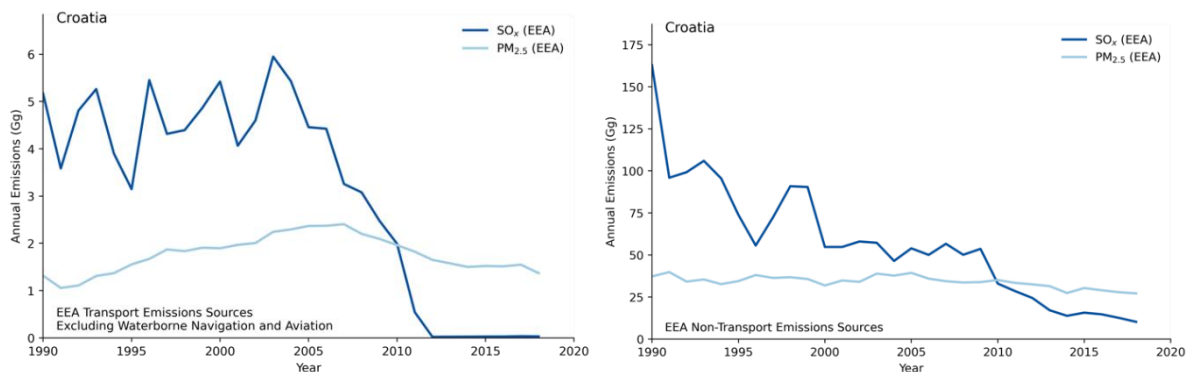


Figure 8.3-10: Transport (left) and non-transport (right) emissions of SO_x and $PM_{2.5}$ in Croatia

Mean ambient $PM_{2.5}$ concentrations in Croatia (**Figure 8.3-11**) have been compliant with EU ambient air quality standards since 2013, though the 95% confidence interval has had an upper bound above $25 \mu\text{g}/\text{m}^3$ since 2014, and country-wide average concentrations have been greater than the WHO guidelines since the data series began (EEA 2020a).

Looking at station measurements, shown in **Figure 8.3-12** the data show that 4 of 12 stations in Croatia are compliant with WHO guidelines for $PM_{2.5}$, and 8 of 12 stations are compliant with EU $PM_{2.5}$ regulations.

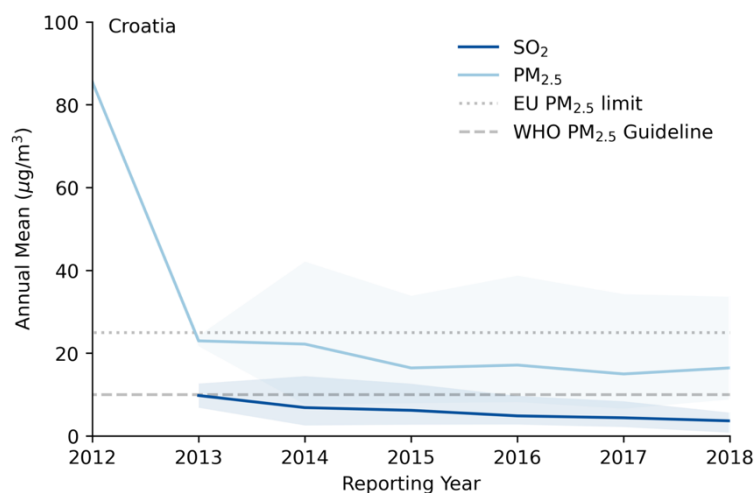


Figure 8.3-11: Annual mean concentrations of SO₂ and PM_{2.5} in Croatia (shaded areas show 95% CI)

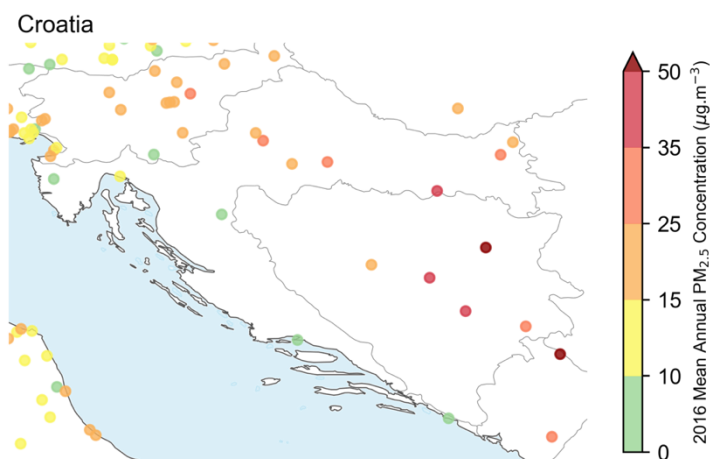


Figure 8.3-12: WHO mean annual PM_{2.5} concentration observations in Croatia (2016)

8.3.6 Cyprus

Transportation related emissions of SO_x in Cyprus peaked in 1999 at 7.32 Gg and have subsequently declined to low levels (0.01 Gg in 2018). The trend in SO_x emission reductions saw a sharp drop beginning around the year 2001. These results demonstrate control of SO_x emissions from transportation sources.

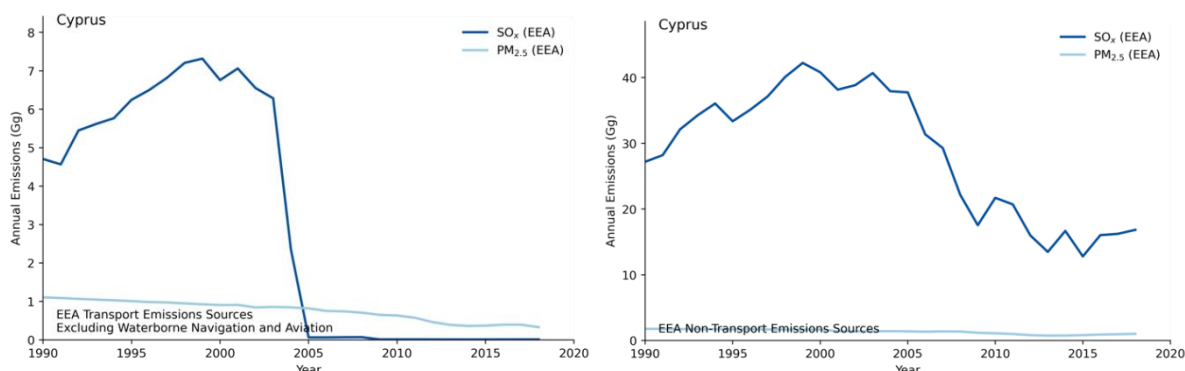


Figure 8.3-13: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in Cyprus

Non-transport emissions of SO_x also peaked in 1999 at 42.23 Gg, and subsequently declined to 16.83 Gg in 2018 (**Figure 8.3-13**).

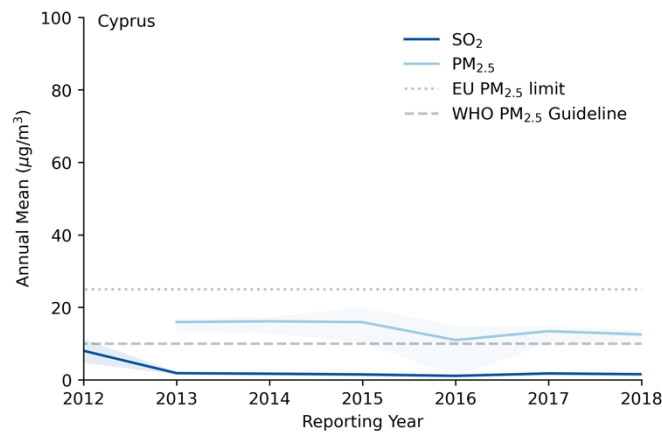


Figure 8.3-14: Annual mean concentrations of SO_2 and $\text{PM}_{2.5}$ in Cyprus (shaded areas show 95% CI)

As shown in **Figure 8.3-14**, country-level mean concentrations of SO_2 and $\text{PM}_{2.5}$ in Cyprus are in compliance with EU ambient air quality standards, however they do not meet WHO guidelines. Station-level measurements (**Figure 8.3-15**), support the annual data, demonstrating that no stations in Cyprus had annual mean $\text{PM}_{2.5}$ concentrations less than $10 \mu\text{g}/\text{m}^3$ in 2016.



Figure 8.3-15: WHO mean annual $\text{PM}_{2.5}$ concentration observations in Cyprus (2016)

8.3.7 Egypt

Transportation related emissions of SO_2 in Algeria peaked in 1991 at 29.73 Gg followed by a decline to 10.28 Gg in 2005, a 65.4% reduction over that time period. The trend in SO_2 emissions has been rising since 2005, to 13.59 Gg in 2015, equivalent to a 54% reduction compared to 1991 peaks. The trend in non-transport emissions of SO_2 and $\text{PM}_{2.5}$ has been growing since 2004 in Egypt (**Figure 8.3-16**).

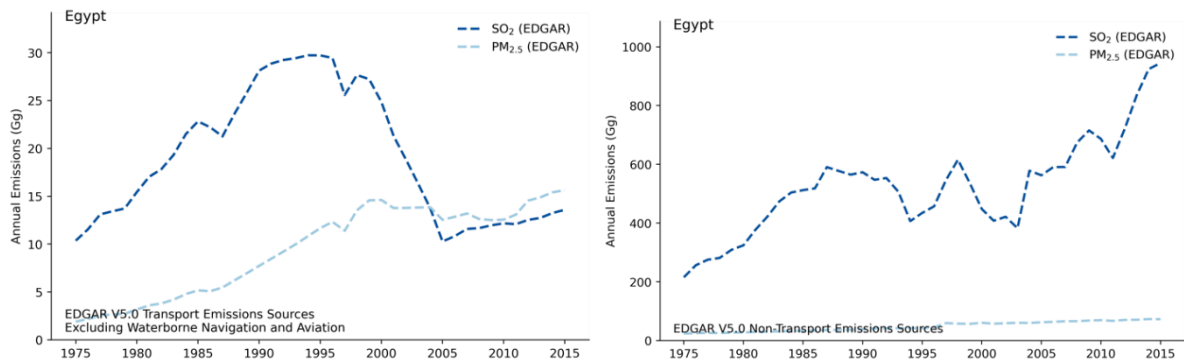


Figure 8.3-16: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Egypt

8.3.8 France

Transportation related emissions of SO_x in France peaked at 158.94 Gg in 1993 and have subsequently declined to 0.84 Gg in 2018. The trend in SO_x emission reductions has been consistently downward since 1993. These results demonstrate control of SO_x emissions from transportation sources. In total emissions in 2015 had declined by over 80% relative to 1991. Emissions for SO_x from non-transport sources have declined from 1,225.28 Gg in 1991 to 133.36 Gg in 2018 (Figure 8.3-17).

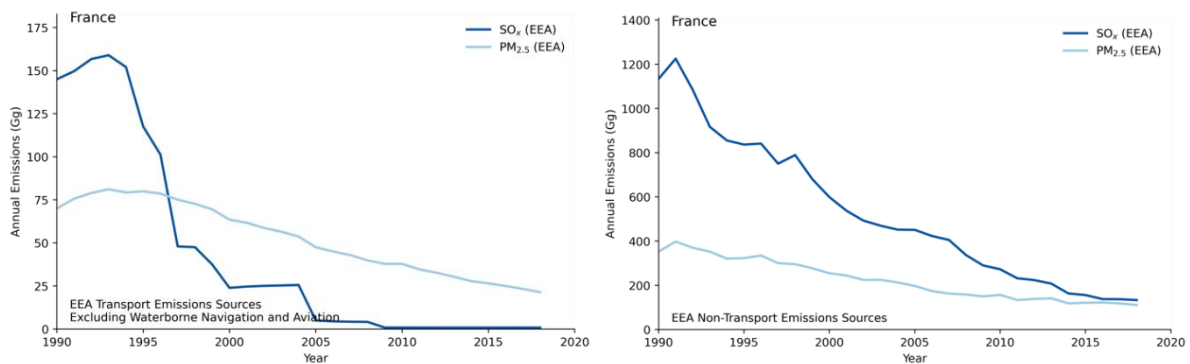


Figure 8.3-17: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in France

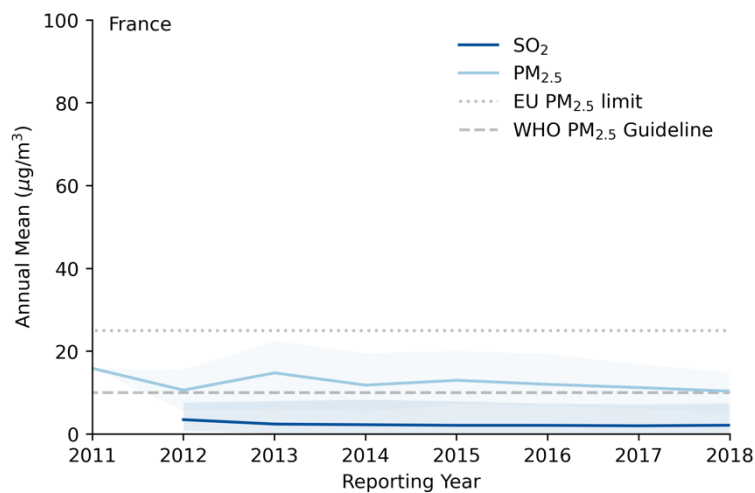


Figure 8.3-18: Annual mean concentrations of SO₂ and PM_{2.5} in France (shaded areas show 95% CI)

As shown in **Figure 8.3-18**, country-level mean concentrations of SO_2 and $\text{PM}_{2.5}$ meet EU ambient air quality standards (EEA 2020a), but do not meet WHO $\text{PM}_{2.5}$ guidelines. Station-level data show that all stations in France met EU $\text{PM}_{2.5}$ standards in 2016, but just 65 of 282 (23%) stations in France met WHO $\text{PM}_{2.5}$ guidelines of $10 \mu\text{g}/\text{m}^3$. Notably, stations along the southern coast of France saw some of the highest $\text{PM}_{2.5}$ concentrations in the country (**Figure 8.3-19**).

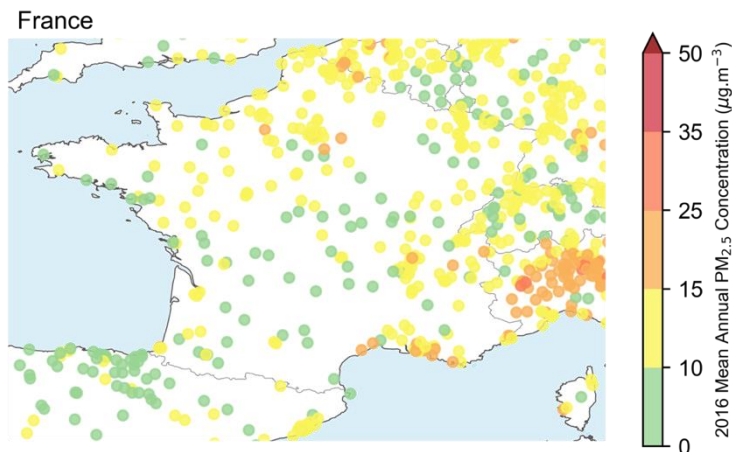


Figure 8.3-19: WHO mean annual $\text{PM}_{2.5}$ concentration observations in France (2016)

8.3.9 Greece

Transportation related emissions of SO_x in Greece peaked in 1994 at 21.85 Gg and have subsequently declined to low levels (0.14 Gg in 2018). These results demonstrate a high level of control of SO_x emissions from transportation sources. Non transport source gradually increased until their peak at 548.41 Gg in 2005, after which emissions fell rapidly to 64.12 Gg in 2018 (**Figure 8.3-20**).

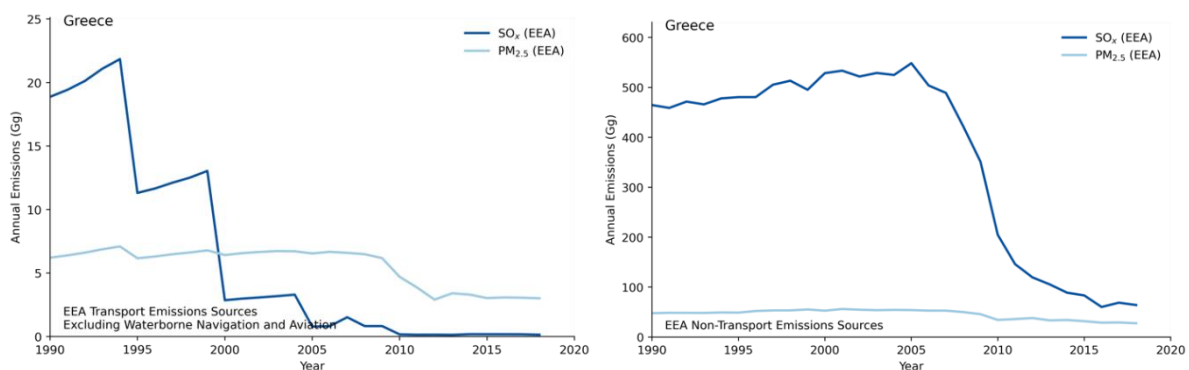


Figure 8.3-20: Transport (left) and non-transport (right) emissions of SO_x and $\text{PM}_{2.5}$ in Greece

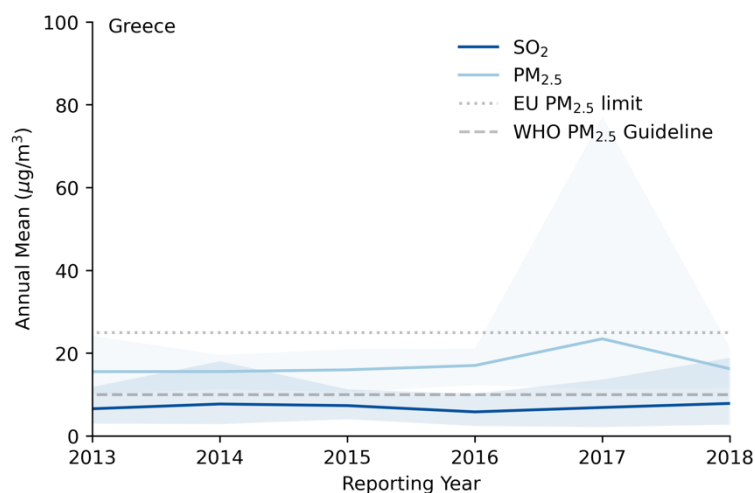


Figure 8.3-21: Annual mean concentrations of SO₂ and PM_{2.5} in Greece (shaded areas show 95% CI)

As shown in **Figure 8.3-21**, country-level mean concentrations of SO₂ and PM_{2.5} in Greece meet EU ambient air quality standards, though the 95% CI for 2017 does not meet the EU standard of 25 µg/m³ for PM_{2.5}, and PM_{2.5} concentrations do not meet WHO guidelines (EEA 2020a). Station-level data (**Figure 8.3-22**) show that all stations in Greece met EU PM_{2.5} standards in 2016, but no stations met WHO PM_{2.5} guidelines of 10 µg/m³.

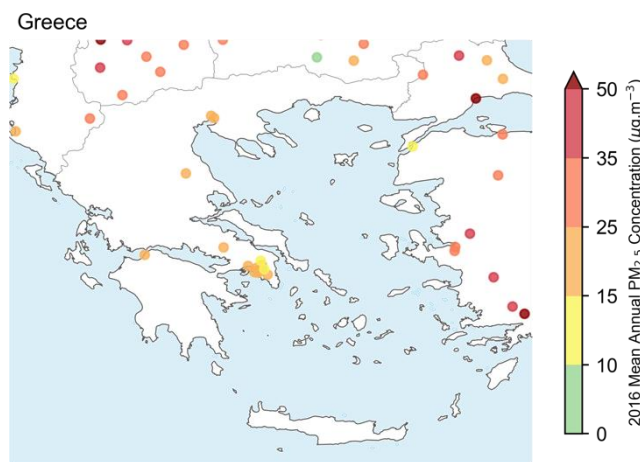


Figure 8.3-22: WHO mean annual PM_{2.5} concentration observations in Greece (2016)

8.3.10 Israel

Prior to 1990, SO₂ emissions in Israel were flat. From 1989 to 1997 SO₂ emissions increased 90% to 11.84 Gg. Since 1997 Israel has seen a strong and consistent annual decline in SO₂ emissions falling to 4.17 Gg in 2015, a 64.8% drop since the 1997 peak. Emissions of PM_{2.5} and SO₂ from transport sources have both declined in 2000 in Israel, and non-transport SO₂ emissions have declined overall by over 80% since 2000 (**Figure 8.3-23**).

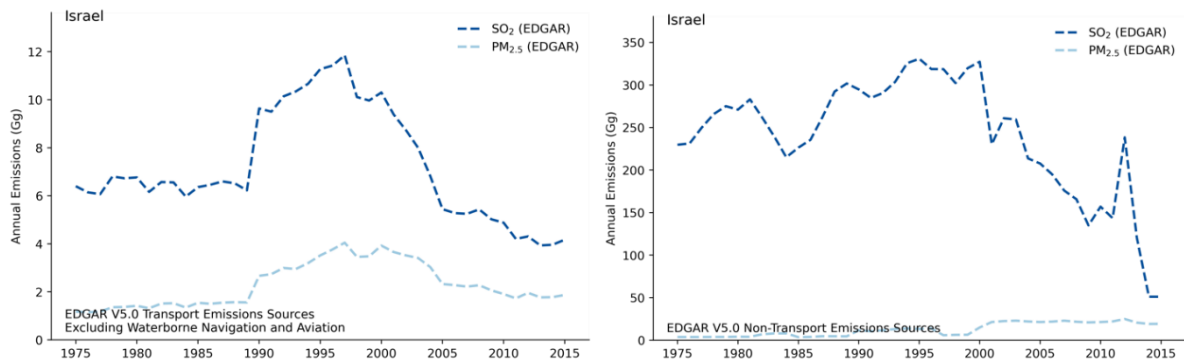


Figure 8.3-23: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Israel

8.3.11 Italy

Transportation related emissions of SO_x in Italy peaked in 1992 at 135.71 Gg and have subsequently declined to very low levels (0.41 Gg in 2018). The annual trend in SO_x emission reductions has been consistently downward since 1992. These results demonstrate a high level of control of SO_x emissions from transportation sources. In total emissions in 2015 had declined by over 99% relative to 1979. Emissions for SO_x from non-transport sources have declined significantly, from 1,574.99 Gg in 1990 to 87.60 Gg in 2018 in Italy (Figure 8.3-24).

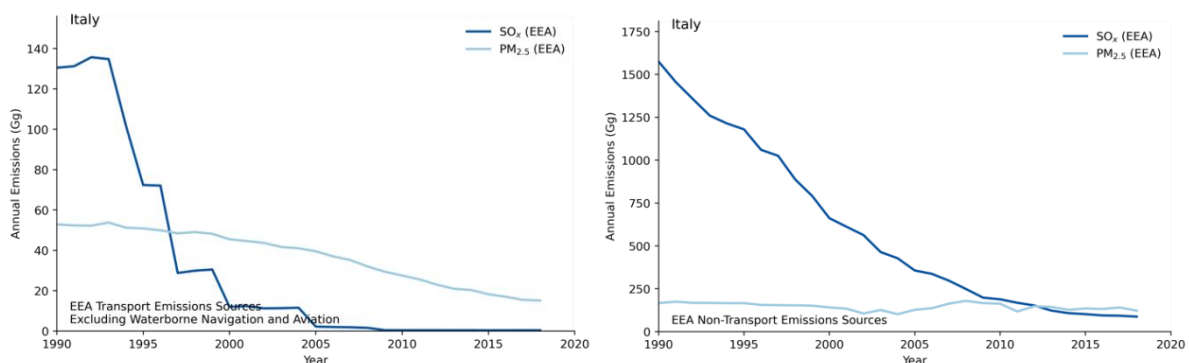


Figure 8.3-24: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in Italy

As shown in Figure 8.3-25, country-level mean concentrations of SO₂ and PM_{2.5} in Italy meet EU ambient air quality standards (EEA 2020a), though the country-level annual means do not meet WHO PM_{2.5} guidelines. Station-level data (Figure 8.3-26) show that 320 of 334 (95.8%) stations in Italy met EU PM_{2.5} standards in 2016, but just 36 of 334 (10.85) of stations met WHO PM_{2.5} guidelines of 10 µg/m³.

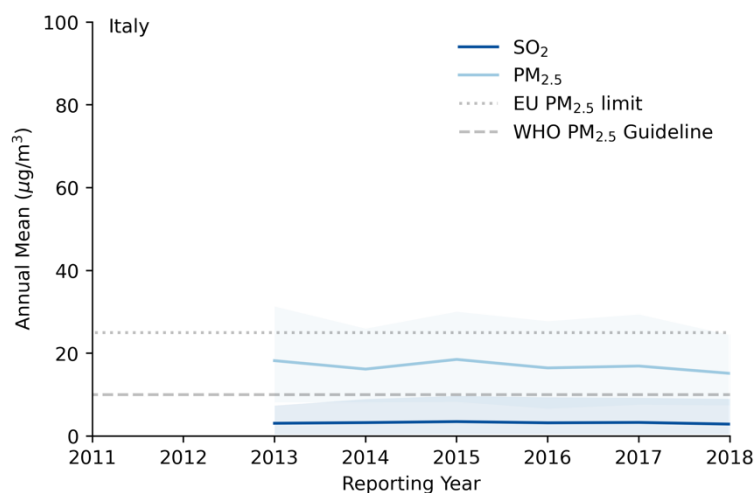


Figure 8.3-25: Annual mean concentrations of SO₂ and PM_{2.5} in Italy (shaded areas show 95% CI)

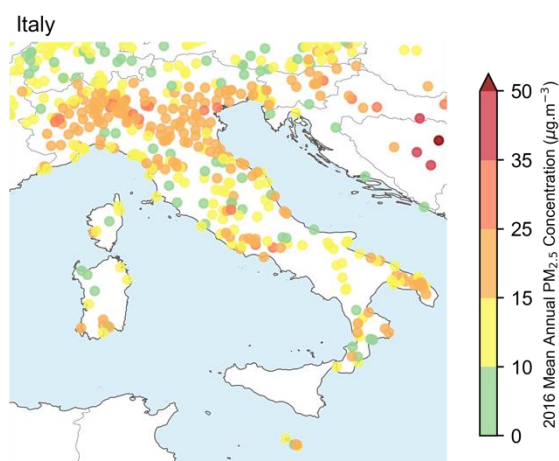


Figure 8.3-26: WHO mean annual PM_{2.5} concentration observations in Italy (2016)

8.3.12 Lebanon

From 1988 to 1998 SO₂ emissions from transportation sources increased 184% from 0.90 Gg to 2.56 Gg. Since 1998, annual SO₂ emissions in Lebanon have mostly declined, to 0.97 Gg in 2015, roughly the same as levels prior to the increase seen in the 1990s. While transport SO₂ emissions have declined, non-transport emissions have grown in Lebanon since 1975 (**Figure 8.3-27**).

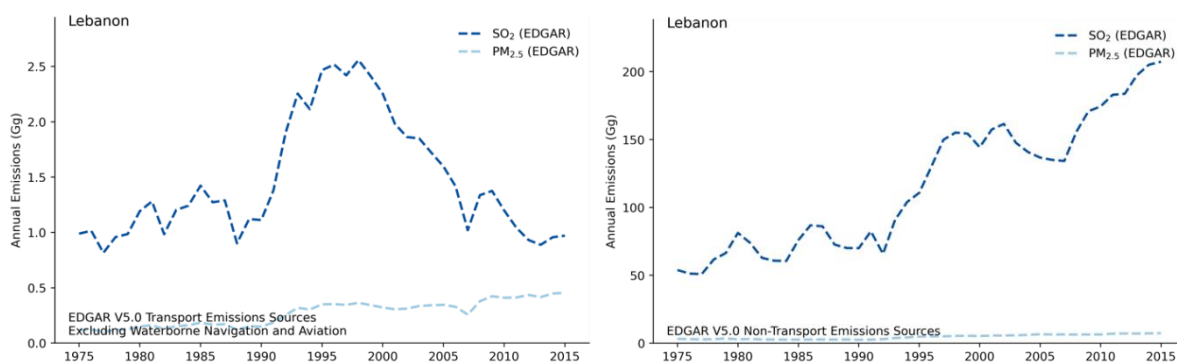


Figure 8.3-27: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Lebanon

8.3.13 Libya

Transportation related SO₂ emissions in Libya have seen a strong decline since their peak at 12.76 Gg in 1996. By 2015, transportation SO₂ emissions in Libya had fallen to 4.03 Gg, a decrease of 68%. Transportation-related PM_{2.5} emissions have declined since 2010, and non-transport SO₂ and PM_{2.5} have both shown declines since the mid-2000s in Libya (**Figure 8.3-28**).

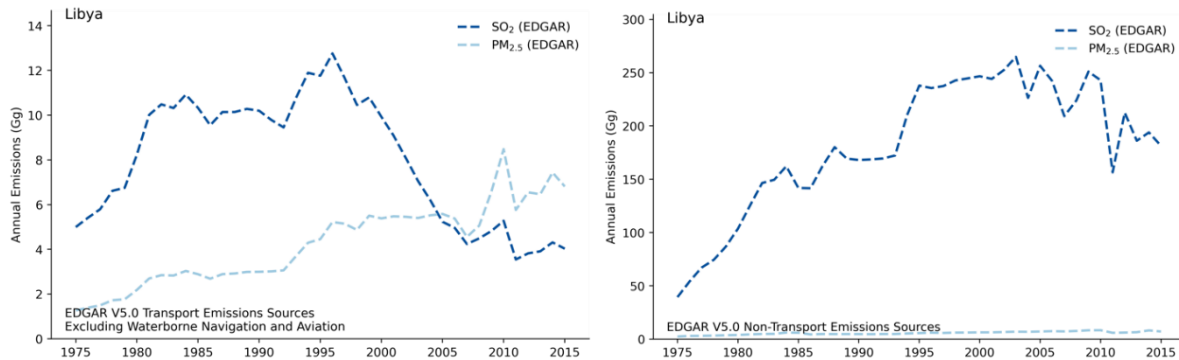


Figure 8.3-28: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Libya

8.3.14 Malta

SO_x transportation emissions in Malta have been 0.005 Gg per year since 2005. Non-transport emissions of SO_x have fallen from 12.61 Gg in 2007 to 0.15 Gg in 2018 (**Figure 8.3-30**).

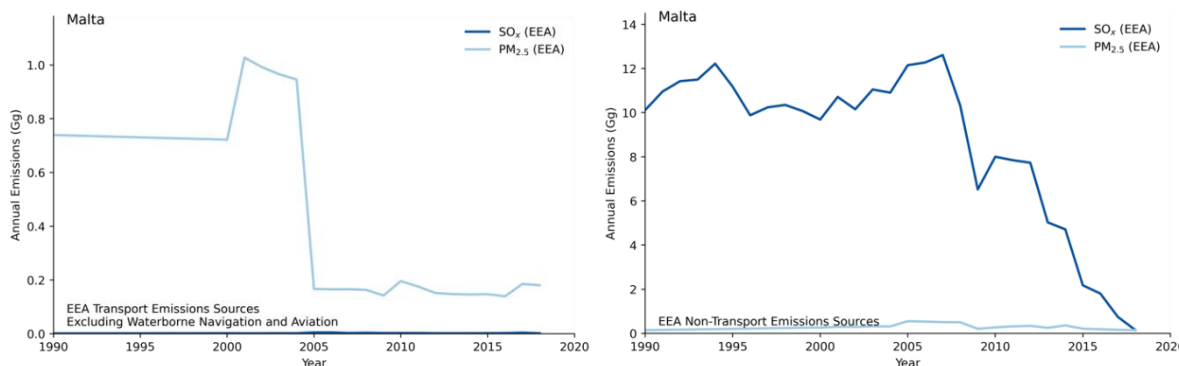


Figure 8.3-29: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in Malta

As shown in **Figure 8.3-30**, country-level mean concentrations of SO₂ and PM_{2.5} in Malta meet EU ambient air quality standards (EEA 2020a), but with the exception of 2017, exceed WHO guidelines. Station-level data (**Figure 8.3-31**) show that all 5 stations in Malta met EU PM_{2.5} standards in 2016, but just 1 of 5 stations met WHO PM_{2.5} guidelines of 10 µg/m³.

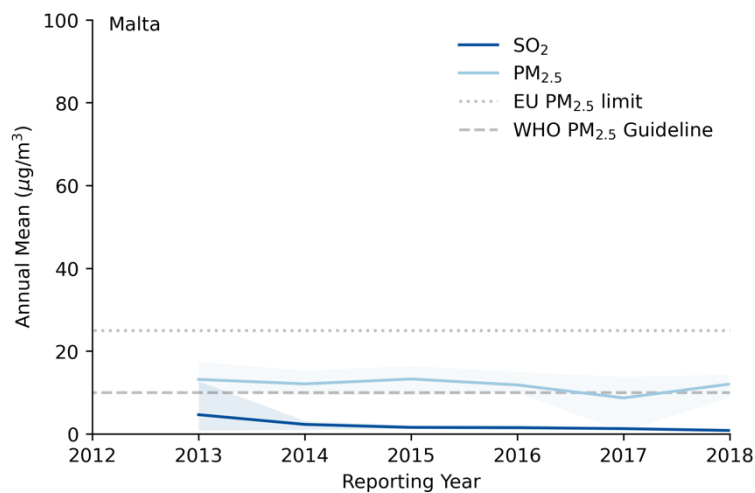


Figure 8.3-30: Annual mean concentrations of SO₂ and PM_{2.5} in Malta (shaded areas show 95% CI)



Figure 8.3-31: WHO mean annual PM_{2.5} concentration observations in Malta (2016)

8.3.15 Monaco

No data were available from EDGAR or EEA regarding emissions estimates for Monaco. Station level data (**Figure 8.3-32**) show that the single monitoring station reported by the WHO in Monaco meets EU standards but does not meet the WHO guideline of 10 µg/m³ for annual average PM_{2.5} concentrations.

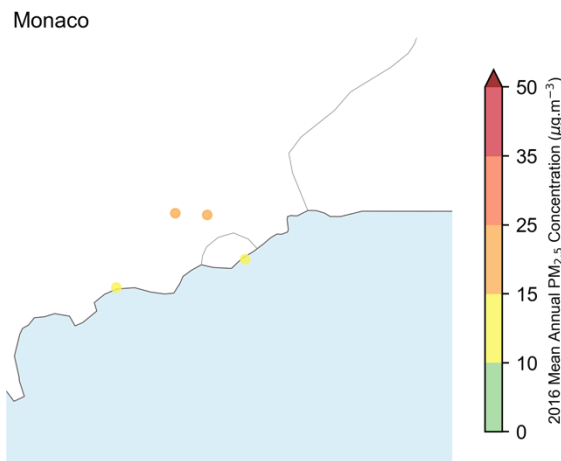


Figure 8.3-32: WHO mean annual PM_{2.5} concentration observations in Monaco (2016)

8.3.16 Montenegro

Transportation related emissions of SO₂ in Montenegro peaked in 1979 at 3.77 Gg and have subsequently declined to very low levels (0.039 Gg in 2015). The overall annual trend in transportation SO₂ emission reductions has been downward since 1978, with a few exceptions in the early 1990s and 2007. These results demonstrate a high level of control of SO₂ emissions from transportation sources. In total transportation SO₂ emissions in 2015 had declined by 99% relative to 1979. Non-transport emissions of SO₂ have declined in Montenegro since 1991 (**Figure 8.3-33**).

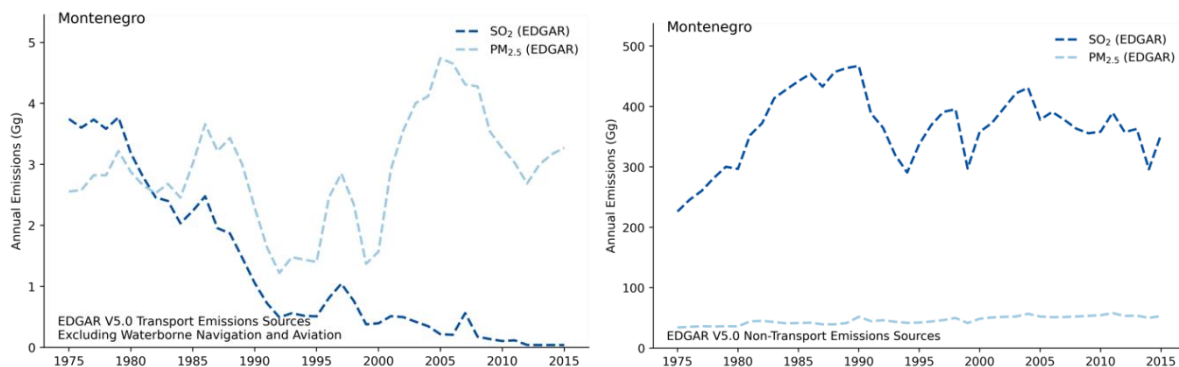


Figure 8.3-33: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Montenegro

Station level data (**Figure 8.3-34**) show that mean annual PM_{2.5} concentrations at 1 of 3 reporting stations in Montenegro met EU standards of 25 µg/m³ in 2016.

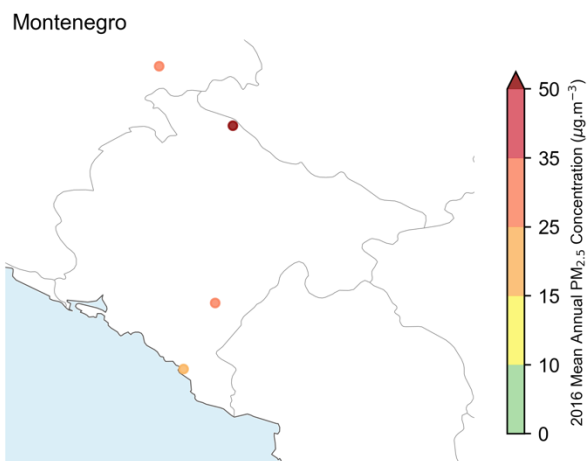


Figure 8.3-34: WHO mean annual $PM_{2.5}$ concentration observations in Montenegro (2016)

8.3.17 Morocco

Prior to 1988, SO_2 emissions from the transport sector in Morocco were flat. From 1989 to 1995 SO_2 emissions increased 105% to 9.84 Gg. Since 1995 Morocco has seen a strong decline in SO_2 emissions falling to 3.53 Gg in 2005, before rising to 4.9 Gg in 2015. Non-transport $PM_{2.5}$ has declined in Morocco since 2004, though non-transport SO_2 emissions have been rising steadily in Morocco since 1975 (Figure 8.3-35).

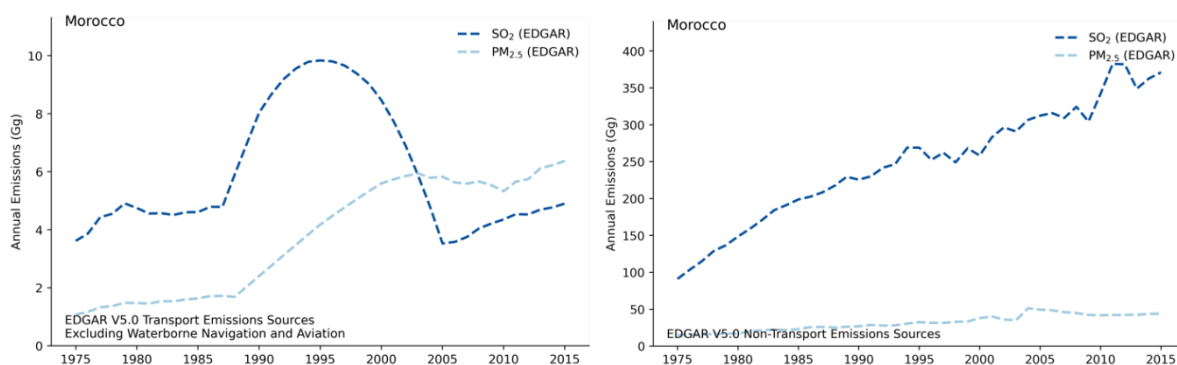


Figure 8.3-35: Transport (left) and non-transport (right) emissions of SO_2 and $PM_{2.5}$ in Morocco

Station level data (Figure 8.3-36) show that no stations in Morocco were compliant with WHO $PM_{2.5}$ guidelines in 2016, with 3 of 6 stations meeting the $25 \mu g/m^3$ standard.

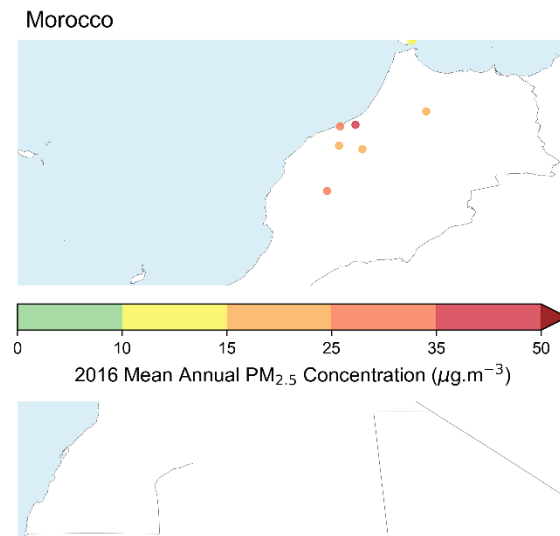


Figure 8.3-36: WHO mean annual PM_{2.5} concentration observations in Morocco (2016)

8.3.18 Slovenia

SO_x emission in the transportation sector have declined from 7.29 Gg in 1994 to 0.04 Gg in 2018. Both transport and non-transport PM_{2.5} have fallen in Slovenia since 2009, along with large overall reductions in SO_x. Non-transport SO_x fell from 194.04 Gg in 1990 to 4.74 Gg in 2018 (Figure 8.3-37).

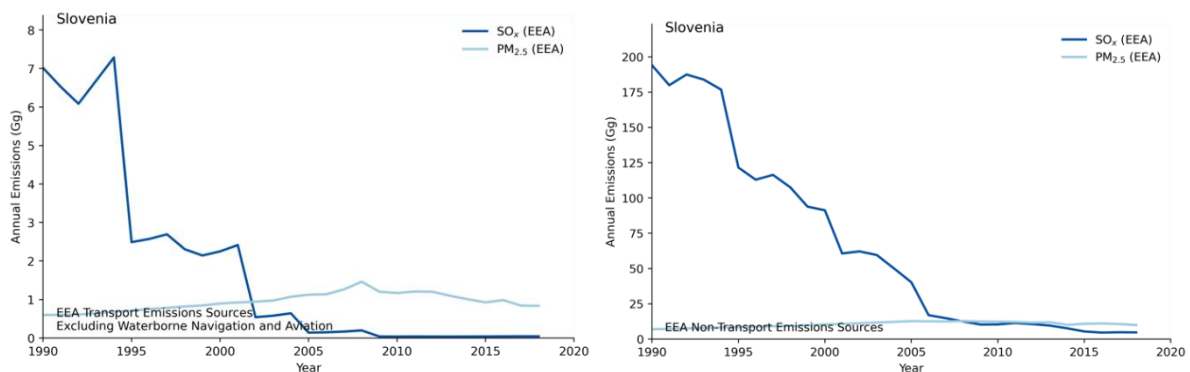


Figure 8.3-37: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in Slovenia

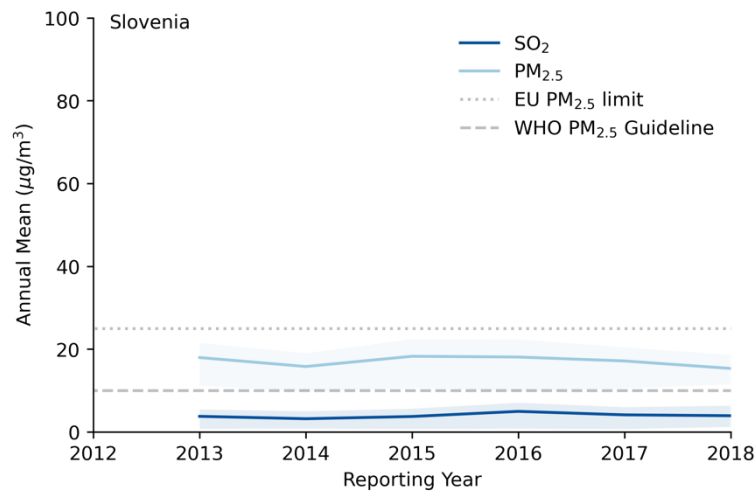


Figure 8.3-38: Annual mean concentrations of SO₂ and PM_{2.5} in Slovenia (shaded areas show 95% CI)

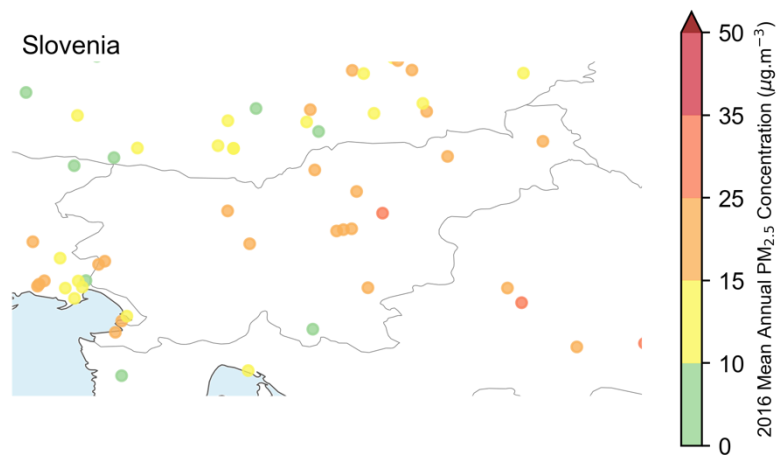


Figure 8.3-39: WHO mean annual PM_{2.5} concentration observations in Slovenia (2016)

As shown in **Figure 8.3-38**, mean concentrations of SO₂ and PM_{2.5} in Slovenia meet EU ambient air quality standards (EEA 2020a), but exceed WHO guidelines for PM_{2.5} (10 µg/m³). Station level data (**Figure 8.3-39**) show that 1 of 14 stations in Slovenia met WHO PM_{2.5} guidelines in 2016, while 13 of 14 stations met EU standards (25 µg/m³).

8.3.19 Spain

SO_x emission in the transportation sector have declined in Spain since their peak in at 63.36 Gg in 1994 to 0.43 Gg in 2018. Non-transport emissions of SO_x have fallen significantly since the early 1990s (**Figure 8.3-40**).

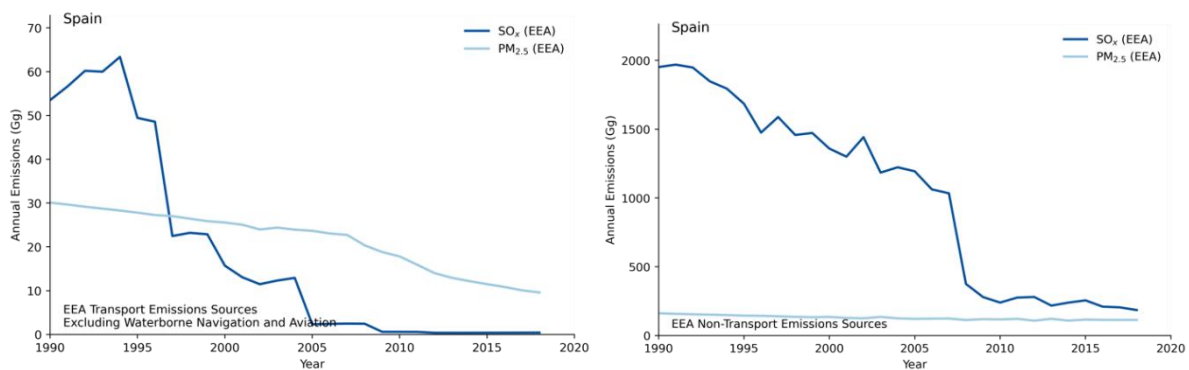


Figure 8.3-40: Transport (left) and non-transport (right) emissions of SO_x and PM_{2.5} in Spain

As shown in **Figure 8.3-41**, mean country-level concentrations of SO₂ and PM_{2.5} in Spain meet EU ambient air quality standards (EEA 2020a), and are slightly above WHO guidelines (10 µg/m³), with a mean annual concentration of 10.3 µg/m³ in 2018. Station-level data (**Figure 8.3-42**) show that 163 of 252 (64.7%) stations in Spain met WHO guidelines in 2016, and all stations met EU PM_{2.5} standards.

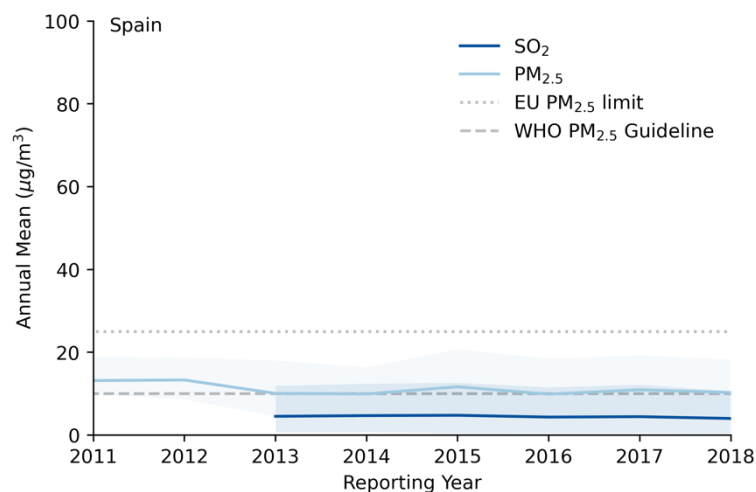


Figure 8.3-41: Annual mean concentrations of SO₂ and PM_{2.5} in Spain (shaded areas show 95% CI)

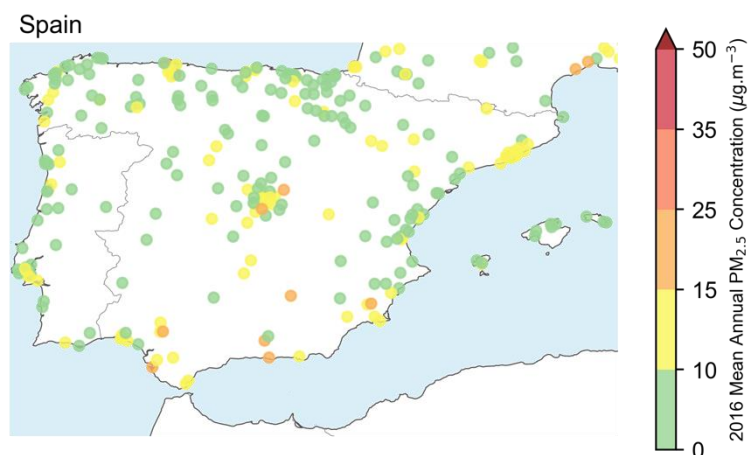


Figure 8.3-42: WHO mean annual PM_{2.5} concentration observations in Spain (2016)

8.3.20 Syrian Arab Republic

SO₂ emission in the transportation sector have declined by 84% in the Syrian Arab Republic since their peak in 1991 (10.12 Gg). Emissions of SO₂ from the transport sector were 1.61 Gg in 2015. Both transport and non-transport related emissions of SO₂ and PM_{2.5} have fallen significantly in the Syrian Arab Republic since around 2008 (**Figure 8.3-43**).

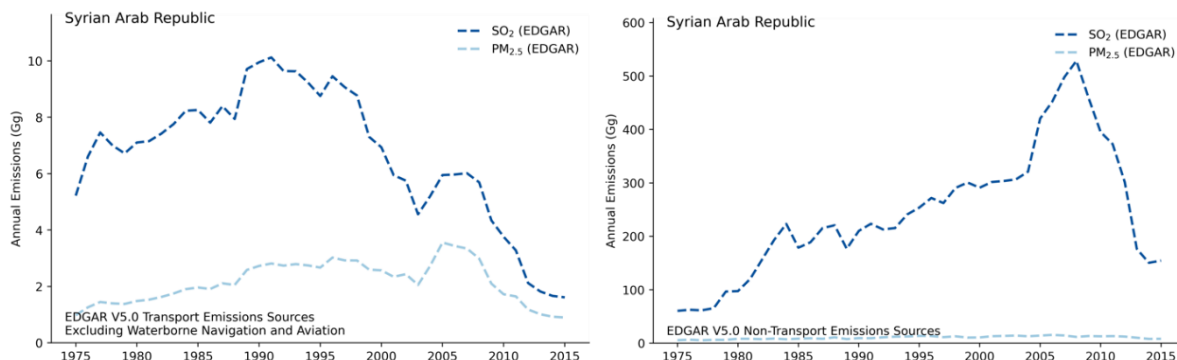


Figure 8.3-43: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in the Syrian Arab Republic

8.3.21 Tunisia

SO₂ emission in the transportation sector peaked at 5.47 Gg in 1995 in Tunisia and have since declined by 65.6% to 1.88 Gg in 2015. Emissions of SO₂ in the transport and non-transport sectors have declined significantly in Tunisia since their respective peaks, though PM_{2.5} emissions in have continued to grow in both areas (**Figure 8.3-44**).

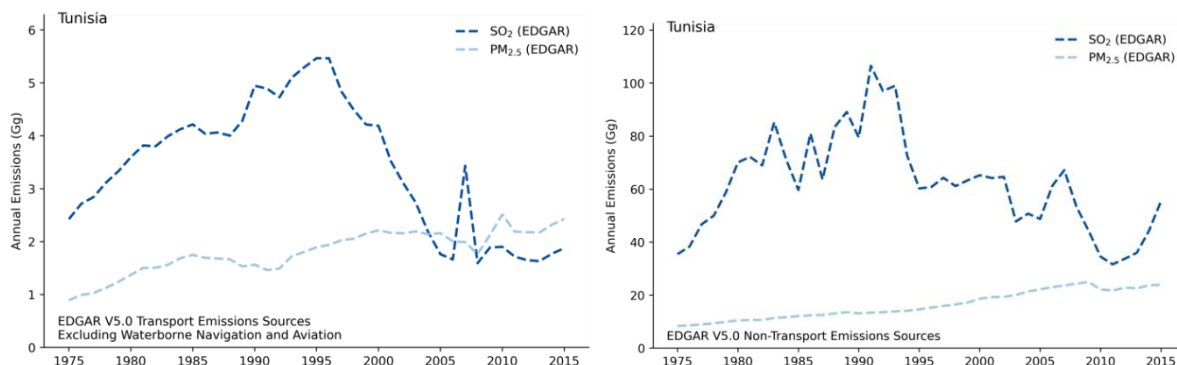


Figure 8.3-44: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Tunisia

8.3.22 Turkey

SO₂ emissions have declined overall in Turkey since 1986, though they did increase slightly from 2011 to 2015. SO₂ emissions from the non-transport sectors have been flat or slightly declining since the late 2000s. Similarly, emissions of PM_{2.5} in both the transport and non-transport sectors have been flat since the late 1990s (**Figure 8.3-45**).

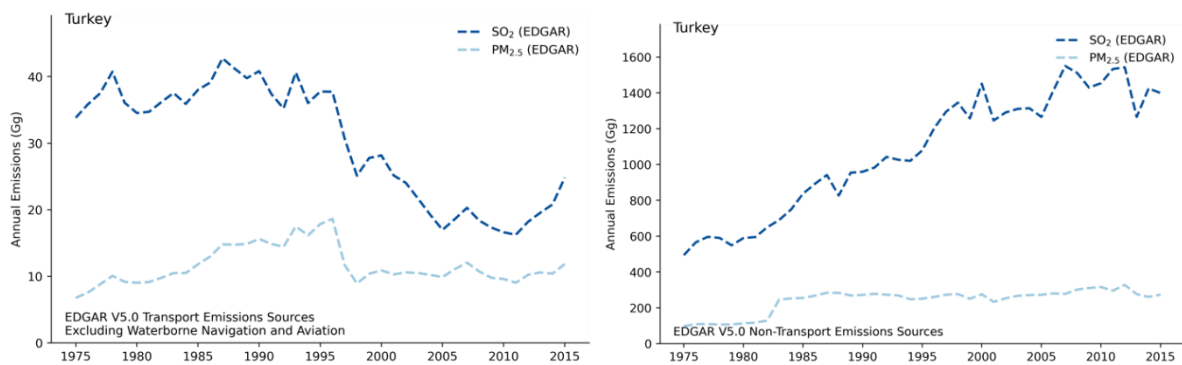


Figure 8.3-45: Transport (left) and non-transport (right) emissions of SO₂ and PM_{2.5} in Turkey

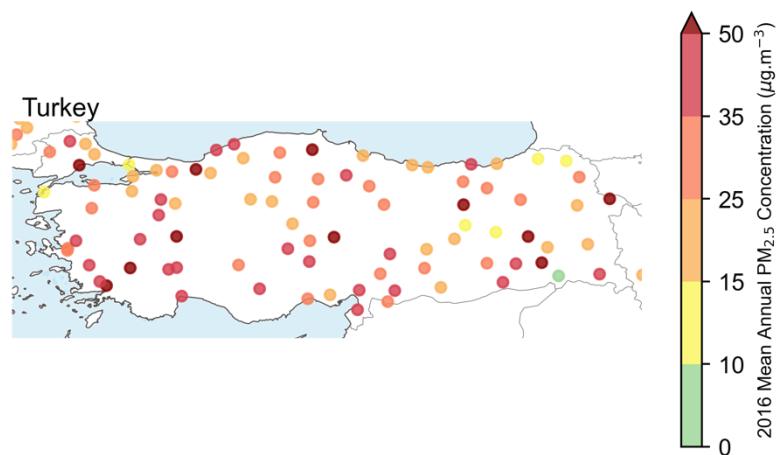


Figure 8.3-46: WHO mean annual PM_{2.5} concentration observations in Turkey (2016)

Station-level data (**Figure 8.3-46**) show that just 1 of 87 stations reported by the WHO in Turkey meets WHO PM_{2.5} guidelines, and 29 of 87 (33%) meet EU annual mean PM_{2.5} standards (25 µg/m³).

8.4 Summary of Control of Land-Based Sources

All Mediterranean coastal States have adopted measures in some form for the control of emissions from land-based sources. The extent and implementation of these measures varies across the region, with European Union standards representing the strictest standards for ambient air quality and emission reductions. In total, emissions from transport and non-transport sources in the Mediterranean coastal States have nearly halved (decline >46%) since 1975.

Air quality policies enacted by the Contracting Parties to the Barcelona Convention have led to reduced emissions and improved air quality in many locations the Mediterranean Sea region. However, coastal monitoring stations near major ports and routes with heavy shipping traffic continue to exceed WHO standards, with 80% of the air quality monitoring stations in the region within 100 km of the coastline not meeting WHO guidelines of 10 µg/m³ for PM_{2.5}.

9 Costs of Reducing Emissions from Ships

This section presents information that addresses criterion 3.1.8 of Appendix III to MARPOL Annex VI, as quoted:

Criterion 3.1.8	the relative costs of reducing emissions from ships when compared with land-based controls, and the economic impacts on shipping engaged in international trade.
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9.1 Overview of Estimated Costs in 2020

This document estimated compliance costs for the proposed Med SO_x ECA policy scenario using best available data along with conservative assumptions regarding fuel prices and EGCS costs, as described in later sections. The results of the cost analysis conducted for this proposal demonstrates that a movement to the proposed Med SO_x ECA using fuel switching would add \$1.761 billion/year in 2020 (\$2016) compared to simply meeting the MARPOL standard. Using EGCSs would add \$1.157 billion/year. These values are highly depending on the assumed price differential between 0.50% S m/m and 0.10% S m/m fuels. Price differentials are described in **Section 9.2**.

9.2 Fuel Costs

This section discusses the available history of fuel prices in the Mediterranean Sea area, and also in a global context. This section focuses on prices of HFO with a sulphur content of up to 3.50% m/m, LSFO with a sulphur content of 0.50% m/m that is compliant with IMO 2020 MARPOL VI regulations, and fuels with a sulphur content of 0.10% m/m that is compliant with MARPOL VI ECA regulations, referred to VLSFO or MGO. Costs of production and transport are embedded in sale prices that are used in these analyses. Fuel prices here reflect reported MGO prices, and thus we use MGO as the terminology to describe Med SO_x ECA compliant fuel prices, though the prices of MGO and VLSFO are closely aligned. We also include data on price differentials and comparison with global oil barrel prices.

This report uses terminology from the International Energy Agency (IEA) statistics that include refinery fuel labels, e.g., gas/diesel. The term gas/diesel is used in this report primarily because the fuel availability scope deals necessarily if not centrally with refining supply and demand including non-marine demand for gas/diesel. Gas/diesel includes all distillate marine fuels (DM) and distillate non-marine fuels in **Table 1.3-1**. For the purposes of clarity, IEA reported statistics for gas/diesel do not include natural gas or natural gas products, which are reported in separate data series.

9.2.1 Low Sulphur Fuel Oil (0.50% S m/m)

The price histories described below are for both the Europe, Middle East, and Africa (EMEA) area average as well as the World average. Prices are based on indexes provided by Bunker Index³⁶.

Figure 9.2-1 shows the time series of LSFO prices for the EMEA region and worldwide average. The two data series track one another closely, with global LSFO prices \$46/MT greater than EMEA prices on average. Though the time series are abbreviated, due to the relatively recent availability of LSFO in global markets, EMEA LSFO fuel prices varied greatly, ranging from a minimum of \$197/MT to a maximum of \$666/MT. The median LSFO price for the EMEA region since November 2011 is \$344/MT.

³⁶ <https://bunkerindex.com>.

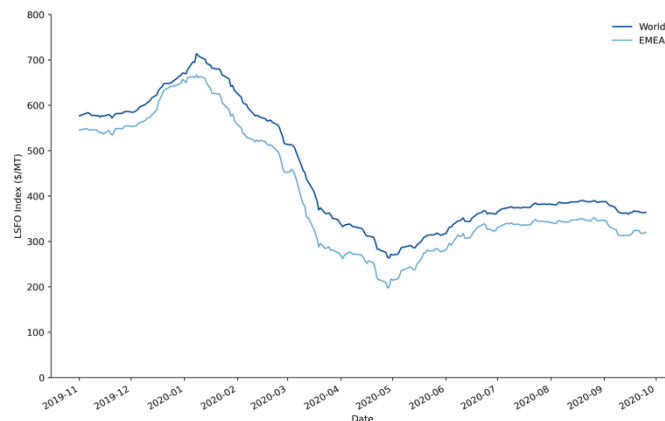


Figure 9.2-1: World and EMEA LSFO price indexes

9.2.2 Marine Gas Oil (0.10% S m/m)

Figure 9.2-2 shows the time series of MGO prices for the EMEA region and worldwide average. As with LSFO prices, world average MGO prices are typically greater than EMEA MGO prices. The average price differential between world and EMEA MGO prices is \$50/MT, which is closely aligned with the world and EMEA differential for LSFO prices. MGO fuel prices have been volatile since 2016, ranging from \$297/MT to \$777/MT, with a median price of \$443/MT, and a range of 2.6x from the low to the high values.

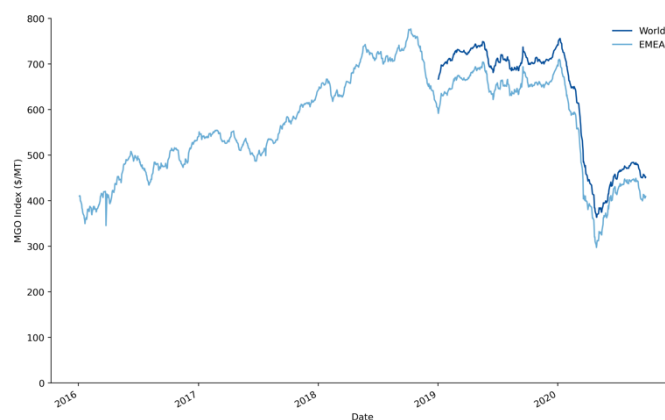


Figure 9.2-2: World and EMEA MGO price indexes

Prior to the IMO 2020 0.50% S m/m fuel rules going into effect, HFO fuel prices were similarly volatile. From 2008 to December 2019, HFO prices ranged from \$152/MT to \$742/MT, a range of 4.9x from the lowest price to the highest price.

9.2.3 Price differentials

While total costs are useful to understand total price impacts, fuel price differentials are important for evaluating the additional costs of the Med SO_x ECA compared to 0.50% S m/m fuels, i.e. the delta in price between 0.50% S m/m and 0.10% S m/m fuels. As shown in **Figure 9.2-3**, pricing data on LSFO is available from November 2019. EMEA and World price differentials have been closely aligned since January 2020.

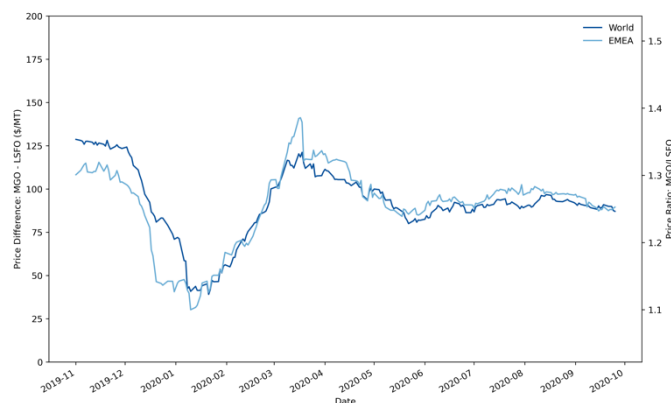


Figure 9.2-3: Price difference between MGO and LSFO for EMEA and World prices

The price differential between MGO and LSFO has stabilised since June 2020 at around \$95/MT in the EMEA region. Over the period of available data (November 2019 to October 2020), the median difference is also \$95/MT, corresponding with the period of price stabilisation post June 2020.

The ratio of MGO price to LSFO in the EMEA region has ranged from 1.05 to 1.51, with a median value of 1.29, i.e., the price increase from LSFO to MGO is between 5% and 51%, with a central value of 29%.

The ratio of prices is especially important to consider when evaluating the costs of the proposed Med SO_x ECA. While fuel prices are in constant flux, following fluctuations in crude oil prices, the price differential between MGO and LSFO is comparatively stable, post the period of adjustment in early 2020. Therefore, the price differential between the two fuels allows for robust analysis of the marginal costs of the proposed Med SO_x ECA, i.e. the additional costs of the proposed regulation.

9.2.4 Crude Prices

Crude barrel prices, which are feedstocks for marine fuels, were also analysed based on available time series data from EIA³⁷. Results for two product areas, West Texas Intermediate (WTI) and Brent, together describe the range of global crude oil prices. These are shown in **Figure 9.2-4**, with WTI and Brent oil prices per barrel shown on the right axis. Note that the axes are scaled³⁸ such that either axis may be used for all data series depending on whether the reader is interested in fuel prices in \$/MT or \$/bbl.

³⁷ https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm.

³⁸ Assuming 1 bbl = 0.1364 MT.

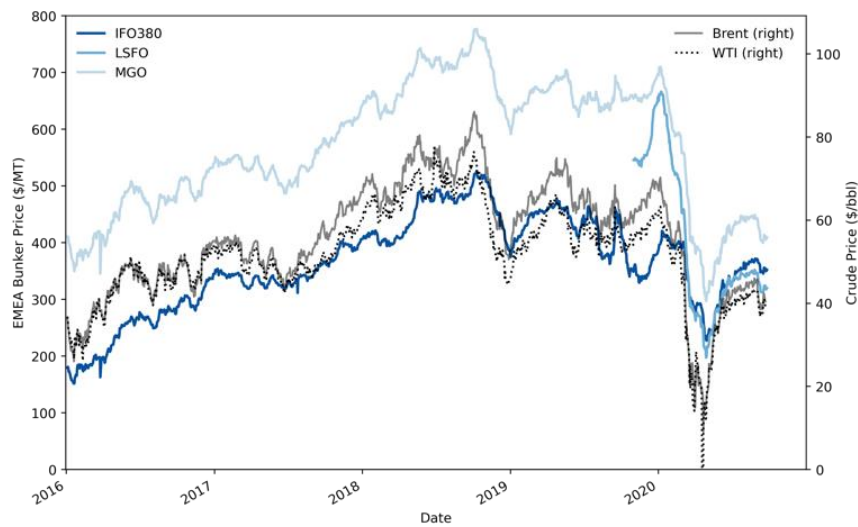


Figure 9.2-4: World prices for global oil price (Brent, WTI) and marine fuels (IFO 380, LSFO, MGO) in \$/MT (left axis) and \$/bbl (right axis)

The data in **Figure 9.2-4** clearly demonstrate the relationship of global oil prices to marine bunker fuels. The Pearson correlation coefficients for marine bunkers and crude oil prices are shown in **Table 9.2-1**. The correlation coefficients show a high degree of correlation between all species in the table, and a strong correlation between Brent and WTI fuel prices and marine bunker prices.

Table 9.2-1. Pearson correlation coefficients between marine bunker prices and crude oil prices

	IFO380	LSFO (0.50% S m/m)	MGO (0.10% S m/m)	Brent	WTI
IFO380	1.000	0.752	0.895	0.866	0.801
LSFO (0.50% S m/m)	0.752	1.000	0.990	0.932	0.875
MGO (0.10% S m/m)	0.895	0.990	1.000	0.961	0.913
Brent	0.866	0.932	0.961	1.000	0.972
WTI	0.801	0.875	0.913	0.972	1.000

While the price differential associated with the transition from 0.50% S m/m fuel to 0.10% S m/m fuels is equivalent to around \$95/MT of fuel, the shipping industry has regularly seen volatility in fuel prices greater than that fuel price differential, regularly adjusting freight rates to accommodate fuel price volatility.

9.2.5 Statistical summary of fuel prices

The central fuel prices for 0.50% S m/m fuels and 0.10% S m/m fuels used in this analysis are \$344/MT and \$443/MT, corresponding to the median values of the common data series available for the two fuel species (**Table 9.2-2**). These prices will be used as the central estimates for modelling voyage costing, freight rate pricing, and commodity price effects.

Table 9.2-2. Statistical summary of marine fuel prices evaluated (inclusive dates)

EMEA USD per tonne	>0.50% S m/m		0.50% S m/m	0.10% S m/m	
	IFO 380		LSFO	MGO/ULSFO	
Date period	2008-04 to 2020-09	2019-11 to 2020-09	2019-11 to 2020-09	2016-01 to 2020-09	2019-11 to 2020-09
Minimum	\$ 152	\$ 227	\$ 197	\$ 297	\$ 297
10th percentile	\$ 269	\$ 277	\$ 263	\$ 409	\$ 363
25th percentile	\$ 342	\$ 317	\$ 308	\$ 482	\$ 403
Median	\$ 450	\$ 349	\$ 344	\$ 579	\$ 443
75th percentile	\$ 594	\$ 370	\$ 541	\$ 660	\$ 642
90th percentile	\$ 645	\$ 398	\$ 608	\$ 709	\$ 666
Maximum	\$ 743	\$ 421	\$ 666	\$ 777	\$ 710

9.2.6 Fuel Availability

Sufficient refinery capacity and production exists to meet fleet demand for 0.10% S m/m fuel under the Med SO_x ECA. Available supply is sufficient to meet demand, even considering a range of estimates and growth rates for fleet fuel use. This finding is prior to consideration the additional compliance pathway using EGCS, which may further reduce demand for 0.10% S m/m fuels. Therefore, adoption of EGCS technologies or alternative fuels among vessels where this is economically feasible reinforces the robustness of the primary finding by diversifying demand to include non-compliant petroleum fuels and other fuels with intrinsically lower sulphur content. Projections of excess (or spare) capacity further indicate that supply will continue to be available, perhaps with greater spare capacity for production than previously evaluated in earlier studies.

This analysis frames the fuel availability question at the regional scale, then considers major bunkering countries with ports adjacent to the Mediterranean Sea area, then considers all major bunkering countries, then considers all countries that are major producers of product relevant to supply, then considers world production and production capacity. We evaluate potential fuel availability at each scale, recognising that international shipping depends on world markets for fuel availability in the Mediterranean Sea area.

Figure 9.2-5 shows that refinery capacity to produce gas/diesel³⁹ fuel is greater than consumption demand (including marine bunkers) at all scales, including among the Mediterranean coastal States. As shown, at the regional scales of the Mediterranean coastal States and inclusive of adjacent neighbouring countries, **Figure 9.2-5** shows that current production of gas/diesel is not sufficient to meet current consumption demand; Mediterranean coastal States that are Contracting Parties to the Barcelona Convention, in fact, import gas/diesel from other countries to satisfy market demand for gas/diesel. In other words, while refineries in these countries have capacity to produce more middle distillates, the economically optimal configuration produces more of other refining products for export, allowing the market to purchase gas/diesel on the global market. This is typical profit-maximising behaviour by refineries in a global petroleum market. **Figure 9.2-6** shows that refinery capacity to produce fuel oil and production of fuel oil exceeds demand, consistent with the by-product status of residual oils. Refinery production of fuel oil fails to meet consumption only under the conditions where bunker estimates are maximised. Combining fuel oil and gas/diesel, both refinery capacity estimates and production statistics demonstrate that supply exceeds consumption demand at all scales except that Mediterranean coastal States that are Contracting Parties to the Barcelona Convention must trade products, as shown in **Figure 9.2-7**. Therefore, sufficient fuel availability of both gas/diesel and fuel oil

³⁹ This report uses terminology from IEA statistics that include refinery fuel labels, e.g., gas/diesel. Gas/diesel includes all distillate marine fuels (DM) and distillate non-marine fuels. For the purposes of clarity, IEA reported statistics for gas/diesel do not include natural gas or natural gas products, which are reported in separate data series.

is available for provision of 0.10% S m/m fuels for the Med SO_x ECA through the combination of distillate fuels, and blended products to product low-sulphur residual fuels.

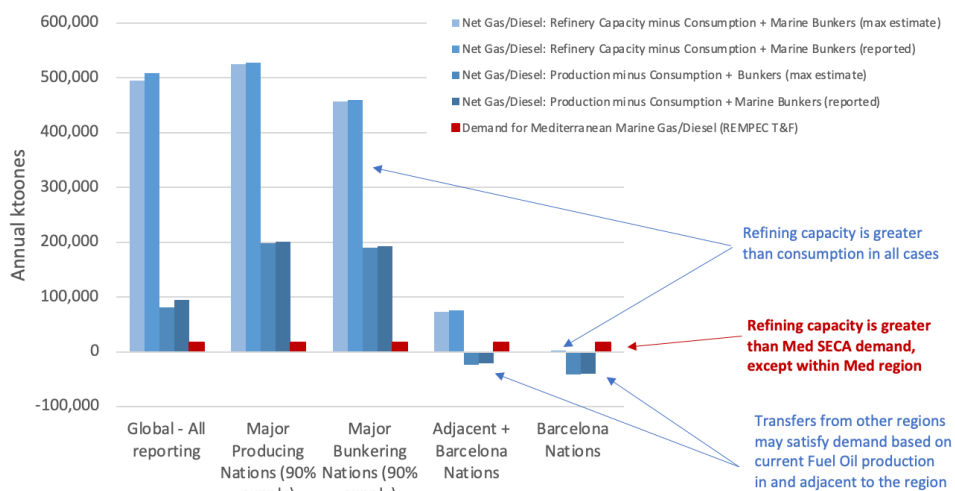


Figure 9.2-5: Net refining capacity to produce gas/diesel is greater than consumption demand, sufficient for Med SO_x ECA supply

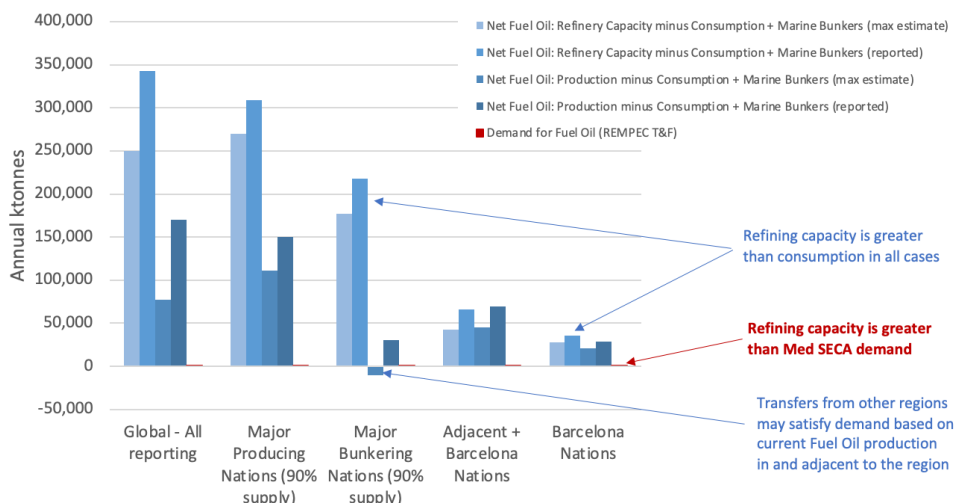


Figure 9.2-6: Net refining capacity for and production of fuel oil exceeds consumption demand, including marine bunkers

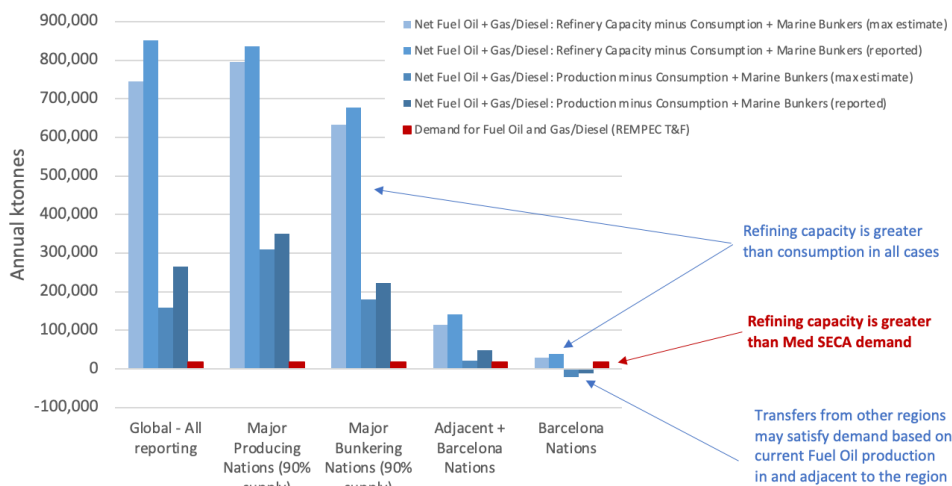


Figure 9.2-7: Net refining capacity for and production of fuel oil and gas/diesel exceeds consumption demand

9.3 Vessel Costs

9.3.1 Exhaust Gas Cleaning Adoption Analysis

EGCSs represent one possible compliance option for the proposed Med SO_x ECA. **Table 9.3-1** indicates that about 5,900 vessels, some 18% of the fleet operating in the Mediterranean Sea area, could adopt EGCSs, under a conservative 100-year investment horizon and 15% investment rate. This conservative investment horizon may be considered to describe the least cost investment option, and therefore defines the most favourable conditions for investment in exhaust gas cleaning technology. This finding is consistent with some, but not all, estimates reported in industry media or other studies, fundamentally related to investment horizon conditions assumed. Therefore, some sensitivity analyses are performed to further explore economically feasible conditions.

Table 9.3-1. Fleet counts considered for exhaust gas cleaning technology

	Fleet Count	Percent of Total Fleet
EGCSs	5,915	18%
No EGCSs	27,248	82%

Table 9.3-2 shows the expected EGCS investment rates over a range of investment horizons. Investment decisions are typically confidential business information, and thus the decision is parameterised over a range of investment lifetimes. 39 vessels are identified as currently operating with EGCSs in the Mediterranean Sea area, and this number is not expected to change under a 1-year investment horizon. If EGCS costs are amortised over 10 years, the results show that EGCS installations would increase by a factor of ten, from 39 to 464. Assuming a 15-year investment horizon, the results indicate that 3.7% of the fleet might invest in a EGCS and save the fleet over \$260 million.

Table 9.3-2. Cost analysis relating EGCS capital costs and investment years to the percent of the fleet using EGCSs

Investment years	Feasible EGCS Use, Capital included		
	Proposed Med SO _x ECA Compliance Savings (\$Billions)	Number of EGCSs	Percent of Fleet Using EGCSs
None	\$0.61	39 in 2020	0.0%
1	\$0.00	0	0.0%
5	\$0.02	53	0.2%
10	\$0.10	464	1.4%
11	\$0.13	632	1.9%
12	\$0.15	767	2.3%
14	\$0.19	1,010	3.0%
15	\$0.26	1,226	3.7%
20	\$0.37	1,888	5.7%
25	\$0.47	2,702	8.1%
30	\$0.53	4,155	12.5%
50	\$0.60	5,726	17.3%
100	\$0.61	5,915	17.8%

Table 9.3-3 shows that EGCS may be feasible for vessels that spend a greater amount of time inside the Mediterranean Sea area (and/or other SECA region). EGCSs require increased capital investment but use lower cost fuels, and economic feasibility increases with more cost-saving operation using lower cost fuels. These results agree with previously published work (23). These results indicate that, under and unlimited (100-year) investment horizon EGCS scenario, 5,900 vessels (~18% of the Mediterranean fleet) might be expected to invest in EGCSs, while most of the fleet (82%) may determine that fuel switching remains the least cost option.

Table 9.3-3. Use of EGCSs by vessel type under the proposed Med SO_x ECA scenario

Vessel Type	No EGCS		EGCS Adoption	
	Average Operating Hours [h] in the Mediterranean	Ship Count	Average Operating Hours [h] in the Mediterranean	Ship Count
Cargo ships	1,356	6,875	5,172	458
Container ships	756	1,146	3,464	915
Cruisers	879	62	4,400	118
Fishing vessels	1,472	1,000	3,683	268
Misc.	1,202	6,749	4,148	1,183
Passenger ships	1,513	649	3,457	294
RoPax vessels	2,213	177	6,404	361
Service ships	1,265	652	3,910	207
Tankers	1,049	3,586	5,096	723
Unknown	370	5,875	2,469	1,190
Vehicle carriers	749	477	5,597	198
Grand Total	1,039	27,248	4,027	5,915

Efforts continue to investigate potential negative effects of EGCS discharges, particularly untreated effluents, on the marine environment and biota. These negative impacts may result in near-term and long-term economic effects by modifying ecosystem balances. Publicly available studies are providing emerging evidence that is confirming concerns about untreated effluents from EGCSs. Studies indicate that EGCS may improve the air quality in harbour cities and at sea but will shift atmospheric pollution to the marine water body (Schmolke et al., 2020). “While a single ship with an installed scrubber may pose limited, local risk to marine ecosystem health, a global shipping community employing scrubbers to meet air emission limits is of serious concern” (Hassellöv et al., 2020). EGCS washwater is found to be acidic with elevated concentrations of metals and other contaminants (Teuchies, Cox, Van Itterbeeck, Meysman, & Blust, 2020). Increased acidification, i.e., pH decreases, are recognized, with larger pH changes occurring in areas of high traffic density on the scale of climate-related pH changes (Dulière, Baetens, & Lacroix, 2020). From a cost-methodology perspective, costs are not well differentiated between closed- and open-loop EGCS systems. The above adoption rates use cost estimates that may prove optimistic if future EGCS require more costly design for closed- or hybrid-operations. Therefore, there is no indication that this quantitative approach to evaluating socio-economic impacts would produce findings of greater adoption rates.

9.3.2 Alternative Fuels

Alternative fuels and advanced power systems may offer economically feasible alternatives for SECA compliance, particularly if the net costs of these systems are lower than switching to SECA fuel. Of course, additional reasons beyond cost-savings within a SECA may support investment in vessels using advanced fuels, but this document evaluates only decision criteria for advanced power and fuel technologies within the scope of evaluating SECA compliance costs. Moreover, some alternative fuels may present other environmental trade-offs beyond SECA compliance through very low sulphur content in the fuel, which merit consideration beyond the scope of this document.

A variety of fuels and power configurations could be considered. These include, but are not limited to: a) liquefied natural gas (LNG); b) methanol marine fuels; c) hydrogen fuel; d) hybrid propulsion systems that may include wind-assist, fuel cells, energy storage technologies, etc. Given that LNG is a fuel currently used on a significant number of vessels, and across many vessel types, data are most available to conduct economic feasibility assessment using LNG as an example.

Increased installation costs are compared with fuel cost savings based on price differential between MGO and LNG. This analysis is applied to older vessels, selected to be at or beyond typical replacement ages in 2020. Therefore, this analysis is applied to replacement of end-of-life vessels and new build vessels as they enter the fleet. If a vessel net costs of complying with SECA conditions are lower using LNG, then that vessel is considered to be economically feasible. The fraction of the fleet that is replaced or replacement eligible based on age in 2020 is evaluated, and the fraction of those vessels for which LNG would be economically feasible is evaluated.

The approach may be considered to serve as a screening tool for economic feasibility of LNG conversion, which is known through fleet adoption experience to be technically feasible. Further analyses of infrastructure, energy supply, and regional economic conditions would be required for specific fleet operator or port selection of alternative fuels.

The average fuel cost savings for vessels could be greater than 30%, given the higher costs of MGO fuel and lower costs of LNG used in this document (**Table 9.3-4**). Where the average LNG installation premium is lower than the present value of the potential capital investment window derived from fuel cost savings, this document identifies approximately 3,900 vessels to be feasible candidates for alternative fuels (**Table 9.3-5**). Some of these vessels included smaller service vessels, fishing vessels, etc.; it is recognised that conversion of these locally operating and networked vessel operations may include infrastructure and co-fleet investment decisions not captured here. Therefore, this is presented in a summary of larger commercial transport and cruise vessels considered to be feasible for alternative fuel operation under the conditions and assumptions applied in this document. Fleet adoption rates shown in **Table 9.3-4** exclude fishing vessels, passenger ferries, service ships, miscellaneous, and unknown vessel types. **Table 9.3-5** presents a summary of overall fleet counts combining all ships. Under the base input conditions, about 11%-12% of the fleet operating in the Mediterranean Sea area could feasibly consider alternative fuels for cost-saving compliance with the proposed Med SO_x ECA.

Table 9.3-4. Summary of alternative fuel economic feasibility analysis for major vessel types in the Mediterranean Sea area

Vessel Type	Count of Feasible Vessels	Percent of Vessel Type	Average Age	Average Fuel Cost Savings (Percent)	Average LNG Installation Premium (\$ Million)	Capital Investment Window (\$ Million)
Cargo ships	890	12%	33	32%	\$1.0	\$2.5
Container ships	130	6%	28	33%	\$4.0	\$11.9
Cruisers	45	25%	37	37%	\$5.5	\$20.0
RoPax vessels	220	41%	35	40%	\$3.9	\$19.0
Tankers	260	6%	30	36%	\$1.3	\$4.1
Vehicle carriers	79	12%	33	39%	\$2.6	\$12.0
Total¹	1,624	11%				

Table 9.3-5. Fleet counts considered for alternative fuel replacement, and the number that could reduce SECA compliance costs

Feasibility Category	Fleet Count	Percent of Total Fleet
Salvage age (>20 yrs.) circa 2020	19,700	59.3%
Alternative Fuel-cost Feasible	3,900	11.8%
Other Criteria Necessary	15,800	47.5%

The economic feasibility of alternative fuels will be sensitive to several inputs, primarily to the fuel-price differential between SECA compliant fuel and the alternative fuel (LNG in this analysis). **Table 9.3-6** illustrates this through sensitivity analysis that exercises the LNG fuel price from no-cost (\$0) through a price equal to SECA fuel. As illustrated, fleet adoption rates from nearly 17% to 0% are dependent upon the net savings of installing power systems for and operating alternative fuels. The shaded row represents the results of this analysis using fuel prices described in **Section 9.2**. Regional compliance cost savings with the proposed Med SO_x ECA through adoption of economically feasible alternative fuels could be in the range of \$1.4 Billion per year based on fuel prices described in **Section 9.2**.

Table 9.3-6. Cost analysis relating LNG price and LNG-MGO price differential to the percent of the fleet (all vessel types) adopting alternative fuel

LNG Price ¹	LNG-MGO Price Δ	Proposed Med SO _x ECA Cost with LNG Alternative (\$ Billion per year)	Proposed Med SO _x ECA Savings with LNG (\$ Billion per year)	Fleet Percent Adoption ²
\$0	\$858	\$13.4	\$2.2	16.7%
\$50	\$808	\$13.5	\$2.1	16.1%
\$100	\$758	\$13.7	\$2.0	15.5%
\$200	\$658	\$13.9	\$1.7	14.0%
\$300	\$558	\$14.2	\$1.4	12.3%
\$327	\$531	\$14.2	\$1.4	11.8%
\$350	\$508	\$14.3	\$1.3	11.3%
\$400	\$458	\$14.4	\$1.2	10.2%
\$450	\$408	\$14.6	\$1.1	9.2%
\$600	\$258	\$14.9	\$0.7	5.1%
\$700	\$158	\$15.2	\$0.4	2.5%
\$800	\$58	\$15.5	\$0.2	0.2%
\$858	\$0	\$15.6	\$0.0	0.0%

9.3.3 Comparison of Vessel-Specific Costs

Costs of compliance for different types of vessels can also be estimated. **Table 9.3-7** provides results of these costs for MARPOL VI, the proposed Med SO_x ECA, and the proposed Med SO_x ECA with EGCSs. Results show that per vessel costs are largest for the biggest most powerful vessels, which include cruise ships, RoPax vessels, containers, and vehicle carriers. The columns represent total costs under each scenario; annual cost increases would be the difference between column prices, e.g., for Cruisers the difference between the proposed Med SO_x ECA average cost and MARPOL VI average cost would be about \$550k per year. As noted in **Table 9.3-7**, the additional per-vessel average cost increase compared to compliance with MARPOL 2020 is modest and would likely not impose any undue burden of compliance on industry.

Table 9.3-7. Summary of average annual compliance cost per vessel by type

Vessel Type	Ship Count	2020 MARPOL VI Average Cost	Proposed Med SO _x ECA Average Cost	Proposed Med SO _x ECA + EGCS Average Cost
Cargo ships	7,333	\$290,000	\$327,000	\$325,000
Misc.	7,932	\$48,400	\$54,000	\$52,200
Passenger ships	943	\$70,600	\$79,300	\$74,100
Tankers	4,309	\$681,000	\$763,000	\$750,000
Unknown	7,065	\$24,500	\$27,400	\$26,300
Service ships	859	\$110,000	\$123,000	\$118,000
Fishing vessels	1,268	\$30,500	\$34,100	\$32,900
Vehicle carriers	675	\$1,550,000	\$1,760,000	\$1,650,000
Cruisers	180	\$3,280,000	\$3,830,000	\$3,540,000
RoPax vessels	538	\$2,920,000	\$3,280,000	\$2,970,000
Container ships	2,061	\$2,340,000	\$2,640,000	\$2,540,000

9.4 Cost to Shipping Industry in Comparison with Land-Based Measures

Criterion 3.1.8 of Appendix III to MARPOL Annex VI requires a description of the relative costs of reducing emissions from ships when compared with land-based controls. This section presents results from international experience with pollution abatement control costs. Detailed information on control costs is not available on a country-by-country basis, and analysis of results from international studies show that the range of expected control costs, on a per-unit pollution abated basis, are generally in good agreement, indicating that international experiences with control costs are similar.

9.4.1 Estimates of Cost Effectiveness

There is a large variety of technology and operational choices available for pollution abatement. For sulphur abatement, these options fall under four broad categories: the use of low sulphur fuel, fuel desulphurisation, combustion processes, and desulphurisation of the exhaust gasses. The costs of these technologies, and the associated emission reductions, may be estimated in a range of ways. First, engineering estimates look specifically at technology and operating costs, and associated changes in emissions levels. Engineering approaches are useful when applied to specific plants but can raise issues when applied broadly to an industry, due to the many and varied compositions of individual plants. Another method of estimating environmental regulatory compliance costs is to survey industry, asking facilities' their direct capital and operational costs to reduce pollution. Again, this methodology is challenged, as issues with sample size, response rate, and difficulty in accurately separating costs associated with different pollution species challenge the results.

A 1999 report by IIASA for the European Commission (European Commission 1999), estimates that the costs of abating SO₂ range from \$586 to \$860/MT SO₂. Recent work in China (Zhang et al. 2020) estimates potential emissions abatement of 19.2 million tonnes of SO₂ from switching to renewable energy technologies at a cost of 92.5 billion CNY (Chinese Yuan), or 4,818 CNY/MT SO₂ abated, equivalent to around \$730/MT SO₂ abated.

The United States Environmental Protection Agency (EPA) is in the process of updating their Air Pollution Control Cost Manual. Section 5 of that report identifies the most recently available technologies and costs for removing acidifying gases, such as SO_x, from emissions. The U.S. EPA manual provides an engineering example of the cost effectiveness, akin to the MAC, of a wet FGD (flue gas desulphurisation) unit on a 500 MW coal facility at \$681/MT SO₂ abated, and \$945/MT SO₂ for a dry FGD unit on a similar sized plant. For a wet-packed tower absorber the U.S. EPA report estimates \$636/MT SO₂. Notably, these engineering examples are just that, calculations for specific example

facilities, but they align well with other literature estimates to provide an additional reference for the abatement costs.

9.4.2 Shadow Prices of Pollution

Another approach to estimating costs of pollution controls is to measure indirect and revealed costs. Using econometric techniques to identify revealed rather than stated pollution abatement costs, abatement costs which are more indicative of the total cost of regulatory compliance may be estimated. One such approach that is widely applied is to use shadow prices.

The shadow price is the opportunity cost of incremental reductions in pollutant species in terms of reductions in production output. Shadow prices in the USA for SO₂ abatement from coal power plants range from \$1,806 - \$18,018 / MT SO₂ (Swinton 1998; Färe et al. 2005) and from \$2,044 - \$21,749 / MT SO₂ for industrial processes in the USA, Korea and China (Coggins and Swinton 1996; Turner 1995; Boyd, Molburg, and Prince 1996; Lee, Park, and Kim 2002; Tu 2009; He and Ou 2017).

CE Delft publishes a Shadow Price Handbook (CE Delft 2010) which finds SO₂ shadow prices of \$6,461 - \$12,943 / MT SO₂ and PM₁₀ shadow prices of €2,300 – 50,000 / MT PM₁₀. The CE Delft Environmental Prices Handbook estimates that the environmental cost, not the abatement cost, of SO₂ pollution is €24,900 / MT SO₂, while the environmental cost of PM_{2.5} is €79,500 / MT SO₂ (CE Delft 2018), values which well-exceed the land-side abatement costs.

A 2014 study of OECD economies found that the shadow prices for PM₁₀ abatement were highly variable, ranging from \$5,079/ MT PM₁₀ to \$295,832 / MT PM₁₀ (in 2005\$), with a mean and median of \$99,500 / MT PM₁₀ and \$82,161 / MT PM₁₀, respectively (Dang and Mourougane 2014).

Table 9.4-1. Marginal SO₂ abatement costs (\$/MT) adapted from Mekaroonreung and Johnson (2012)

Study	Average Price of SO ₂ abatement (\$/ton)
(Färe et al. 2005)	76 – 142
(Mekaroonreung and Johnson 2012)	201 – 343
(Coggins and Swinton 1996)	292
(EPA 2009) - Stationary	300 – 6,000
(Mekaroonreung and Johnson 2012)	509 – 2,020
(European Commission 1999)	586 – 860
(Zhang et al. 2020)	730
(Turner 1995)	826
(Färe et al. 2005)	1,117 – 1,974
(Boyd, Molburg, and Prince 1996)	1,703
(Lee, Park, and Kim 2002)	3,107
(EPA 2009) – On-Road	6,400 – 6,600
(CE Delft 2010)	6,461 – 12,943

Table 9.4-1 shows the range of identified SO₂ abatement costs from the literature, discussed above. The range in abatement costs is wide, ranging from \$76/MT SO₂ abated to \$6,600/MT SO₂ abated. Ranges this wide are consistent with the literature, as they represent a suite of technology and operational measures possible to reduce SO₂ emissions, as well as a suite of sectors, including stationary and mobile sources, for which abatement technologies can vary greatly.

9.4.3 Estimates of Cost-Effectiveness from Prior ECA Applications

The North American ECA application (EPA 2009) lists a set of land-based source controls. The dates of the control costs span a wide range, and so may be best thought of as descriptive rather than prescriptive of current abatement costs, which are likely different due to policy changes in recent years and technology improvements. The report lists costs of between \$11,000 – \$16,000 / MT PM₁₀ (2006\$) for non- and on-road diesel and gasoline engine applications and a range of \$4,000 to \$46,000 / MT PM₁₀ (2006\$) for stationary diesel engines. Locomotive and harbour craft costs range from \$9,300 / MT PM₁₀ (2006\$) for new builds up to \$50,000 / MT PM₁₀ (2006\$) for retrofits. SO_x emission abatement costs estimated by the U.S. EPA are generally lower than PM₁₀ abatement costs. Stationary source SO_x abatement costs range from \$300 to \$6,000 / MT SO_x, whereas on-road SO_x abatement costs are estimated at \$6,400 / MT SO_x for heavy-duty diesel engines, and \$6,600 / MT SO_x for light duty gasoline/diesel engines.

9.4.4 Cost Effectiveness of the Med SO_x ECA

Findings from independent peer reviewed and grey literature find that ranges for PM₁₀ and SO_x abatement costs are broad and overlapping. The costs assigned to removal of any single species (of either SO_x or PM) cannot be treated as fully independent, as PM and SO_x pollutant species are entwined. Therefore, though the costs are attributed to a single pollutant, in reality there will likely be co-reductions for both SO_x and PM with any abatement measure. As shown in **Table 9.4-2**, the marginal abatement costs of the proposed Med SO_x ECA are aligned with the SO_x and PM marginal abatement costs for both the base case, and the proposed SO_x ECA with EGCSs.

Table 9.4-2. Cost effectiveness of the Med SO_x ECA from the Technical and Feasibility Study

Benefit Type	MARPOL VI	Proposed Med SO _x ECA	Proposed Med SO _x ECA with EGCSs
Control Target			
Abated SO _x emissions	\$7,730 / MT SO _x	\$13,400 / MT SO _x	\$8,750 / MT SO _x
Abated PM _{2.5} emissions	\$80,300 / MT PM _{2.5}	\$155,000 / MT PM _{2.5}	\$101,000 / MT PM _{2.5}

The Technical and Feasibility Study to examine the possibility of designating the Mediterranean Sea, or parts thereof, as sulphur oxides (SO_x) emission control area(s) (ECA(s)) under MARPOL Annex VI (Corbett & Carr, 2019), hereinafter referred to as the Technical and Feasibility Study, found that the proposed Med SO_x ECA has a cost effectiveness of around \$8,750 - 13,400/MT SO_x abated (**Table 9.4-2**). For comparison, the North American ECA cost effectiveness was estimated at \$1,200/MT SO_x. However, it must be remembered that the North American ECA was implemented at a time when the global fuel sulphur cap was 3.50% S m/m, and thus step down to 0.10% S m/m represented a larger step than the proposed Med SO_x ECA.

The benefit-cost ratio of the proposed Med SO_x ECA estimated in the Technical and Feasibility Study is \$1.58 million per avoided mortality. Parallel studies from France (Rouïl et al. 2019) and the European Commission (Cofala et al. 2018) find benefit-cost ratios of 3 and 4.8 respectively. The cost effectiveness of the proposed Med SO_x ECA is at the upper end of many of the stationary source abatement costs identified. However, as noted by the benefit cost-ratios, the health and environmental benefits of the proposed Med SO_x ECA are far larger than the costs.

9.5 Cost-Effectiveness of Quantified Benefits

Similar to previous SECA analyses, the same cost was assigned across each of these dimensions, which over-assigns the cost per unit benefit given that the same cost is achieving all of these benefits. **Table 9.5-1, Figure 9.5-1, and Figure 9.5-2** summarise the results. For example, the proposed Med SO_x ECA without EGCSs is shown to cost about \$1.58M per avoided annual death, if all the costs of the proposed Med SO_x ECA are assigned to the avoided mortality estimates. This cost comes down to \$1.035M/avoided death under a EGCS scenario.

Table 9.5-1. Cost-effectiveness of quantified benefits

Benefit Type	MARPOL VI	Proposed Med SO _x ECA	Proposed Med SO _x ECA with EGCSs
Control Target			
Abated SO _x emissions	\$7,730 /MT SO _x	\$13,400 /MT SO _x	\$8,750 /MT SO _x
Abated PM _{2.5} emissions	\$80,300 /MT PM _{2.5}	\$155,000 /MT PM _{2.5}	\$101,000 /MT PM _{2.5}
Health Outcome			
Avoided mortality	\$0.263 M/Δ Mortality	\$1.580 M/Δ Mortality	\$1.035 M/Δ Mortality
Avoided childhood asthma	\$14 k/Δ Morbidity	\$763 k /Δ Morbidity	\$500 k/Δ Morbidity

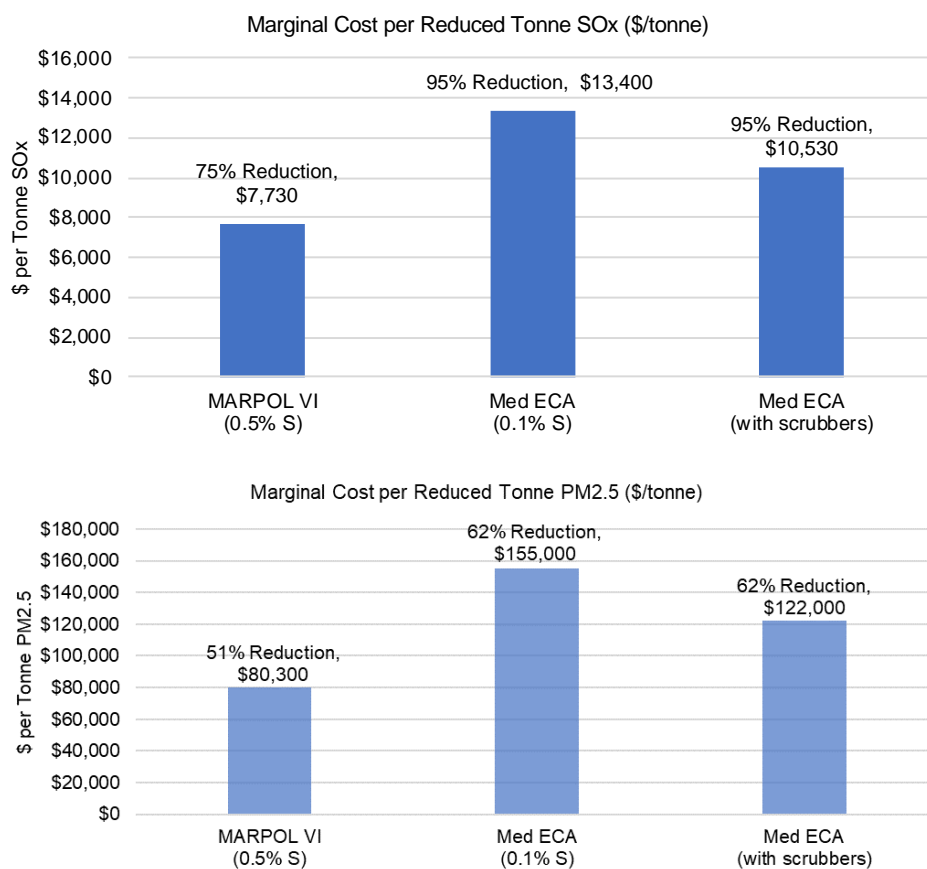


Figure 9.5-1: Control cost-effectiveness of SO_x and PM_{2.5} reductions based on prices in this document

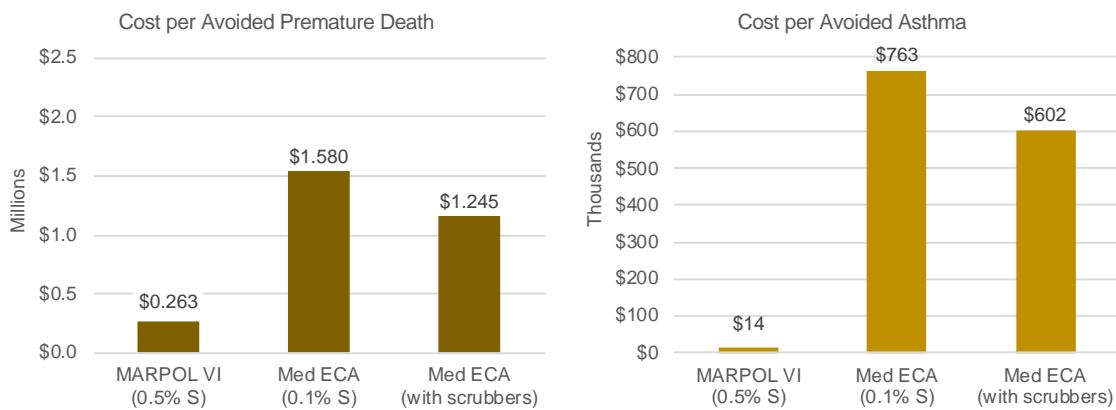


Figure 9.5-2: Cost-effectiveness of health outcomes in terms of avoided premature mortality and avoided childhood asthma

9.5.1 Mortality benefit-cost analysis (Lung Cancer and Cardiovascular causes)

A benefit-cost analysis should compare the net monetised benefits for all mitigation and costs for all compliance actions. No prior proposal to designate a SECA under MARPOL VI have presented analyses that monetise all benefits. Prior proposals to designate regional SECAs under MARPOL Annex VI have generally presented cost-effectiveness justifications for benefits of dominant concern or made reference to a concept termed “critical loads”, which generally means the maximum tolerable environmental exposure that a region’s ecosystem (in whole or part).

VSL is the monetary value of small changes in mortality risks, scaled up to reflect the value associated with one expected fatality in a large population. This analysis identified a key resource, published in the peer-reviewed literature in 2017, that performs a state-of-practice analysis of VSL that includes nearly all Mediterranean coastal States (26), as described in **Figure 9.5-3**.

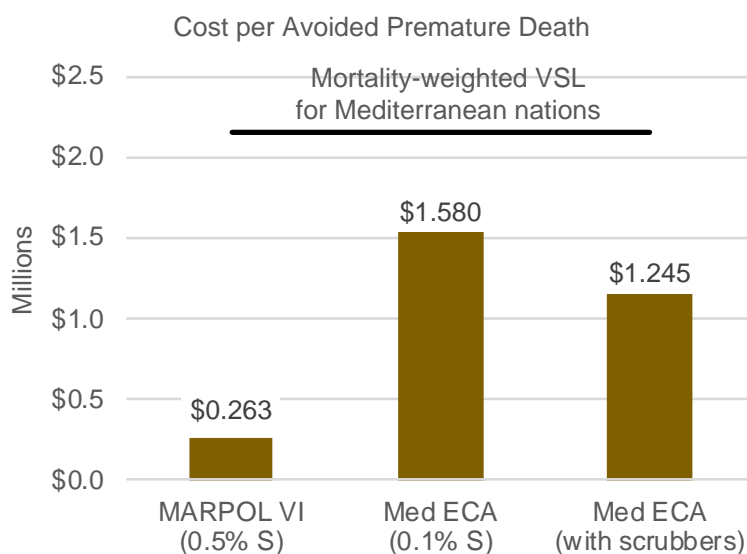


Figure 9.5-3: Comparison of the proposed Med SO_x ECA cost per avoided mortality and the Mediterranean weighted VSL

10 Economic Impacts on Shipping Engaged in International Trade

10.1 Marine freight and passenger rates

10.1.1 Freight rate assessment

Cargo-based freight rates include voyage-based fuel costs and much more. Cargo freight rates represent the cost from origin to destination including cargo handling, storage during transit, intermediate mode transfers, and mode. Voyage fuel costs are divided by the cargo load (in net tons or in net TEUs, as appropriate). The cost model multiplies by two (2) this value to account for fuel costs associated with an empty return trip. Sensitivity analysis can adjust this empty-return adjustment between a minimum value of zero (fully loaded revenue back-haul voyage) and two (no revenue back-haul). The use of the empty return adjustment, therefore, ensures more robust analysis (e.g., estimate cost impacts that may better test the null hypotheses).

Where a scenario depicts a port-to-port cargo movement, these approaches describe the net costs based on voyage costs and transfer costs. Where a scenario depicts origin-to-destination cargo movements that require land transport modes, the model would sum costs across the water leg and the land mode leg(s) of the route. The model provides generalised rates in costs per cargo distance (cargo tonne-kilometre or t-km). These generalised rates allow for efficient application to route scenarios and facilitate sensitivity analysis.

Cargo rates are derived from the Maritime Transport Costs (MTCs) statistics database maintained by the Statistics and Data Directorate of the Organisation for Economic Co-operation and Development (OECD).

“The Maritime Transport Costs (MTC) database contains data from 1991 to the most recent available year of bilateral maritime transport costs. Transport costs are available for 43 importing countries (including EU15 countries as a custom union) from 218 countries of origin at the detailed commodity (6 digit) level of the Harmonized System 1988.”

The database is built on data for *“a combination of shipping rates actually charged data with the UN Comtrade statistics have been used to estimate actual transport costs at the product level. The shipping rates have been collected from selected sources, such as: The United Nations Conference on Trade and Development (UNCTAD), Containerisation International, Drewry Shipping Consultants, International Grains Council (IGC), and the Baltic Exchange”*.

For this work, MTCs data were extracted from the MTC database for agriculture, manufacturing, and raw material commodities for the countries and country groups listed in **Table 10.1-1**. We attempted to include all available data for Mediterranean coastal States that are Contracting Parties to the Barcelona Convention, or their representative country group.

Table 10.1-1. List of countries (and EU 15 country group) for which MTC data was queried

Countries or country group	
Albania	Malta
Algeria	Montenegro
Egypt	Slovenia
European Union (EU 15)	Syrian Arab Republic
Israel	Tunisia
Lebanon	Turkey
Libya	

Using the MTCs reported by OECD.Stat, we updated reported freight rates to 2020 dollars and converted the units to costs per tonne-km so that these could be applied to route distances to yield waterborne freight transport costs. **Figure 10.1-1** presents the median freight rates (dash markers), in box-and-whisker plots representing 25th and 75th percentiles (boxes) and 10th and 90th percentiles (whiskers). **Table 10.1-2** presents the average freight rate across by selected commodities in the extracted data. **Table 10.1-3** presents a statistical summary of freight rates including upper and lower ranges. The figure illustrates that containership freight rates are typically higher than bulk ship freight rates (although there is overlap), and that clean bulk rates are higher than dirty bulk rates. This sets an expectation that commodities with higher freight rates may be less influenced than commodities associated with lower freight rates by voyage costs (or the influence of voyage fuel cost differentials).

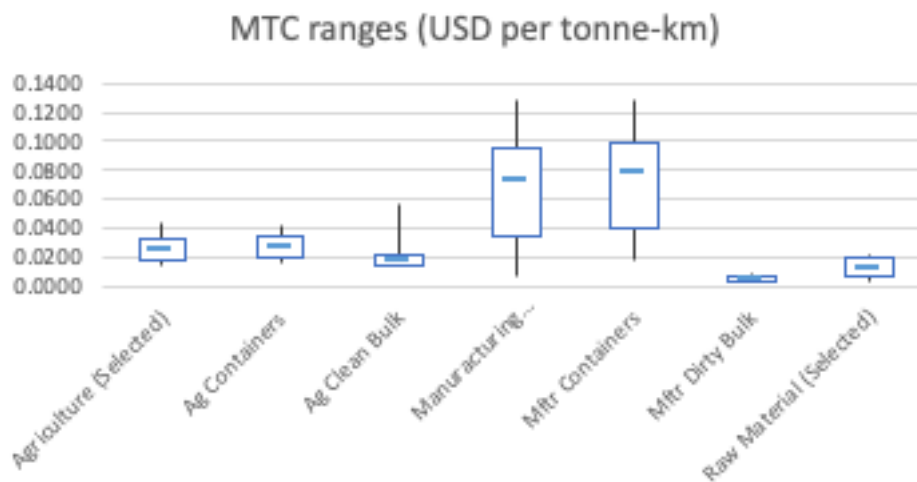


Figure 10.1-1: Plot of MTCs for commodity groups and vessel types

Table 10.1-2. Summary of MTCs by type of vessel for a selected range of commodities

Commodity	MTC by type of vessel (average USD per tonne-km)		
	Clean bulk	Containers	Dirty bulk
General Agriculture	0.0397	0.0299	
07: Edible vegetables and certain roots and tubers		0.0257	
08: Edible fruit, nuts, peel of citrus fruit, melons		0.0354	
09: Coffee, tea, mate, and spices		0.0278	
10: Cereals	0.0246		
12: Oil seed, oleagic fruits, grain, seed, fruit, etc, ne	0.0549		
19: Cereal, flour, starch, milk preparations and products		0.0286	
22: Beverages, spirits, and vinegar		0.0211	
General Manufacturing		0.0794	0.0060
31: Fertilizers			0.0060
47: Pulp of wood, fibrous cellulosic material, waste etc		0.0164	
48: Paper & paperboard, articles of pulp, paper, and board		0.0308	
52: Cotton		0.0486	
61: Articles of apparel, accessories, knit or crochet		0.1252	
62: Articles of apparel, accessories, not knit or crochet		0.1501	
64: Footwear, gaiters and the like, parts thereof		0.1483	
73: Articles of iron or steel		0.0354	
84: Nuclear reactors, boilers, machinery, etc		0.0522	
85: Electrical, electronic equipment		0.0616	
87: Vehicles other than railway, tramway		0.0702	
95: Toys, games, sports requisites		0.0873	
General Raw material			0.0128
25: Salt, sulphur, earth, stone, plaster, lime, and cement			0.0116
72: Iron and steel			0.0142

Table 10.1-3. Sensitivity analysis of MTCs by commodity group and vessel type

USD per tonne-km	Agriculture			Manufacturing			Raw Material
	Combined	Containers	Clean Bulk	Combined	Containers	Dirty Bulk	
Minimum	0.0100	0.0100	0.0132	0.0000	0.0000	0.0042	0.0023
10th percentile	0.0145	0.0172	0.0139	0.0075	0.0188	0.0042	0.0040
25th percentile	0.0180	0.0199	0.0152	0.0343	0.0393	0.0043	0.0073
Median	0.0253	0.0266	0.0173	0.0740	0.0784	0.0060	0.0128
75th percentile	0.0334	0.0339	0.0213	0.0957	0.0982	0.0074	0.0199
90th percentile	0.0434	0.0421	0.0570	0.1287	0.1289	0.0086	0.0214
Maximum	0.2461	0.1044	0.2461	0.4348	0.4348	0.0096	0.0233

10.1.2 Passenger rate assessment

Passenger rates for marine transportation in this work refers to ferry service. We do not evaluate cruise vessel passenger service because those excursions compare more with hospitality and vacation travel. Typical factors in a mode choice context include:

- Waterborne transport of passengers is typically a “premium mode”, priced higher than road travel by personal vehicle or transit. (Perhaps priced similarly or higher than rail.)
- Waterborne passenger transport is often a complement to rail and road travel, offering connectivity via Ro-Pax. (Waterborne passenger transport rarely is competing with land-side modes.)
- Costs for passenger travel per unit (per passenger) is typically greater than cost per unit cargo. Therefore, the expected price effect from higher priced 0.10% S m/m fuel would necessarily be smaller than the price effects evaluated per unit cargo.

Therefore, analysis is focused on remote areas and island communities where modal shift is not an option for remote or island areas, as intermodal connections do not exist, or are limited. As such, all goods and passenger movements must occur either by sea or by air. Air transportation costs are higher than all other modes, and for many goods transport by air is impractical.

Passenger ferries, including RoPax vessels, operate along numerous routes in the Mediterranean Sea, as shown in **Figure 10.1-2** and **Figure 10.1-3**. As shown by the intensity of emissions in the two figures, RoPax vessels are far higher emitters of CO₂, and therefore consume greater quantities of fuel.

This work analyses a set of ten ferry routes in the Mediterranean Sea, including four national and two international routes. All ferry routes analysed are between the mainland and islands, with one additional coastwise route. One-way prices for a single adult booking deck passage were retrieved from published fare schedules for each of the routes shown in **Table 10.1-4**. The RoPax vessels serving each route were identified and representative vessel categories in the final report of the Fourth IMO GHG Study 2020 (MEPC 75/7/15) (Faber et al., 202AD), hereinafter referred to as the Fourth IMO GHG Study 2020, for fuel consumption were matched with ferry vessel characteristics (e.g., gross tons).

Table 10.1-4. Ferry routes, distances, prices, number of passengers

Ferry Route	Distance (NM)	One-way cost (EUR)	Cost (EUR/p-km)	Cost (USD/p-km)	Passengers
Naples - Cagliari	282	42.41 ⁴⁰	€ 0.0812	\$0.0967	1,845
Barcelona - Porto Torres	307	35 ⁴¹	€ 0.0616	\$0.0733	2,794
Marseille - Algiers	421	198 ⁴²	€ 0.2539	\$0.3023	2,400
Piraeus - Paros	107	33 ⁴³	€ 0.1665	\$0.1982	1,715
Piraeus - Kos	203	52.5 ⁴³	€ 0.1396	\$0.1662	2,000
Piraeus - Rhodes	256	61.5 ⁴³	€ 0.1297	\$0.1544	2,000
Valetta - Pozzallo	53	68 ⁴⁴	€ 0.6928	\$0.8247	1,120
Mykonos - Naxos	26	14.5 ⁴⁵	€ 0.3011	\$0.3585	2,400
Famagusa - Mersin	112	42.93 ⁴⁶	€ 0.2070	\$0.2464	343
Barcelona - Genoa	352	49 ⁴⁷	€ 0.0752	\$0.0895	2,230

⁴⁰ <https://en.tirrenia.it/ferry-sardinia/naples-cagliari/index.html>.

⁴¹ <https://www.grimaldi-lines.com/>.

⁴² <https://www.corsicalinea.com/>.

⁴³ <https://www.ferryhopper.com/>.

⁴⁴ <http://www.virtuferries.com>.

⁴⁵ <http://www.bluestarferries.com>.

⁴⁶ <https://www.akgunlerbilet.com/>.

⁴⁷ <https://www.gnv.it>.

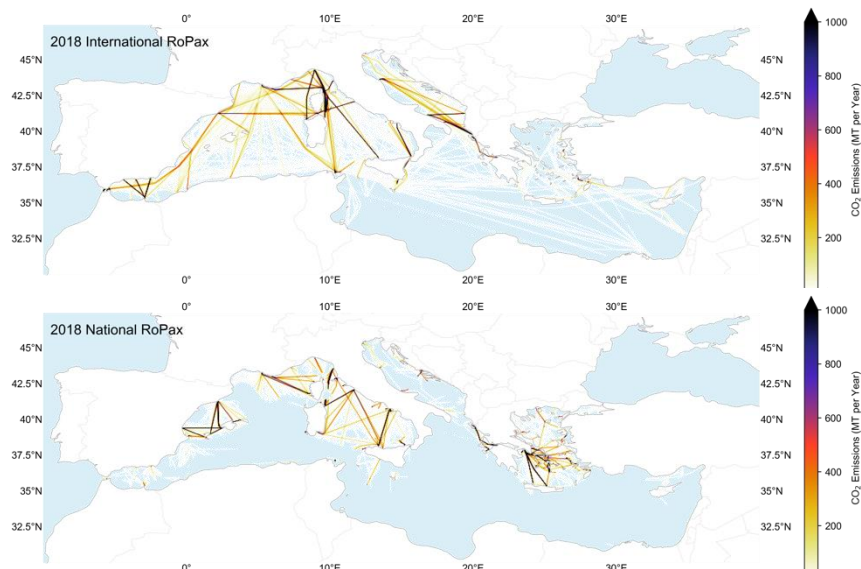


Figure 10.1-2: International and national RoPax activity

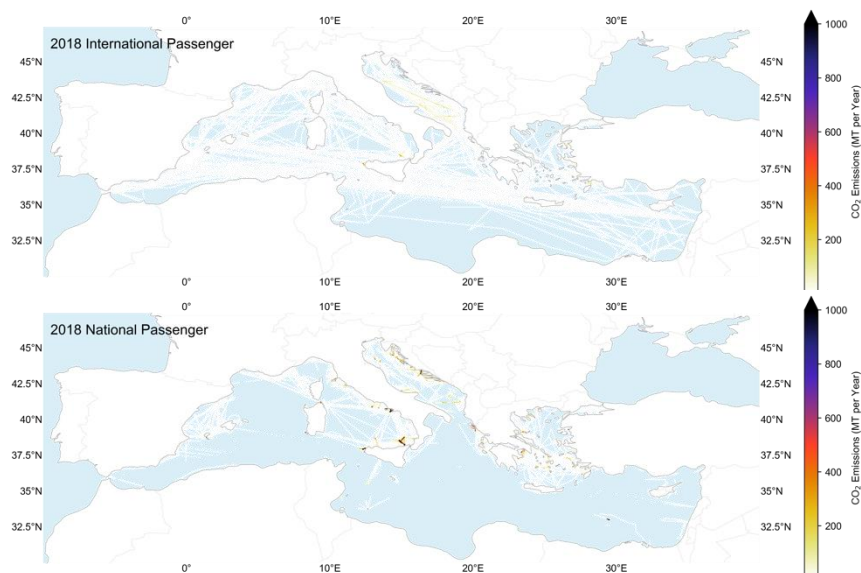


Figure 10.1-3: International and national passenger vessel activity

10.2 Land-side freight and passenger rates

Operating costs for land-side modes vary by mode, by country and by route. Using an analysis of transportation operating costs in the European Union and the U.S. produced by research collaboration funded by the European Commission (Maibach, Peter, et al., 2006), this analysis updated costs to 2020 equivalents in U.S. dollars and selected costs representative of Mediterranean coastal States for which this analysis provided data (**Table 10.2-1**).

Table 10.2-1. Average costs per passenger-km (rail), freight ton-km (rail, LDV and HDV road)

Country	Rail		Road			
	Passenger (in 2020 USD/p-km)	Freight (in 2020 USD/t-km)	Buses (in 2020 USD/p- km)	Coaches (in 2020 USD/p- km)	LDV freight (in 2020 USD/t-km)	HDV freight (in 2020 USD/t- km)
Greece	\$0.3410	\$0.3875	\$0.0930	\$0.0930	\$4.2160	\$0.1395
Spain	\$0.1860	\$0.1085	\$0.1395	\$0.1085	\$6.7115	\$0.1860
France	\$0.3100	\$0.0930	\$0.2325	\$0.2325	\$9.2535	\$0.2635
Italia	\$0.3100	\$0.1550	\$0.1705	\$0.1395	\$8.5250	\$0.1860
Slovenia	\$0.1240	\$0.1085	\$0.0465	\$0.0310	\$4.6190	\$0.2015
EU 25 *	\$0.2635	\$0.1705	\$0.1705	\$0.1395	\$7.8275	\$0.2170

Country	Rail		Road			
	Passenger (in 2020 USD/p-km)	Freight (in 2020 USD/t-km)	Buses (in 2020 USD/p- km)	Coaches (in 2020 USD/p- km)	LDV freight (in 2020 USD/t-km)	HDV freight (in 2020 USD/t- km)
Max	\$0.3875	\$0.4495	\$0.2000	\$0.1900	\$12.9270	\$0.2945
Median	\$0.3100	\$0.1550	\$0.1100	\$0.1000	\$6.8045	\$0.2015
Mean	\$0.2550	\$0.2015	\$0.1064	\$0.0968	\$6.9680	\$0.2071
Min	\$0.0620	\$0.0620	\$0.0200	\$0.0100	\$2.4335	\$0.1085

10.3 O-D Pair Distances

This section discusses the set of route distances between identified Origin and Destination (O-D) pairs. O-D pairs were selected based on a set of criteria, first evaluating the level of observed marine traffic between origin and destination based on AIS observations, and second evaluating the economic viability of a route based on published commercial schedules between origin and destination, either independently or as part of a voyage string, calling at several other ports along the way.

Route distances for water, rail, and road routes are shown in **Table 10.3-1**. All O-D pairs were selected as having a viable water route between the two ports, however not all instances had viable rail or road connections between the ports. In cases where a viable road or rail route was unavailable the distance is shown as not available (NA). O-D routes include short-sea routes, island country routes, intra-Mediterranean routes, and routes transiting the Mediterranean. Note that while O-D port pairs are identified, these routes are intended to be representative and not deterministic or prescriptive. The routes inside, to, through, and around the Mediterranean Sea are many and varied, with the total set of O-D pairs being impossible to model.

Table 10.3-1. Water, road, and rail distances between origin and destination pairs (km)

Origin	Destination	Water Distance (km)			Rail Distance (km)	Road Distance (km)
		In-Med	Ex-Med	Total		
Port Said	Gibraltar	3,591	0	3,591	N/A	7,431
Algeciras	Fos-sur-Mer	1,367	0	1,367	1,997	1,781
Algeciras	Koper	3,126	0	3,126	3,283	3,007
Genoa	Gioia Tauro	909	0	909	1,277	1,348
Koper	Malta Freeport	1,422	0	1,422	N/A	1,955
Koper	Singapore	2,471	9,325	11,795	N/A	12,987
Port Said	Koper	2,471	0	2,471	N/A	3,498
Lisbon	Jeddah	3,591	1,917	5,508	N/A	8,602
Piraeus	Limassol	983	0	983	N/A	2,633
Port Said	Beirut	432	0	432	N/A	710
Shanghai	Rotterdam	3,591	15,964	19,555	15,267	10,881
Shanghai	Fos-sur-Mer	2,895	13,386	16,281	15,983	11,671
Port Said	Fos-sur-Mer	2,895	0	2,895	N/A	4,413
Singapore	New York	3,591	15,177	18,768	N/A	N/A
Tangier	Oran	485	0	485	1,022	745
Tangier	Tunis	1,515	0	1,515	2,531	2,221
Thessaloniki	Piraeus	500	0	500	597	580
Xiamen	Beirut	432	12,323	12,755	13,966	N/A

10.4 Commodity Prices

Food commodity prices are available from UNCTAD, as shown in **Table 10.4-1**. These commodity prices represent a range of common commodities at different economic endpoints, from raw materials, to manufacturing, building, and textile inputs, to food prices. Commodities are shown in their unit prices in USD and converted to price per metric tonne for the purposes of unit-based comparisons between commodities. Unit mass conversions are straightforward, and the mass of a 91 cm x 182 cm x 4 mm sheet of lauan plywood was assumed to be 3 kg.

Table 10.4-1. Selected food, beverage, and commodity prices (\$2019) from UNCTAD

Commodity	Unit	Unit Price	Price (\$/MT)
Salmon, fresh, fish-farm bred, export price, Norway	(\$/kg)	6.94	\$6,940.0
Bananas, Central and South America, FOT, U.S. import price	(\$/kg)	1.14	\$1,140.0
Coffee, other mild Arabicas, ex-dock EU	(¢/lb.)	125.52	\$2,767.2
Tea, Kenya Mombasa/Nairobi, auction price	(\$/kg)	2.2	\$2,200.0
Tobacco, unmanufactured, U.S. import unit value	(\$/MT)	4578.65	\$4,578.7
Phosphate rock, Khouribga, 70% BPL, contract, FAS Casablanca	(\$/MT)	87.95	\$88.0
Zinc, Prime Western, delivered, North America	(¢/lb.)	124.13	\$2,736.6
Rubber, TSR 20, New York CIF	(\$/MT)	1662.17	\$1,662.2
Plywood, Africa & SE Asia, Lauan, 3-ply, 91 cm x 182 cm x 4 mm, wholesale Tokyo*	(¢/sheet)	500.93	\$1,669.8
Fine wool, 19 Micron, AWEX auction price, Australia	(\$/MT)	14183.23	\$14,183.2

* assumes one 4-mm plywood sheet = 3 kg

10.5 Socio-economic effects modelling

This section describes the methodological approach for describing fuel consumption and changes in fuel costs, identifying major shipping lanes and corridors, and evaluating mode shift potential and economic costs affect marine freight rates, provide economic signal related to potential mode shift.

Methods in this analysis are grounded in economic principles that:

- i) cost changes may be reflected in the rates that suppliers present to demanders, i.e., supplier costs are passed on to the buyers embedded within market prices; and
- ii) demand may be affected where the price signal changes along with demand elasticity for transport service and/or for the delivered product.

There are three stages of analysis available to evaluate socio-economic impact of price changes resulting from adoption of Med SO_x ECA fuels complying with 0.10% S m/m limits. This section describes each of these three stages. First, the relative effect of fuel price is evaluated in terms of voyage costs, which engages the EERA cost model (**Section 10.5.1**). The second stage considers how freight rates, which generally are inclusive of services and transport in addition to waterborne voyage costs, may be impacted by changes in voyage costs. To do this, we assemble published data on freight rates and evaluate how voyage costs are reflected in freight rates (**Section 10.5.2**). Third, freight rates embedded in the purchase prices of a commodity or product need to be evaluated for potential direct change in product prices and potential for indirect effects on consumption demand (**Section 10.6**).

10.5.1 Voyage cost evaluation

EERA applied its cost model for vessel and alternative mode costs under changing fuel cost scenarios (Winebrake et al., 2010)^{48,49}. Evaluating changing fuel costs for marine transport enables comparison with cost statistics for land-based transportation modes including truck and rail transportation.

Fuel consumption and fuel price data are used in the cost model to inform cost-based freight rates. Marine fuels can account for 30-50% of voyage costs depending on vessel capital financing costs. Marine fuels have also shown a large amount of volatility in recent years, largely tied to volatility in crude oil prices. For road freight, fuel accounts for around 20-25% of truck trip costs⁵⁰, and for about 40-45% of rail costs⁵¹. In addition, freight rates based on transportation costs would include per-cargo based allocation of transfer costs related to loading/unloading (cargo handling) and storage; demand-premium freight rates would be higher than cost-based freight rates. Also, freight rates vary by commodity based on cargo densities, utilisation of payload space, perishability, etc. Importantly, including more cost elements reduces the fuel-price effects. Fuel prices reported in **Section 9.2.5** are applied in a *Base Case* (using 0.50% S m/m fuel prices) and the *Med SO_x ECA Case* (using 0.10% S m/m fuel prices). This incremental fuel cost is then added to the estimated voyage costs to estimate new voyage cost under Med SO_x ECA conditions.

Using a fuel price ratio of 1.29 (representing a 29% difference in observed prices between 0.50% S m/m and 0.10% S m/m fuels during the latter months of 2020), typical fuel costs represent about 22% to 38% of daily voyage costs for containerships and less for bulk ships (**Table 10.5-1**).

⁴⁸ <https://www.epa.gov/regulations-emissions-vehicles-and-engines/study-impacts-compliance-eca-fuel-sulfur-limits-us>.

⁴⁹ <https://www.epa.gov/regulations-emissions-vehicles-and-engines/designation-north-american-emission-control-area-marine#Great-lakes>.

⁵⁰ <https://ec.europa.eu/jrc/sites/jrcsh/files/jrc114409.pdf>.

⁵¹ https://ec.europa.eu/ten/transport/studies/doc/compete/compete_report_en.pdf and related documents https://ec.europa.eu/transport/themes/infrastructure/studies/ten_t_en.

We observe that the voyage costs per tonne-km estimated by the EERA cost model are in good agreement with other work, such as the COMPETE Report (Maibach, Martin, & Sutter, 2006)(Maibach, Martin, et al., 2006), Table 6, which reports short-sea costs per tonne-km. Sensitivity analysis on the cost impact is presented in **Table 10.5-2**, where the base fuel price is varied from \$150 to \$700 per tonne fuel (left column), and the Med SO_x ECA fuel price ratio between 0.10% S m/m to 0.50% S m/m is varied from equal to double the price of base fuel.

Table 10.5-1. Estimated daily voyage fuel cost and increase cost using 1.29 ECA fuel price ratio

Vessel	Fuel Price	Container (2,800 TEU)	Container (4,800 TEU)	Container (10,000 TEU)	Bulk (30,000 DWT)
Base Voyage Cost USD per tonne-km		\$ 0.0022	\$ 0.0021	\$ 0.0012	\$ 0.00079
Fuel Cost as percent of Daily Voyage Cost	Base case (Median 2020 price)	37%	56%	53%	25%
	Med SO _x ECA case 1.29x Base	43%	62%	59%	30%
Increased Voyage Cost USD per tonne-km		\$ 0.0025	\$ 0.0026	\$ 0.0014	\$ 0.00084
Percent Change in Daily Voyage Cost with Med SO_x ECA fuel		10.6%	16.2%	15.2%	7.1%

Table 10.5-2. Relationship between voyage cost increase (table values in percent), fuel base price (column), and ECA fuel price ratio (row) using the 10,000 TEU containership example from Table 10.5-1

Price Ratio Base Price	1	1.2	1.29	1.4	1.6	1.8	2
\$150	0.0%	6.5%	9.4%	13.1%	19.6%	26.1%	32.7%
\$200	0.0%	7.9%	11.3%	15.7%	23.6%	31.4%	39.3%
\$250	0.0%	8.9%	12.9%	17.9%	26.8%	35.8%	44.7%
\$300	0.0%	9.8%	14.2%	19.7%	29.5%	39.4%	49.2%
\$344	0.0%	10.50%	15.2%	21.1%	31.6%	42.1%	52.7%
\$350	0.0%	10.6%	15.3%	21.2%	31.8%	42.5%	53.1%
\$400	0.0%	11.3%	16.2%	22.6%	33.8%	45.1%	56.4%
\$450	0.0%	11.9%	17.1%	23.7%	35.6%	47.4%	59.3%
\$500	0.0%	12.4%	17.8%	24.7%	37.1%	49.4%	61.8%
\$550	0.0%	12.8%	18.4%	25.6%	38.4%	51.2%	64.0%
\$600	0.0%	13.2%	19.0%	26.4%	39.6%	52.8%	66.0%
\$650	0.0%	13.6%	19.5%	27.1%	40.7%	54.2%	67.8%
\$700	0.0%	13.9%	20.0%	27.7%	41.6%	55.5%	69.4%

10.5.2 Marine freight rate evaluation

While voyage cost increases are estimated to be on the order of 7.1 – 16.2%, the percent increase in freight rate associated with the proposed Med SO_x ECA is modest, ranging from 0.3% to 1.4% across the median estimates, depending on commodity (**Table 10.5-3**). The effect for specific commodities can vary more widely within the range of prices observed in the commodity group, as illustrated in **Table 10.5-4**.

Table 10.5-3. Percent increase in MTCs from higher fuel costs by commodity group and vessel type

USD per tonne-km	Agriculture			Manufacturing			Raw Material
	Combined	Containers	Clean Bulk	Combined	Containers	Dirty Bulk	
10th percentile	2.5%	2.1%	0.4%	4.9%	1.9%	1.3%	1.4%
25th percentile	2.0%	1.8%	0.4%	1.1%	0.9%	1.3%	0.8%
Median	1.4%	1.4%	0.3%	0.5%	0.5%	0.9%	0.4%
75th percentile	1.1%	1.1%	0.3%	0.4%	0.4%	0.8%	0.3%
90th percentile	0.8%	0.9%	0.1%	0.3%	0.3%	0.6%	0.3%

Table 10.5-4. Fuel cost impact on MTCs by type of vessel for a selected range of commodities

Commodity	MTC by type of vessel (average USD per tonne-km)		
	Clean bulk	Containers	Dirty bulk
General Agriculture	0.1%	0.9%	
07: Edible vegetables and certain roots and tubers		1.0%	
08: Edible fruit, nuts, peel of citrus fruit, melons		0.7%	
09: Coffee, tea, mate, and spices		0.9%	
10: Cereals	0.2%		
12: Oil seed, oleagic fruits, grain, seed, fruit, etc, ne	0.1%		
19: Cereal, flour, starch, milk preparations and products		0.9%	
22: Beverages, spirits, and vinegar		1.2%	
General Manufacturing		0.3%	0.9%
31: Fertilizers			0.9%
47: Pulp of wood, fibrous cellulosic material, waste etc		1.6%	
48: Paper & paperboard, articles of pulp, paper, and board		0.8%	
52: Cotton		0.5%	
61: Articles of apparel, accessories, knit or crochet		0.2%	
62: Articles of apparel, accessories, not knit or crochet		0.2%	
64: Footwear, gaiters and the like, parts thereof		0.2%	
73: Articles of iron or steel		0.7%	
84: Nuclear reactors, boilers, machinery, etc		0.5%	
85: Electrical, electronic equipment		0.4%	
87: Vehicles other than railway, tramway		0.4%	
95: Toys, games, sports requisites		0.3%	
General Raw material			0.4%
25: Salt, sulphur, earth, stone, plaster, lime, and cement			0.5%
72: Iron and steel			0.4%

10.5.3 Potential for freight mode shift

This analysis does not find significant evidence of pressure to mode shift with estimated voyage costs associated with the proposed Med SO_x ECA.

As shown in **Table 10.1-2** and **Table 10.2-1**, MTCs are an order of magnitude lower than land-based costs, by rail or by truck. Ships benefit from significant economies of scale, efficiently moving tens of thousands of containers, or tonnes of cargo along waterborne trade routes. With the proposed Med SO_x ECA, estimated changes in MTCs range from 0.3% to 1.4% per tonne-km cargo. The maximum total cost change estimated, for the full transit of the Mediterranean from entrance to the Suez Canal at Port Said to the Straits of Gibraltar is \$1.31 per tonne cargo (**Table 10.5-5**). For shorter route segments within the Mediterranean, the estimated change in costs is correspondingly lower, as changes in cost scale with changes in vessel transit distance in the proposed Med SO_x ECA.

Table 10.5-5. Baseline freight costs between origin and destination pairs (USD/tonne cargo)

Origin	Destination	Agriculture	Manufacturing	Raw material	Cost change with 0.10% S m/m fuel
Port Said	Gibraltar	\$90.86	\$265.66	\$46.11	\$1.31
Algeciras	Fos-sur-Mer	\$34.58	\$101.11	\$17.55	\$0.50
Algeciras	Koper	\$79.10	\$231.27	\$40.14	\$1.14
Genoa	Gioia Tauro	\$23.01	\$67.27	\$11.68	\$0.33
Koper	Malta Freeport	\$35.99	\$105.22	\$18.26	\$0.52
Koper	Singapore	\$298.46	\$872.61	\$151.46	\$0.90
Port Said	Koper	\$62.51	\$182.77	\$31.72	\$0.90
Lisbon	Jeddah	\$139.37	\$407.46	\$70.72	\$1.31
Piraeus	Limassol	\$24.88	\$72.75	\$12.63	\$0.36
Port Said	Beirut	\$10.92	\$31.92	\$5.54	\$0.16
Shanghai	Rotterdam	\$494.81	\$1,446.68	\$251.10	\$1.31
Shanghai	Fos-sur-Mer	\$411.96	\$1,204.44	\$209.06	\$1.05
Port Said	Fos-sur-Mer	\$73.24	\$214.14	\$37.17	\$1.05
Singapore	New York	\$474.90	\$1,388.45	\$241.00	\$1.31
Tangier	Oran	\$12.28	\$35.90	\$6.23	\$0.18
Tangier	Tunis	\$38.33	\$112.07	\$19.45	\$0.55
Thessaloniki	Piraeus	\$12.65	\$36.99	\$6.42	\$0.18
Xiamen	Beirut	\$322.74	\$943.58	\$163.78	\$0.16

Considering these higher vessel costs embedded in the freight rate and compared to the least cost feasible land-side mode, all routes studied show that the water route remains the least-cost option compared to the lowest cost all-land alternative route (**Table 10.5-6**).

Analysis of the marine freight rate increase necessary to break even with the lowest cost all-land alternative, i.e. the point at which mode shift becomes economically feasible, is presented in **Table 10.5-7**. These estimates show that waterborne freight rates would need to increase by 1.6 – 32.3x in order for the all-land alternative to become economically feasible. The ratios are generally lower for manufactured goods, typically transported using containerised modes, ranging from 1.6 to 4.3. As such, containerised transport costs would need to increase by 1.6x to 4.3x before all-land transport modes became feasible. Raw material and agriculture break even ratios are considerably higher, making the potential for mode switch from bulk vessels to all-land alternatives less feasible than for containerised goods.

Given the estimated changes in fuel prices associated with the proposed Med SO_x ECA, this work does not find evidence of potential mode shifting.

Table 10.5-6. Higher freight costs between O-D pairs compared with land-side mode (USD/tonne cargo)

Origin	Destination	Agriculture	Manufacturing	Raw material	Land-side cost	Alternate mode
Port Said	Gibraltar	\$92.17	\$266.97	\$47.42	1,151.81	Road
Algeciras	Fos-sur-Mer	\$35.08	\$101.61	\$18.05	276.06	Road
Algeciras	Koper	\$80.24	\$232.41	\$41.28	466.09	Road
Genoa	Gioia Tauro	\$23.34	\$67.60	\$12.01	197.94	Rail
Koper	Malta Freeport	\$36.51	\$105.74	\$18.78	303.03	Road
Koper	Singapore	\$299.36	\$873.51	\$152.36	2,012.99	Road
Port Said	Koper	\$63.41	\$183.67	\$32.62	542.19	Road
Lisbon	Jeddah	\$140.68	\$408.77	\$72.03	1,333.31	Road
Piraeus	Limassol	\$25.24	\$73.11	\$12.99	408.12	Road
Port Said	Beirut	\$11.08	\$32.08	\$5.70	110.05	Road
Shanghai	Rotterdam	\$496.12	\$1,447.98	\$252.41	2,366.39	Rail
Shanghai	Fos-sur-Mer	\$413.02	\$1,205.50	\$210.11	2,477.37	Rail
Port Said	Fos-sur-Mer	\$74.30	\$215.20	\$38.22	684.02	Road
Singapore	New York	\$476.21	\$1,389.75	\$242.30	NONE	
Tangier	Oran	\$12.45	\$36.07	\$6.41	115.48	Road
Tangier	Tunis	\$38.88	\$112.63	\$20.00	344.26	Road
Thessaloniki	Piraeus	\$12.83	\$37.17	\$6.60	89.90	Road
Xiamen	Beirut	\$322.89	\$943.74	\$163.94	2,164.73	Rail

Table 10.5-7. Break-even freight rate between origin and destination pairs (USD/tonne cargo)

Origin	Destination	Break-even MTC rate (USD/t-km)	Route-specific break-even freight rate ratios necessary to equal land-side mode costs		
			Agriculture	Manufacturing	Raw material
Port Said	Gibraltar	0.3207	12.7	4.3	25.0
Algeciras	Fos-sur-Mer	0.2020	8.0	2.7	15.7
Algeciras	Koper	0.1491	5.9	2.0	11.6
Genoa	Gioia Tauro	0.2177	8.6	2.9	17.0
Koper	Malta Freeport	0.2130	Not applicable		
Koper	Singapore	0.1707	6.7	2.3	13.3
Port Said	Koper	0.2195	8.7	3.0	17.1
Lisbon	Jeddah	0.2421	9.6	3.3	18.9
Piraeus	Limassol	0.4150	Not applicable		
Port Said	Beirut	0.2550	10.1	3.4	19.9
Shanghai	Rotterdam	0.1210	4.8	1.6	9.4
Shanghai	Fos-sur-Mer	0.1522	6.0	2.1	11.9
Port Said	Fos-sur-Mer	0.2363	9.3	3.2	18.4
Singapore	New York	NONE	Not applicable		
Tangier	Oran	0.2380	9.4	3.2	18.5
Tangier	Tunis	0.2272	9.0	3.1	17.7
Thessaloniki	Piraeus	0.1798	7.1	2.4	14.0
Xiamen	Beirut	0.1697	6.7	2.3	13.2

10.6 Commodity and product price effects

10.6.1 Fuel price impact on freight service to remote areas and island communities

Analysis of the impacts of remote areas and island communities revolves around analysis of changes in marine freight costs. Modal shift is not an option for remote or island areas, as intermodal connections do not exist, or are limited. As such, all goods movements must occur either by sea or by air. Additional costs of marine freight transportation are discussed in **Section 10.5.3**, and we do not find evidence supporting the potential for mode shift. The work in **Section 10.6** provides evidence that cargo transport serving islands and remote areas will not be disproportionately affected by the change in costs associated with the Med SO_x ECA.

An example using the commodity coffee transported by containership can demonstrate the cascade effect of embedded fuel price changes. In **Table 10.6-1** and in **Figure 10.6-1**, we follow the change of USD \$99 per tonne fuel price (USD \$344 for 0.50% S m/m fuel increasing to USD \$443 for 0.10% S m/m fuel). The fuel price increases by about 29%, which represents a ~16% increase in the daily at-sea voyage cost (refer to **Table 10.5-1** in **Section 10.5.1**). Adding the increase in the voyage cost to the median freight rate (refer to **Table 10.5-3** in **Section 10.5.2**) increases the freight rate for transporting agriculture cargos like coffee by ~1.4%. Given that coffee by the tonne costs more than \$2,700 per tonne (refer to **Table 10.4-1** in **Section 10.4**), the fuel-related price change per tonne of coffee is less than one-tenth of a percent (0.05%).

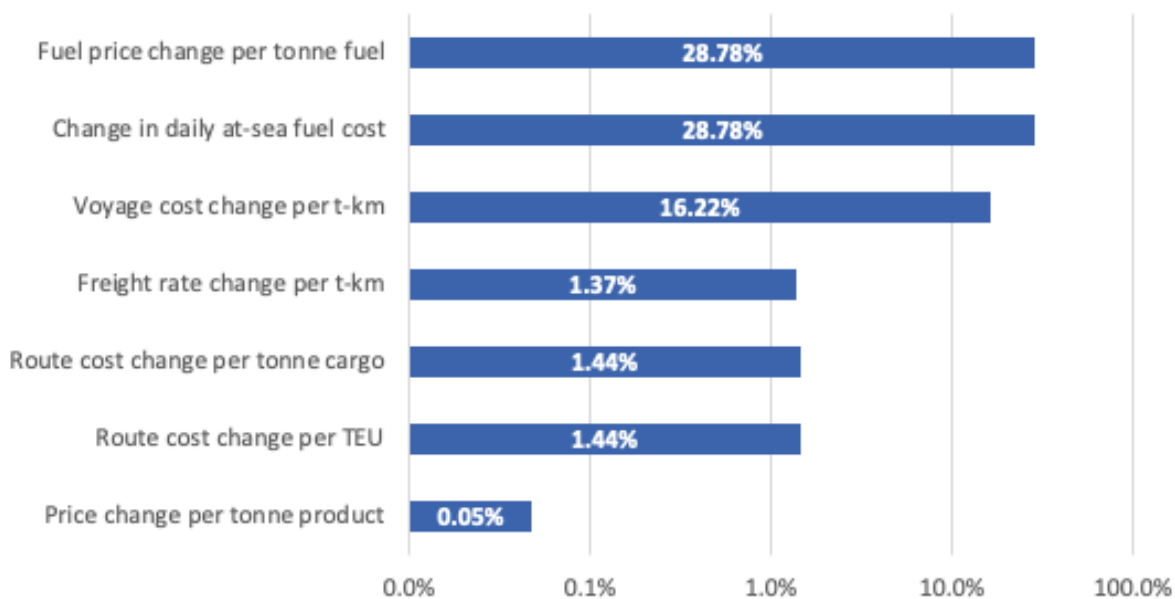


Figure 10.6-1: Example for coffee of fuel price embedded in voyage cost, freight rates, route costs, and product prices

Table 10.6-1. Example for coffee how fuel price changes voyage cost, rates, route cost, and product price

Different contexts for price effect	Price/cost change	Units	Percent of cost
Fuel price change per tonne fuel	\$99	USD/tonne	28.78%
Change in daily at-sea fuel cost	\$20,356	USD/day	28.78%
Voyage cost change per t-km	\$0.00036	USD/t-km	16.22%
Freight rate change per t-km	\$0.00036	USD/t-km	1.37%
Route cost change per tonne cargo	\$1.31	USD/tonne cargo	1.44%
Route cost change per TEU	\$13.08	USD/TEU	1.44%
Price change per tonne product	\$1.31	USD/tonne product	0.05%

10.6.2 Fuel price impact on passenger service to remote areas and island communities

Analysis of the impacts of remote areas and island communities revolves around analysis of changes in marine passenger costs. Modal shift is not an option for remote or island areas, as intermodal connections do not exist, or are limited. As such, all passenger movements must occur either by sea or by air. Based on the data developed in **Section 10.1.2**, we evaluate whether passenger transport serving islands and remote areas may be disproportionately affected by the change in costs associated with the Med SO_x ECA.

Passenger ferries, including RoPax vessels, operate along numerous routes in the Mediterranean Sea, as shown in **Figure 10.1-2** and **Figure 10.1-3**. As shown by the intensity of emissions in the two figures, ROPAX vessels are far higher emitters of CO₂, and therefore consume greater quantities of fuel. This work analyses a set of ten ferry routes in the Mediterranean Sea. Ferry routes analysed were selected for routes between the mainland and islands, as well as inter-island routes and a coastwise route. One-way prices for a single adult booking deck passage were retrieved from published fare schedules for each of the routes shown in **Table 10.6-2**.

These estimates show that ferry prices may rise by between €0.8 and €2.1 per passenger ticket, a ticket increase of 0.8% to 5.0% per passenger. The literature indicates that the PED for ferry travel is significant and inelastic, with a coefficient of 0.3 (Adler, Dehghani, & Gihring, 2010). As such, using the demand elasticity equation (Equation 1), we can estimate that demand for ferry transport may be affected by between 0.25% on the Marseille -Algiers route, 1.49% on the Naples – Cagliari route, and 1.45% on the Famagusa – Mersin route, all else equal. Interpretation of these coefficients demonstrates the inelastic relationship of ferry transport and ticket prices, with demand changing disproportionately, and less, than estimated price increases.

Table 10.6-2. Ferry routes, distances, prices, and ticket price change with shift to 0.10% S m/m fuel

Ferry Route	Distance (NM)	One-way cost (EUR)	Passengers	Ticket price change (EUR)	% Change
Naples - Cagliari	282	42.41	1,845	2.1	5.0%
Barcelona - Porto Torres	307	35	2,794	1.4	4.0%
Marseille - Algiers	421	198	2,400	1.6	0.8%
Piraeus - Paros	107	33	1,715	0.8	2.5%
Piraeus - Kos	203	52.5	2,000	1.1	2.1%
Piraeus - Rhodes	256	61.5	2,000	1.1	1.8%
Valetta - Pozzallo	53	68	1,120	0.2	0.3%
Mykonos - Naxos	26	14.5	2,400	0.02	0.1%
Famagusa - Mersin	112	42.93	343	0.6	1.5%
Barcelona - Genoa	352	49	2,230	1.7	3.5%

Of the routes studied, the inter-island route between Mykonos and Naxos represents the smallest price change of the routes studied, in absolute terms, and the smallest percent change in price.

While the above table includes estimated changes in price across a set of routes between specific port pairs, the routes were selected to be representative of the possible set of routes transited by ferries in the Mediterranean. The routes in **Table 10.6-2** include both mainland – island routes and inter-island routes, representative of the whole Mediterranean, and may be used for comparison of expected changes in costs across routes with similar parameters.

Coastwise ferry transits, such as the Barcelona – Genoa route, are shown in **Figure 10.1-2**. The economics of land-based transportation costs mean that water transit by ferry typically offers lowest cost route, for equivalent transit distances. The data in **Table 10.2-1** show that transit by coach typically costs around \$0.10 per p-km. From **Table 10.6-2** the data show that ferry transit on the Barcelona – Genoa route costs \$0.0895 per p-km (assuming \$1 = €0.84) with estimated price changes expected to increase the route costs to \$0.0926 per p-km. As shown this price differential from the proposed Med SO_x ECA is small in terms of absolute price, and in terms of price per p-km, and is unlikely to induce mode shift to the land-based alternative route.

For islands and remote areas, air travel offers the only mode option other than water for transit of passengers to and from those regions. Air prices are typically more variable than ferry mode prices, responding dynamically to changes in demand by reallocating resources to high demand and priority routes. On the other hand, ferries typically operate transit operations, with fixed schedules and resources allowing for more stable prices.

A review of airfares⁵² among the Greek Islands show flight prices from Athens to Paros, Kos and Rhodes were \$97, \$66, and \$57 respectively (€80.6, €54.9, and €47.4). Flights from Athens to Paros and Kos are higher priced than the respective ferry routes, while the Rhodes ferry is higher priced than the corresponding air fare. It is important to consider that mode selection for passengers depends on a set of factors in addition to price, including travel time, route availability, convenience, and capacity (i.e. vehicle transport). Considering transit price, estimated changes in ferry prices as a result of the proposed Med SO_x ECA do not induce modal switchover in any of the routes studied.

10.7 Price Elasticity of Demand for Goods and Commodities

The price elasticity of demand (PED) measures the change in the quantity of a good demanded when the price of that good changes, i.e., it may be thought of as the ratio of the percent change in quantity demanded to the percent change in the price of the good. PED is estimated based on the formula in Equation 1, where $e_{(p)}$ is the price elasticity of demand, Q is the quantity of the good demanded, and P is the price of the good.

Equation 1: Price elasticity of demand

$$e_{(p)} = \frac{dQ/Q}{dP/P}$$

Price elasticity of demand is typically negative, i.e. when the price of a good goes up the quantity demanded goes down, following the law of demand. Conventionally, though PED estimates are typically negative, PED coefficients are typically discussed as positive, omitting the negative sign on the coefficient. For goods that show elastic demand, the change in quantity demanded is proportional, or more than proportional, to the change in price, and the elasticity is greater than or equal to 1. For goods that show inelastic demand, the change in quantity demanded changes less than proportionally to the change in price, and the elasticity is less than 1.

⁵² One-way economy, single passenger, 21-day advance ticket, cheapest flight of day in March 2021.

The United States Department of Agriculture (USDA) provides access to a set of commodity elasticities through their “Commodity and Food Elasticities” database. These data include elasticities for 115 countries, including for 8 commodity groups in 13 countries that are Contracting Parties to the Barcelona Convention. These commodities and their elasticities are shown in **Table 10.7-1** and **Figure 10.7-1**. The elasticity data from USDA are supplemented with estimates compiled by Fally and Sayre, 2018 for additional commodities (**Table 10.7-2**). For the purposes of this analysis, the upper bound elasticity is assumed as a conservative estimate for the maximum possible effect on demand for goods and commodities based on increased costs associated with the proposed Med SO_x ECA.

Table 10.7-1. Price elasticity of demand for 8 food and beverage commodity groups in available Mediterranean coastal States that are Contracting Parties to the Barcelona Convention from USDA

	Beverage and tobacco	Bread and cereal	Dairy	Fish	Food other	Fruit and vegetable	Meat	Oil and fat
count	13.000	13.000	13.000	13.000	13.000	13.000	13.000	13.000
mean	0.594	0.259	0.493	0.512	0.456	0.366	0.457	0.281
std	0.171	0.091	0.126	0.133	0.113	0.094	0.114	0.090
min	0.337	0.129	0.294	0.303	0.274	0.217	0.275	0.150
25%	0.469	0.187	0.407	0.420	0.379	0.300	0.380	0.213
50%	0.660	0.294	0.529	0.552	0.485	0.393	0.487	0.320
75%	0.726	0.332	0.599	0.623	0.552	0.445	0.554	0.354
max	0.831	0.385	0.641	0.671	0.591	0.476	0.593	0.401

Table 10.7-2. Price elasticity of demand for selected consumable and durable commodities (Fally and Sayre, 2018)

Commodity	Price Elasticity of Demand
Bananas	-0.566 to -0.738
Cobalt	-0.029 to -0.5
Coffee	-0.07 to -0.54
Cotton	-0.684
Manganese	-0.1
Nickel	-0.038

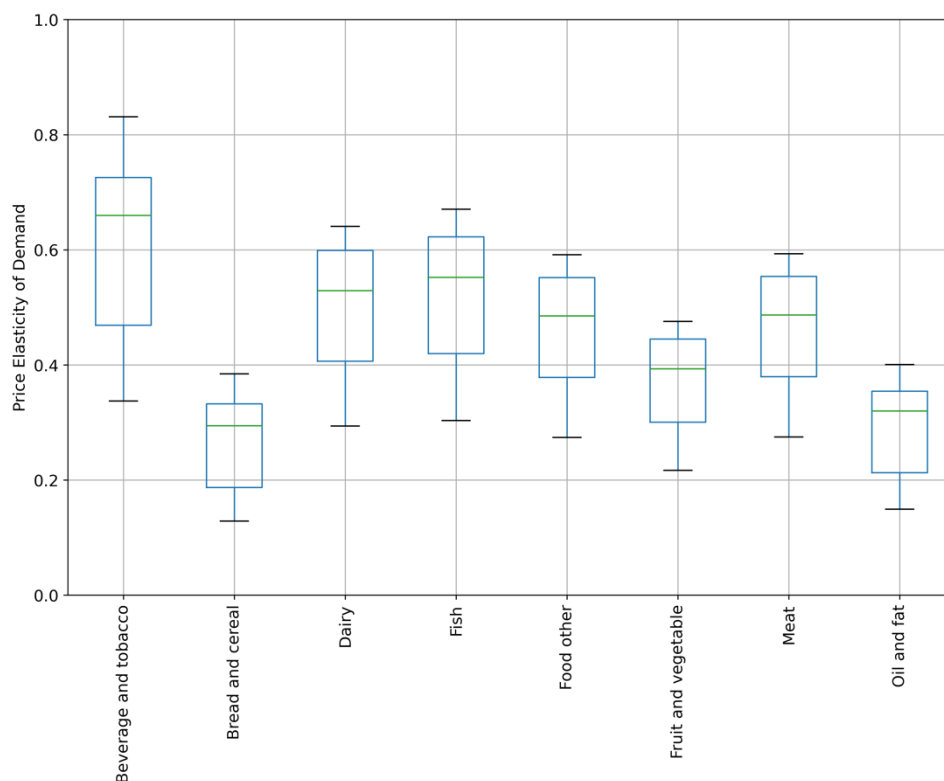


Figure 10.7-1: Price elasticity of demand for 8 commodity groups in available Mediterranean coastal States that are Contracting Parties to the Barcelona Convention

As discussed in **Table 10.5-5** the maximum price increase, along the route from Port Said to Gibraltar, a full transit of the Mediterranean, per ton cargo is \$1.31. Assuming this \$1.31/ton price increase is fully transferred to the end user price of the group of commodities studied, the estimated change in demand is shown in **Table 10.7-3**. Applying the maximum elasticity by commodity group we show that the largest change in demand is for phosphate rock, where demand is estimated to decrease by 0.759%. Phosphate rock, a primary ingredient of fertilisers, is the lowest cost per metric tonne commodity on the list, therefore projected changes in price of transit per ton cargo have the largest effect on the price of the commodity in terms of percent change.

All estimated changes in demand are less than 1%, and less than 0.1% in all cases studied other than phosphate rock and bananas. As discussed above, all elasticities show inelastic demand for the goods and commodities studied. Given inelastic demand, and the relatively small changes in commodity prices estimated with the proposed Med SO_x ECA, the anticipated change in demand for goods and commodities is generally very small.

Table 10.7-3. Estimated change in demand for commodities based on estimated change in price and price elasticity of demand

Commodity	Price (\$/MT)	New Price	% Change Price	Max Elasticity	% Change Demand
Salmon, fresh	6,940.0	6,941.31	0.019%	0.671	0.013%
Bananas	1,140.0	1,141.31	0.115%	0.738	0.085%
Coffee	2,767.2	2,768.55	0.047%	0.831	0.039%
Tea	2,200.0	2,201.31	0.060%	0.831	0.049%
Tobacco	4,578.7	4,579.96	0.029%	0.831	0.024%
Phosphate rock	88.0	89.26	1.489%	0.509	0.759%
Zinc	2,736.6	2,737.90	0.048%	0.5	0.024%
Rubber	1,662.2	1,663.48	0.079%	0.91	0.072%
Plywood	1,669.8	1,671.08	0.078%	0.91	0.071%
Fine wool	14,183.2	14,184.54	0.009%	0.684	0.006%

10.8 Total costs discussion

Using the most recently available fuel prices the estimated additional costs of the Med SO_x ECA would be \$1.761 billion per year.

Among Mediterranean coastal States, the container throughput in 2019 was 73.892 million TEUs. As a first-order example, if all additional costs of the Med SO_x ECA were borne by container vessels, which make up 35% of the total fuel usage in the Mediterranean, then the additional cost per TEU would be \$8.30/TEU or \$0.83/MT, assuming 10 MT per TEU. This example demonstrates upper bounds in costs per containerised tonne of freight, and is very consistent with the results in **Table 10.5-5** in **Section 10.5.3**, which report route specific cost increases averaging \$7.30/TEU or \$0.73/MT.

The estimated changes in transport costs will have both short-term transitional, and long-term effects. In the short term, the price change associated with 0.10% S m/m fuels will affect the market in much the same way that the changes in observed fuel prices have done previously, by adjusting freight rates to accommodate changing fuel prices. Those freight rates are embedded in market prices for products as described in **Section 10.6**. The analysis shows that these costs are not large, but they are computable, and economic theory suggests a range of market responses other than decreasing demand or substitution. Long-run cost changes can be expected to signal an adjustment in the market, that might include cost cutting elsewhere in supply chain, cargo handling efficiency improvements, and innovation in transport, intermodal, and cargo handling procedures and technology.

10.9 Summary of Costs of Reducing Emissions from Ships

In conclusion, the proposed Med SO_x ECA will be effective at achieving SO_x and PM emissions reductions for the given costs, imposing reasonable economic impacts to the international shipping industry. Therefore, this proposal fulfils criterion 3.1.8 of Appendix III to MARPOL Annex VI.

11 References

These references refer to references from the Technical and Feasibility Study.

1. M. Sofiev *et al.*, Cleaner fuels for ships provide public health benefits with climate tradeoffs. *Nature Communications* **9**, 406 (2018).
2. International Standardisation Organization (ISO), "Petroleum Products - Fuels (Class F) - Specifications of Marine Fuels, ISO 8217:2017," *Sixth Edition* (International Organization for Standardization, Geneva, Switzerland, 2017).
3. Center for International Earth Science Information Network - CIESIN - Columbia University. (NASA Socioeconomic Data and Applications Center (SEDAC), Palisades, NY, 2016).
4. J. J. Corbett *et al.*, Mortality from ship emissions: a global assessment. *Environmental Science and Technology-Columbus* **41**, 8512 (2007).
5. J. J. Winebrake, J. J. Corbett, E. H. Green, A. Lauer, V. Eyring, Mitigating the Health Impacts of Pollution from Oceangoing Shipping: An Assessment of Low-Sulfur Fuel Mandates. *Environmental Science & Technology* **43**, 4776-4782 (2009).
6. B. Ostro, in *Environmental burden of disease series*. (OMS, 2004), vol. 5.
7. D. W. Dockery *et al.*, An Association between Air Pollution and Mortality in Six U.S. Cities. *New England Journal of Medicine* **329**, 1753-1759 (1993).
8. F. Laden, J. Schwartz, F. E. Speizer, D. W. Dockery, Reduction in fine particulate air pollution and mortality: extended follow-up of the Harvard Six Cities study. *American journal of respiratory and critical care medicine* **173**, 667-672 (2006).
9. C. A. Pope, 3rd *et al.*, Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. *Jama* **287**, 1132-1141 (2002).
10. J. Lepeule, F. Laden, D. Dockery, J. Schwartz, Chronic exposure to fine particles and mortality: an extended follow-up of the Harvard Six Cities study from 1974 to 2009. *Environmental health perspectives* **120**, 965 (2012).
11. X.-y. Zheng *et al.*, Association between air pollutants and asthma emergency room visits and hospital admissions in time series studies: a systematic review and meta-analysis. *PLoS One* **10**, e0138146 (2015).
12. United Nations, World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. New York: United Nations, Department of Economic and Social Affairs PD. *Population Division*, (2015).
13. World Health Organization, W. H. Organization, Ed. (2016).
14. World Health Organization, W. H. Organization, Ed. (2018).
15. Global Asthma Network, *The Global Asthma Report 2014* (Auckland, New Zealand, 2014).
16. H. Liu *et al.*, Health and climate impacts of ocean-going vessels in East Asia. *Nature climate change* **6**, 1037 (2016).
17. J. Lepeule, F. Laden, D. Dockery, J. Schwartz, Chronic exposure to fine particles and mortality: an extended follow-up of the Harvard Six Cities study from 1974 to 2009. *Environ Health Perspect* **120**, 965-970 (2012).
18. R. T. Burnett *et al.*, An integrated risk function for estimating the global burden of disease attributable to ambient fine particulate matter exposure. *Environ Health Perspect* **122**, 397-403 (2014).
19. World Health Organization, *Ambient air pollution: a global assessment of exposure and burden of disease.*, (World Health Organization, 2016).
20. Bunker Index. (Bunker Index, United Kingdom, 2018), vol. 2018.
21. International Monetary Fund. (retrieved from FRED, Federal Reserve Bank of St. Louis,, 2018), vol. 2018.
22. U.S. Bureau of Labor Statistics. (retrieved from FRED, Federal Reserve Bank of St. Louis,, 2018), vol. 2018.
23. E. W. Carr, J. J. Corbett, Ship Compliance in Emission Control Areas: Technology Costs and Policy Instruments. *Environmental Science & Technology* **49**, 9584-9591 (2015).

24. S. De Bruyn *et al.*, Shadow prices handbook: valuation and weighting of emissions and environmental impacts. *CE Delft, Delft, the Netherlands.[online] URL: http://www.cedelft.eu/publicatie/shadow_prices_handbook_%3A_valuation_and_weighting_of_emissions_and_environmental_impacts/1032 Ecology and Society* **21**, 10 (2010).
25. P. Hammingh *et al.*, *Effectiveness of international emission control measures for North Sea shipping on Dutch air quality.* (2019).
26. W. K. Viscusi, C. J. Masterman, Income elasticities and global values of a statistical life. *Journal of Benefit-Cost Analysis* **8**, 226-250 (2017).

These references refer to references other than those from the Technical and Feasibility Study.

- Abbass, Rana Alaa, Prashant Kumar, and Ahmed El-Gendy. 2018. "An Overview of Monitoring and Reduction Strategies for Health and Climate Change Related Emissions in the Middle East and North Africa Region." *Atmospheric Environment* 175 (November 2017): 33–43. <https://doi.org/10.1016/j.atmosenv.2017.11.061>.
- Adler, T., Dehghani, Y., & Gihring, C. (2010). Estimating price elasticities of ferry demand. *Transportation Research Record*, (2176), 59–66. <https://doi.org/10.3141/2176-07>
- Arvis, J.-F., Vesin, V., Carruthers, R., Ducruet, C., & de Langen, P. (2019). *Maritime Networks, Port Efficiency, and Hinterland Connectivity in the Mediterranean.* Washington, D.C: World Bank Group. <https://doi.org/10.1596/978-1-4648-1274-3>
- Boyd, Gale, J Molburg, and Raymond Prince. 1996. "Alternative Methods of Marginal Abatement Cost Estimation: Non-Parametric Distance Functions." Argonne National Lab., IL (United States). Decision and Information Sciences
- CE Delft. 2010. "Shadow Prices Handbook Valuation and Weighting of Emissions and Environmental Impacts," no. March: 1–140. http://www.ce.nl/?go=home.downloadPub&id=1032&file=7788_defMainReportMaKMV_12_71765427.pdf.
- . 2018. "Environmental Prices Handbook EU28 Version - Methods and Numbers for Valuation of Environmental Impacts." CE Delft, 175. https://cedelft.eu/wp-content/uploads/sites/2/2021/04/CE_Delft_7N54_Environmental_Prices_Handbook_EU28_version_Def_VS2020.pdf.
- Ceuster, G. De, Herbruggen, B. van, & Logghe, S. (2006). *TREMOVE: Description of model and baseline version 2.41, Draft Report.* (TRANSPORT & MOBILITY LEUVEN, Ed.). Brussels, Belgium: European Commission. Retrieved from <http://www.tremove.org/>
- Cofala, Janusz, Markus Amann, Jens Borken-Kleefeld, Adriana Gomez-Sanabria, Chris Heyes, Gregor Kiesewetter, Robert Sander, et al. 2018. "Final Report The Potential for Cost-Effective Air Emission Reductions from International Shipping through Designation of Further Emission Control Areas in EU Waters with Focus on the Mediterranean Sea." IIASA - Air Quality and Greenhouse Gases (AIR).
- Coggins, Jay S, and John R Swinton. 1996. "The Price of Pollution: A Dual Approach to Valuing SO₂ allowances." *Journal of Environmental Economics and Management* 30 (1): 58–72.
- Corbett, James J., James J. Winebrake, Erin H. Green, Prasad Kasibhatla, Veronika Eyring, and Axel Lauer. 2007. "Mortality from Ship Emissions: A Global Assessment." *Environmental Science and Technology* 41 (24): 8512–18. <https://doi.org/10.1021/es071686z>.
- Corbett, J. J., & Carr, E. W. (2019). *REMPEC WG.45/INF9 Technical and feasibility study to examine the possibility of designating the Mediterranean Sea, or parts thereof, as SO_x ECA(s) under MARPOL Annex VI.* Valletta, Malta. Retrieved from <https://www.rempec.org/en/knowledge-centre/online-catalogue/2019/rempec-wg-45-inf-9-technical-and-feasibility-study-to-examine-the-possibility-of-designating-the-mediterranean-sea-or-parts-thereof-as-sox-eca-s-under-marpol-annex-vi-english-only>
- Crippa, Monica, Efisio Solazzo, Ganlin Huang, Diego Guizzardi, Ernest Koffi, Marilena Muntean, Christian Schieberle, Rainer Friedrich, and Greet Janssens-Maenhout. 2020. "High Resolution

- Temporal Profiles in the Emissions Database for Global Atmospheric Research.” Scientific Data. <https://doi.org/10.1038/s41597-020-0462-2>.
- Dang, T, and A Mourougane. 2014. “Estimating Shadow Prices of Pollution in Selected OECD Countries.” OECD Green Growth Papers 2014–02 (August).
- Dulière, V., Baetens, K., & Lacroix, G. (2020). Potential impact of wash water effluents from scrubbers on water acidification in the southern North Sea. RBINS. Retrieved from http://biblio.naturalsciences.be/library-1/rbins-staff-publications-2020/Scrubber_report.2020
- EEA. 2020a. “Air Quality E-Reporting (AQ e-Reporting).” 2020. <https://www.eea.europa.eu/data-and-maps/data/aqereporting-8>.
- . 2020b. “The European Environment - State and Outlook 2020. Knowledge for Transition to a Sustainable Europe.” <https://doi.org/10.15196/TS600305>.
- EPA. 2009. “Proposal to Designate an Emission Control Area for Nitrogen Oxides, Sulfur Oxides and Particulate Matter: Technical Support Document.” U.S. Environmental Protection Agency.
- EU. 2016. “National Emissions Ceilings (NEC) Directive (2016/2284/EU).”
- EU. (2020). Commodity Price Dashboard, (100). Retrieved from https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/commodity-price-dashboard_092020_en.pdf
- European Commission. 1999. “Economic Evaluation of a Directive on National Emission Ceilings for Certain Atmospheric Pollutants.”
- . 2020. “National Emission Reduction Commitments Directive Reporting Status 2020 Key Messages,” 1–16.
- European Commission. (2017). Study on Mediterranean TEN-T Core Network Corridor, 2nd Phase, Final Report. Brussels, Belgium.
- European Commission. (2018). In-depth analysis in support on the COM(2018) 773: A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy. Brussels, Belgium. Retrieved from https://ec.europa.eu/knowledge4policy/publication/depth-analysis-support-com2018-773-clean-planet-all-european-strategic-long-term-vision_en
- European Commission. (2020). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Stepping up Europe’s 2030 climate ambition, Investing in a climate-neutral future for the benefit of our people. Brussels, Belgium. Retrieved from https://ec.europa.eu/knowledge4policy/publication/communication-com2020562-stepping-europe-s-2030-climate-ambition-investing-climate_en
- Faber, J., Hanayama, S., Yuan, S., P., Z., H., P., Comer, B., ... Yuan, H. (2020). MEPC 75/7/15 Fourth IMO GHG Study 2020 - Final Report. London, UK. Retrieved from <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Reducing-greenhouse-gas-emissions-from-ships.aspx>
- Färe, Rolf, Shawna Grosskopf, Dong-Woon Noh, and William Weber. 2005. “Characteristics of a Polluting Technology: Theory and Practice.” *Journal of Econometrics* 126 (2): 469–92.
- Hassellöv, Ida Maja, David R. Turner, Axel Lauer, and James J. Corbett. 2013. “Shipping Contributes to Ocean Acidification.” *Geophysical Research Letters*. <https://doi.org/10.1002/grl.50521>.
- Hassellöv, I.-M., Koski, M., Broeg, K., Marin-Enriquez, O., Tronczyński, J., Dulière, V., ... Parmentier, K. (2020). *ICES VIEWPOINT BACKGROUND DOCUMENT: IMPACT FROM EXHAUST GAS CLEANING SYSTEMS (SCRUBBERS) ON THE MARINE ENVIRONMENT (AD HOC)*. Copenhagen, Denmark: International Council for the Exploration of the Sea. <https://doi.org/10.17895/ices.pub.7487>
- International Transport Forum, Kirstein, L., Halim, R., & Merk, O. (2018). *Decarbonising Maritime Transport*. Paris, France. <https://doi.org/10.1787/b1a7632c-en>
- Korinek, J. (2008). Clarifying trade costs in maritime transport. Organization for Economic Co-Operation and Development, (2011), 1–41. Retrieved from https://www.oecd-ilibrary.org/trade/clarifying-trade-costs_220157847513

- He, Ling Yun, and Jia Ou. 2017. "Pollution Emissions, Environmental Policy, and Marginal Abatement Costs." *International Journal of Environmental Research and Public Health* 14 (12). <https://doi.org/10.3390/ijerph14121509>.
- Lee, Jeong-Dong, Jong-Bok Park, and Tai-Yoo Kim. 2002. "Estimation of the Shadow Prices of Pollutants with Production/Environment Inefficiency Taken into Account: A Nonparametric Directional Distance Function Approach." *Journal of Environmental Management* 64 (4): 365–75.
- Maibach, M., Martin, P., & Sutter, D. (2006). Annex 1 to COMPETE Final Report: Analysis of operating cost in the EU and the US. Karlsruhe, Germany.
- Mekaroonreung, Maethee, and Andrew L Johnson. 2012. "Estimating the Shadow Prices of SO₂ and NO_x for U.S. Coal Power Plants: A Convex Nonparametric Least Squares Approach." *Energy Economics* 34 (3): 723–32.
- Ministry of Environmental Protection. 2019. "Clean Air Law, 2008." 2019.
- MoE. 2017. "Lebanon's National Strategy for Air Quality Management 2015 - 2030."
- Negev, Maya. 2020. "Air Pollution Policy in Israel." *Atmosphere* 11 (10). <https://doi.org/10.3390/atmos11101065>.
- Pope, C Arden, Richard T Burnett, Michael J Thun, Eugenia E Calle, Daniel Krewski, Kazuhiko Ito, and George D Thurston. 2002. "Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution." *Jama* 287 (9): 1132–41.
- Principaute de Monaco. 2019. "L'Environnement in the Principality of Monaco."
- Rouïl, Laurence, Catherine Ratsivalaka, Jean-Marc André, and Nadine Allemand. 2019. "ECAMED: A Technical Feasibility Study for the Implementation of an Emission Control Area (ECA) in the Mediterranean Sea," 94. <https://www.ineris.fr/en/ineris/news/ecamed-conclusions-technical-feasibility-study-implementing-emissions-control-area-eca>.
- Schmolke, S., Ewert, K., Kaste, M., Schöngaßner, T., Kirchgeorg, T., & Marin-Enriquez, O. (2020). *Environmental Protection in Maritime Traffic –Scrubber Wash Water Survey*. Hamburg, Germany. <https://doi.org/ISSN 1862-4804>
- Sofiev, Mikhail, James J Winebrake, Lasse Johansson, Edward W Carr, Marje Prank, Joana Soares, Julius Vira, Rostislav Kouznetsov, Jukka-Pekka Jalkanen, and James J Corbett. 2018. "Cleaner Fuels for Ships Provide Public Health Benefits with Climate Tradeoffs." *Nature Communications* 9 (1): 406. <https://doi.org/10.1038/s41467-017-02774-9>.
- Swinton, John R. 1998. "At What Cost Do We Reduce Pollution? Shadow Prices of SO₂ Emissions." *The Energy Journal* 19 (4).
- Syrian Arab Republic. 2018. "Nationally Determined Contributions Under Paris Agreement on Climate."
- Teuchies, J., Cox, T. J. S., Van Itterbeeck, K., Meysman, F. J. R., & Blust, R. (2020). The impact of scrubber discharge on the water quality in estuaries and ports. *Environmental Sciences Europe*, 32(1), 103. <https://doi.org/10.1186/s12302-020-00380-z>
- Tu, Z G. 2009. "The Shadow Price of Industrial SO₂ Emission: A New Analytic Framework." *China Econ Quart* 9 (1): 259–82.
- Turner, Judi A. 1995. "Measuring the Cost of Pollution Abatement in the U.S. Electric Utility Industry: A Production Frontier Approach." University of North Carolina at Chapel Hill.
- UMAS, L. R. and. (2020). Techno-economic assessment of zero-carbon fuels. London, UK. Retrieved from <https://www.lr.org/en/insights/global-marine-trends-2030/techno-economic-assessment-of-zero-carbon-fuels/>
- UN. 2017. "Factsheet on Air Quality in Bosnia and Herzegovina," 1–8.
- UNECE. 2015. Environmental Performance Reviews: Montenegro. Third Review. Environmental Performance Reviews Series No. 41.
- . 2019. "'Protocols', United Nations Economic Commission for Europe." 2019.
- UNEP. 2015a. "Libyan Arab Jamahiriya Air Quality Overview." <https://wedocs.unep.org/bitstream/handle/20.500.11822/17040/Libya.pdf?sequence=1&isAlloWed=y>.
- . 2015b. "Syrian Arab Republic Air Quality Overview." <https://www.unenvironment.org/resources/policy-and-strategy/air-quality-policies-syria>.

- . 2015c. “Turkey Air Quality Overview.” <https://www.unenvironment.org/resources/policy-and-strategy/air-quality-policies-turkey>.
- Viana, M, N Fann, A Tobías, X Querol, D Rojas-Rueda, A Plaza, G Aynos, J A Conde, L Fernández, and C Fernández. 2015. “Environmental and Health Benefits from Designating the Marmara Sea and the Turkish Straits as an Emission Control Area (ECA).” *Environmental Science & Technology* 49 (6): 3304–13. <https://doi.org/10.1021/es5049946>.
- Winebrake, J. J., J. J. Corbett, E. H. Green, A. Lauer, and V. Eyring. 2009. “Mitigating the Health Impacts of Pollution from Oceangoing Shipping: An Assessment of Low-Sulfur Fuel Mandates.” *Environmental Science and Technology* 43 (13): 4776–82. <https://doi.org/10.1021/es803224q>.
- Winebrake, J. J., Corbett, J. J., Comer, B., Green, E., Silberman, J. A., & Korfmacher, K. (2010). *Analysis of Impacts of Category 3 Marine Rule on Great Lakes Shipping*. Pittsford, NY: Energy and Environmental Research Associates.
- World Bank. 2013. “The Arab Republic of Egypt For Better or for Worse: Air Pollution in Greater Cairo” Report No. (April 2013): 150.
- Zeebroeck, B. Van, Ceuster, G. De, & Herbruggen, B. Van. (2006). TREMOVE 2: Maritime model and runs. (TRANSPORT & MOBILITY LEUVEN, Ed.). Brussels, Belgium: European Commission. Retrieved from <http://www.tmlleuven.be/methode/tremove/home.htm>
- Zhang, Fenfen, Jia Xing, Yang Zhou, Shuxiao Wang, Bin Zhao, Haotian Zheng, Xiao Zhao, et al. 2020. “Estimation of Abatement Potentials and Costs of Air Pollution Emissions in China.” *Journal of Environmental Management* 260 (January): 110069. <https://doi.org/10.1016/j.jenvman.2020.110069>.

ANNEX 2

Description of the proposed Med SO_x ECA

The area of application of the proposed Med SO_x ECA includes waters internal to the Mediterranean Sea, as defined by the International Hydrographic Organization.

Specifically, the proposed Med SO_x ECA includes all waters bounded by the coasts of Europe, Africa, and Asia, and

- a. the western entrance to the Straits of Gibraltar, defined as a line joining the extremities of Cape Trafalgar, Spain (36°11'N, 6°02'W) and Cape Spartel, Morocco (35°48'N, 5°55'W);
- b. the Dardanelles, defined as a line joining Mehmetcik Burnu⁵³ (40°03'N, 26°11'E) and Kumkale Burnu (40°01'N, 26°12'E); and
- c. the northern entrance to the Suez Canal.

⁵³ Burnu (Turkish) = Cape.

ANNEX 3

Chart of the proposed Med SO_x ECA



The area of application of the proposed Med SO_x ECA includes waters internal to the Mediterranean Sea, as defined by the International Hydrographic Organization and shown in the chart above.

ANNEX 4

Proposed amendments to regulation 14.3 of, and Appendix VII to MARPOL Annex VI designating the Med SO_x ECA as a new Emission Control Area

The area proposed for ECA designation, the Mediterranean Sea area, comprises the Mediterranean Sea proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41° N parallel and bounded to the west by the Straits of Gibraltar at the meridian of 005°36' W, as defined in regulation 1.11.1 of MARPOL Annex I.

Paragraph 3 of regulation 14 of, and paragraph 1 of Appendix VII to MARPOL Annex VI are proposed to be amended as follows (see the underlined text):

Regulation 14

Sulphur oxides (SO_x) and particulate matter

The existing text of paragraph 3 is replaced by the following:

“3 For the purpose of this regulation, emission control areas shall include:

- .1 the Mediterranean Sea area as defined in regulation 1.11.1 of Annex I, the Baltic Sea area as defined in regulation 1.11.2 of Annex I and the North Sea area as defined in regulation 1.14.6 of Annex V;
- .2 the North American area as described by the coordinates provided in appendix VII to this Annex;
- .3 the United States Caribbean Sea area as described by the coordinates provided in appendix VII to this Annex; and
- .4 any other sea area, including any port area, designated by the Organization in accordance with the criteria and procedures set forth in appendix III to this Annex.”

Appendix VII

Emission control areas (regulations 13.6 and 14.3)

The existing text of paragraph 1 is replaced by the following:

“1 The boundaries of emission control areas designated under regulations 13.6 and 14.3, other than the Mediterranean Sea, the Baltic Sea and the North Sea areas, are set forth in this appendix.”

Draft Decision 25/15

Guidelines for the Conduct of Environmental Impact Assessment (EIA) under the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolutions of 15 March 2019, UNEP/EA.4/Res.10, entitled “Innovation on biodiversity and land degradation”, and UNEP/EA.4/Res. 21, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, in particular Article 7 thereof, whereby Contracting Parties shall take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area resulting from exploration and exploitation of the continental shelf and the seabed and subsoil,

Having also regard to the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil hereinafter referred to as “Offshore Protocol”, in particular Article 23 paragraph 1 thereof, whereby Contracting Parties shall cooperate in order to formulate and elaborate international rules, standards and recommended practices and procedures for achieving the aims of the Protocol and Article 5 paragraph 1 (a) thereof, whereby Contracting Parties shall prescribe that any application for a new or renewed authorization must include a survey concerning the effects of the proposed activities on the environment, in light of which the competent authority may require that an environmental impact assessment be prepared in accordance with Annex IV to Offshore Protocol,

Recalling Decision IG.22/3 on the Mediterranean Offshore Action Plan in the Framework of the Offshore Protocol, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016), in particular its Specific Objectives 7 and 8 providing for the development and adoption of regional offshore standards and guidelines,

Concerned by the potential negative impact that the increase of offshore oil and gas exploration and exploitation activities in the Mediterranean Sea Area, may have on the marine and coastal environment, including the coastal and marine ecosystems and biodiversity of the Mediterranean Sea, as well as its potential socio-economic effects in the Area,

Recognizing the urgent need to identify, describe, assess, reduce or eliminate potential adverse impacts or effects on the coastal and marine ecosystems and biodiversity of the Mediterranean Sea, wherever possible resulting from these activities,

Recalling the mandate of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) as laid down in Decision IG. 19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Having considered the reports of the Second Meeting of the Barcelona Convention Offshore Oil and Gas Group (OFOG) Sub-Group on Environmental Impact (Athens, Greece, 27-28 June 2019) and the Third Meeting of the Barcelona Convention OFOG Sub-Group on Environmental Impact (Online, 3-4 June 2021),

1. *Adopt* the Guidelines for the Conduct of Environmental Impact Assessment (EIA) under the Offshore Protocol, set out in the Annex to this Decision herein after referred as EIA Offshore Protocol Guidelines (or Guidelines);
2. *Urge* Contracting Parties, which have not yet done so, to ratify the Offshore Protocol, in order to achieve its objectives in the Mediterranean region universally;
3. *Call upon* the Contracting Parties to make every effort for the effective implementation of the Guidelines with support from the Secretariat (REMPEC) for their implementation through resource mobilization (internal and external), technical cooperation and capacity building activities;
4. *Invite* offshore oil and gas industry partners operating in the Mediterranean Sea Area to give due consideration to the implementation the Guidelines, with a view to preventing or minimizing the potential negative impact of offshore oil and gas activities in the Mediterranean Sea Area and, as appropriate, to provide technical support to offshore facility operators.

Annex

Guidelines for the Conduct of Environmental Impact Assessment (EIA) under the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil

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List of Abbreviations / Acronyms

ALARP	As Low As Reasonably Practicable
BAT	Best Available Techniques
CP	Contracting Party
EBS	Environment Baseline Survey
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
IMAP	Integrated Monitoring and Assessment Programme
IOGP	International Association of Oil and Gas Producers
MAP	Mediterranean Action Plan
MEBS	Marine Environment Baseline Survey
OCF	Operator Compliance Factsheets
OFOG	Barcelona Convention Offshore Oil and Gas Group
ROV	Remotely-operated vehicle
SEA	Strategic Environmental Assessment
SPA	Specially Protected Areas
SPA/BD	Specially Protected Areas/Biological Diversity
SPR	Source-Pathway-Receptor

Guidelines for the Conduct of Environmental Impact Assessment (EIA) under the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)

1. Introduction

1. The aim of this document is to provide guidance on practical methods and approaches to assessing impacts and effects on the environment of activities as provided for in Article 1.d points (ii) and (iii) of the Offshore Protocol. The guidelines are not intended to be formal or prescriptive and are designed to support the development of an approach which is appropriate to an individual activity, and to consider subsequent impacts and effects as an integral part of the Environment Impact Assessment (EIA) process.

2. Relevant EIA provisions existing in Contracting Parties' legislation and or regulatory systems prevail.

3. The guidance provides advice on the EIA process and suggests methods and tools for identifying and assessing impacts, effects and risk to the environment. It is recommended that the relevant Competent Authority undertakes Strategic Environmental Assessment (SEA) prior to licensing oil and gas activities. The SEA is important as an assessment tool for area-based planning, formulation of governmental strategies and identification of data gaps at an early stage prior to licensing.

4. It should be emphasized that the principles listed in Article I.4 of the Mediterranean Action Plan permeate the Offshore Protocol and the current guidelines.

1.1. The EIA Process

5. This section describes the key stages in the EIA process, including the principles of EIA and the approach taken to identify baseline conditions and to evaluate the potential environmental impacts and effects associated with a proposed activity.

6. The EIA guidance in this document follows common legislative requirements and has drawn on a number of established guidance documents and best practice publications, as provided for in Appendix 1 to this document. This includes a clear and transparent determination of the magnitude of impacts of the proposed activities, the sensitivities and resilience of the receptors, and the impact receptor pathways. This is key to a successful and clearly auditable EIA process supporting statutory decision making.

7. EIA must be initiated in an early stage, in order to conclude before the final permit has been granted.

8. The EIA process is a series of assessments undertaken to ensure environmental issues are captured and considered throughout all stages of the activity development, from the initial plans through to the construction and the operation/monitoring/decommissioning stages. The EIA process is presented in a schematic way in Appendix 2. Wherever possible, assessments should use an evidence-based approach that is systematic and auditable to evaluate and interpret the potential marine, terrestrial and socio-economic impacts of proposed activities on physical, biological and anthropogenic receptors.

9. An EIA is an effective tool to determine mitigation measures for activity-specific impacts and effects. The views and concerns of consulted stakeholders, environmental authorities and the public concerned form an important part of any recommendations. The EIA should follow all relevant best practice throughout the process, ensuring appropriate mitigation recommendations are developed to

minimise the activity's adverse effects and to maximise positive environmental effects, wherever possible.

10. The aim of the EIA process is to identify, describe, assess, reduce or eliminate potential adverse impacts or effects wherever possible. It is a process that is informed by the best understanding of the baseline environment and the corresponding body of scientific knowledge and is focused on identifying the most effective mitigation solutions, and subsequently reassessing the potential residual environmental effects. The ALARP (As Low As Reasonably Practicable) methodology may also be considered.

11. The Competent Authority, environmental authorities, the public concerned, and stakeholder consultation are key factors in determining important data sources, the survey scope and design of the supporting technical studies, and the recommendation of mitigation measures. Consultation is crucial to understanding the limitations of the existing body of science and knowledge within relevant topics. Those limitations and the corresponding uncertainty in predictions of impacts and effects should be clearly exposed in the Environmental Impact Assessment report (EIA report). The Environmental Impact Statement (EIS) is the most common name given to the printed report which documents the results of the EIA process.

12. The EIA report to be provided by the operator for an activity should include a description of reasonable alternatives studied by the operator which are relevant to that particular activity, including, as appropriate, an outline of the likely evolution of the current state of the environment without implementation of the activity (baseline scenario), as a means of improving the quality of the EIA process and of allowing environmental considerations to be integrated at an early stage in the activity's design.

1.2. EIA Terminology

13. This section defines terms (in alphabetical order) that are relevant to the EIA methodology framework. Technical studies may use topic-specific terminology that differs from these definitions and these should be clearly defined.

14. **Activity:** concerning exploration and/or exploitation of the resources in the Protocol Area, including:

- (i) Activities of scientific research concerning the resources of the seabed and its subsoil;
- (ii) Exploration activities:
 - Exploration geophysics (Seismological, seismic, magnetic, gravity, electric, electromagnetic and well logging activities); surveys of the seabed and its subsoil; sample extraction and collection;
 - Exploration drilling;
- (iii) Exploitation activities:
 - Establishment of an installation for the purpose of recovering resource, and activities concerned therewith;
 - Development drilling;
 - Resource recovery, treatment and storage;
 - Resource transportation to shore by pipeline and loading of ships;

Maintenance, repair and other ancillary operations.

15. **Baseline:** the current state of the environmental, socio-economic (related to population and human health) or cultural domain prior to project construction or operation. The baseline incorporates the specific area of the activity and the surrounding, interconnected areas and components of the environment.

16. **Baseline scenario:** a description of reasonable alternatives studied by the operator which are relevant to the activity, including, as appropriate, an outline of the likely evolution of the current state of the environment without implementation of the activity.

17. **Effect:** the environmental, ecological, socio-economic (related to population and human health) or cultural consequences of activity-related impacts upon receptors of concern. Consequences are defined as beneficial or adverse. Predictions should be relative to the baseline, and incorporate any natural variability:

- a. Beneficial: a beneficial effect is one that improves the baseline conditions of receptors of concern e.g. increases in populations of rare or protected species, increases in the area or quality of habitats, or increases in local and regional economic activity;
- b. Adverse: an adverse effect is one that worsens the baseline conditions of receptors of concern e.g. decreases in populations of rare or protected species, reductions in the area or quality of important or protected habitats or sites, or decreases in local and regional economic activity;
- c. Direct: an effect that is the direct consequence of an activity-related impact;
- d. Indirect: an effect that is an indirect or secondary consequence of an activity-related impact. Indirect effects are likely to be spatially or temporally removed from the direct impacts;
- e. Temporary effect: an effect that is lasting for only a limited period of time and is not permanent;
- f. Permanent effect: an effect that is lasting or intended to last or remain unchanged indefinitely;
- g. Reversible effect: an effect that can be reversed either by the regenerative power of the environment or by mitigation measures;
- h. Irreversible effect: an effect that cannot be reversed either by the regenerative power of the environment or by mitigation measures.

18. **Environmental assessment:** a concise review document that describes the proposed development and identifies any impacts it is likely to have on the receiving environment together with any measure to reduce the significance of any impact.

19. **Impact:** the predicted, measurable changes in environmental conditions as a direct result of an activity-related action. Impacts are frequently constrained to the physical and chemical domains, but may also include biological aspects. Changes should be measurable, quantified or estimated in relevant units where possible, and defined as positive or negative. Predictions should be relative to the baseline and should incorporate any natural variability:

- a. Positive: a positive impact will cause an increase to the baseline condition of a receptor, such as an increase in the number of jobs in a given area;
- b. Negative: a negative impact will cause a decrease to the baseline condition of a receptor, such as a decrease in the area of a given habitat;
- c. Direct: an impact that is the direct result of an activity-related action. Direct impacts are likely to be spatially or temporally concurrent;
- d. Indirect: an impact that is an indirect or secondary result of an activity-related action. Indirect impacts are likely to be spatially or temporally removed from the direct impacts;
- e. Temporary impact: an impact that is lasting for only a limited period of time and is not permanent;
- f. Permanent impact: an impact that is lasting or intended to last or remain unchanged indefinitely;
- g. Reversible impact: an impact that can be reversed either by the regenerative power of the environment or by mitigation measures;
- h. Irreversible impact: an impact that cannot be reversed neither by the regenerative power of the environment nor by mitigation measures.

20. **Interacting Effects:** multiple effects upon a single receptor may interact in a number of ways, including:

- a. Additive Effects: the sum of all effects e.g. multiple impacts which would individually cause a population reduction, add together to produce a larger population reduction;

- b. **Synergistic Effects:** an interaction of effects upon a single receptor that causes an overall effect that is greater than the sum of the individual effects;
 - c. **Antagonistic Effects:** an interaction of effects upon a single receptor that causes an overall effect that is less than the sum of the individual effects;
 - d. **Combination Effects:** effects arising from an individual development in combination with effects from other plans or projects;
 - e. **Cumulative Effects:** the incremental effects caused by the combined effects of past, present or reasonably foreseeable activities and the development itself. This includes the combined effects of this activity in combination with other activities generating similar effects both temporally and spatially. Predictions should be relative to the baseline and incorporate any natural variability.
21. **Likelihood:** probability of occurrence, which does not imply that something is necessarily probable or certain. However, all potential impacts and effects must be considered in the EIA process and their environmental risk should be evaluated in terms of evaluation of their consequences and likelihood of occurrence.
22. **Magnitude:** the degree and importance of the change to the baseline conditions, and subsequent effects. Assessment of magnitude must consider all the relevant ecological, socio-economic or other aspects of the receptors concerned, including the legal aspects.
23. **Mitigation:** measures to avoid, cancel, reduce, ameliorate or abate adverse activity impacts or effects. Subcategories include:
- a. **Avoidance:** avoidance is the process of eliminating possible activity impacts at source, either through designing them out or through implementation of alternative methods. Also known as built-in mitigation;
 - b. **Minimisation:** minimisation is conceptually similar to avoidance but aims to reduce activity impacts at source where eliminating them may not be possible. Again, this may be through design considerations or through alternative methods;
24. **Offset:** compensation through measures to improve other sites undertaken where activity-specific mitigation is not possible or is unlikely to be effective. Offsetting activity is meant to target the same category of species/habitat, albeit in a different location, the replacement area.
25. **Pathway:** a mechanism or series of interactions (e.g. deposition of sediment, chemical reactions, or airborne noise) that results in an impact upon a final receptor (e.g. benthic organisms, terrestrial habitats or nearby residential properties). Pathways may be physical, chemical, biological or ecological or socio-economic processes or interactions, and may include intermediate stages.
26. **Receptor:** a specific component of the baseline environment or socio-economic domain that will be, or is 'likely' to be, affected by the impacts or effects of the activity. This could be a single entity such as a species or community, or a conceptual grouping such as a population or subset of an ecosystem or an ecosystem itself. A receptor may be affected only by the specific activity proposed, or by the proposed activity and other relevant activities in combination.
27. **Residual Effect:** the remaining effect after mitigation measures have been applied to reduce predicted activity-related effects.
28. **Sensitivity:** the sensitivity of a receptor is the degree to which it may be affected by activity-related impacts or effects. Sensitivity is a component characteristic that will determine the magnitude of effects and is independent of value or legal status.
29. **Source:** the origin of an impact. This will be an aspect of the activity, and will typically be activity-related actions, or a direct result of the development of the activity (e.g. ground preparation and construction activities).

30. **Source-Pathway-Receptor Analysis:** a formal approach to assessing the flow of changes and consequences from a source of impacts to all final receptors. Analysis incorporates the best current scientific understanding of the processes involved, logical cause-and-effect, and considers the relevant characteristics of all receptors and interactions.

31. **Study area:** Made up of the i. site area/project site where the project is located and ii. impact area/zone of influence. The site area will include at least the maritime area that is up to 2 km away of all the components of the project (except piping, 300 meters from piping in deep water and 1 km on the continental shelf). The impact area/zone of influence includes the wider area that might be impacted as a result of ongoing operation or an incident during drilling or production.

32. **Transboundary effects:** Those caused beyond the limits of one Contracting Party's jurisdiction from activities exercised under its jurisdiction, in line with the Barcelona Convention Article 4.3.(d) and Offshore Protocol (Article 26).

33. **Value:** the intrinsic worth or importance of a receptor. This may be characterised by different factors according to the receptor considered e.g. species rareness or legal protection, financial worth, aesthetic beauty, or historic importance.

2. EIA Screening

2.1. When is an EIA Required?

34. An obligation to undergo an EIA can be linked either to a particular activity type / category (see Section 2.3) or it might be determined through a screening process by a given set of criteria or thresholds (see paragraph 36) or on a case-by-case examination. Determination through screening depends on applicable regulatory provisions and it should be required for activities with likely significant effects on the environment in the absence of any legal provision specifically requiring an EIA-or foreseeing that no EIA is required.

35. Screening is a process that determines whether an EIA is required for a particular activity, including project changes, license modifications and renewals. It is carried out by the Competent Authority based on the information provided by the operator and other available information, such as results of preliminary verifications or assessments of the effects on the environment. The process of screening occurs in the initial development stages of the activity.

36. During the screening process, the following criteria should be used to determine whether an EIA is required:

- a. Physical presence;
- b. Production of wastes and relevant emissions, discharges and expected residues;
- c. Production of underwater noise;
- d. The characteristics of the activity (e.g. size and design of the whole activity, use of natural resources, production of waste, pollution and nuisances, risk of major accidents and/or disasters which are relevant to the activity concerned, risks to human health etc.);
- e. The cumulation with other existing activities and/or approved activities;
- f. Location of the activities, close to or within an environmentally sensitive geographical area (including relative abundance, availability, quality and regenerative capacity of natural resources in the area and its underground and absorption capacity of the natural environment);
- g. Type and characteristics of the potential impacts (e.g. magnitude and spatial extent, nature, transboundary nature, intensity and complexity, probability, expected onset, duration, frequency and reversibility, cumulation of the impact with the impact of other existing and/or approved activities, possibility of effectively reducing the impact).

2.2. Obtaining a Screening Opinion

37. A formal screening opinion is required from the Competent Authority concerning the need for an EIA. The Competent Authority will identify whether or not an activity is likely to have significant effects on the environment. If significant effects are considered likely, then an EIA will be required. Each individual activity should be reviewed on their individual merits, whereby the Competent Authority will determine the requirements for an EIA, as part of the screening decision.

38. Where a formal screening opinion has been made by the Competent Authority, the screening opinion, including a statement of the main reasons for the requirement or not of an EIA, should be recorded and made available to the public.

39. In the case of an environmental assessment not necessarily through the EIA procedure (hereinafter referred to as environmental assessment), the Competent Authority reserves the right to request an EIA, following the outcomes of the environmental assessment. Guidelines on the conduct of an environmental assessment can be found in Section 4.

2.3 Activities requiring an EIA

40. The list of activities requiring EIA presented below applies in cases where there are no national lists in place. The list includes but is not limited to:

- a. The extraction of 500 tonnes or more of oil per day or 500,000 m³ or more of gas per day other than as a by-product of the drilling or the testing of any well;
- b. The construction of transportation pipelines, where the pipeline is more than 40 km in length and the diameter of the pipeline is more than 800 mm;
- c. Any change to or extension of the above activities, where the change or extension itself meets the thresholds, and renewals of licences / permit expiry / renewal of the above activities in accordance with Article 5 of the Offshore Protocol;
- d. Activities which could have significant effect on a formally designated protected area (e.g. Specially Protected Area), including the use of airguns or explosives, as appropriate.

41. No screening is required in the case of the above list of activities requiring EIA and for activities included in national lists for which EIAs are required without prior screening or when national EIA provisions do not require EIA based on previous screening and/or threshold approach, this is considered as a negative screening.

2.4 Exemptions for Undertaking an EIA

42. Where the sole purpose of the activity is that of national defence or a response to civil emergency and, in the opinion of the Competent Authority complying with the EIA requirements would have an adverse impact on that purpose, an activity may be exempt from undertaking an EIA on a case-by-case basis and if so, provided under the national law. However, it is recommended to conduct an assessment of the impacts after the fact, if the activities undertaken during the emergency meet the screening criteria provided in paragraph 36.

3. EIA Guidance for Offshore Activities

3.1. Scoping

43. Scoping is the process of determining the scope and level of detail of the environmental information to be covered in the EIA report.

44. Depending on the activity and local sensitivities, it is advised to consult with relevant stakeholders during the scoping process to determine the scope of the EIA report. The stakeholders include a range of statutory and non-statutory consultees.

45. Generally, the Competent Authority (responsible for authorizing EIAs and administratively separate from authorities promoting offshore economic development) will provide feedback on key environmental matters which should be addressed in the EIA report. The Competent Authority shall consult the environmental authorities before providing this feedback. All scoping activities should be recorded and included as appendices to the EIA report.

46. Key regulators and stakeholders should be consulted on the scope of desk-based assessments, survey design and sample analyses, modelling studies and impact assessments to be undertaken, where necessary. Further consultation should be ongoing throughout the development of the EIA report to ensure all relevant available data sources are identified and incorporated. Details of the consultations with the relevant Competent Authority and stakeholders should be summarised in the relevant chapters of the EIA report.

47. During the scoping process, it is important to identify potential data gaps or uncertain datasets and acknowledge limitations of datasets, and to attempt to fill those gaps or find alternative datasets to support scoping assessment. Where alternatives cannot be found, it is important for the assessment to characterise any uncertainty within the supporting data or the underlying body of scientific knowledge, and to recognise and communicate any corresponding uncertainty in predictions of impacts and effects.

3.2. Baseline Data Collection

48. A methodology guidance for monitoring set out in the list of parameters document (UNEP(DEPI)/MED WG.434/4), outlines the requirement for operators to undertake an evaluation of the baseline marine environmental conditions of the area of potential impact from the planned activities, conducted via a desktop review and supplemented by field-based studies if required, based on the lifecycle stage of the planned activity and the availability of existing information.

49. For activities which require an EIA, recently obtained site-specific environmental data, and a summary of the results of physical environmental baseline surveys should be presented in the EIA report.

50. Additional information on a recommended standard for seabed sampling programmes is provided in UNEP/MED WG.476/Inf.5 Rationale for the Common Standards and Guidance on the Disposal of Oil and Oily Mixtures and on the Use and Disposal of Drilling Fluids and Cuttings.

3.2.1. Desktop Data Gathering

51. A desktop evaluation of the baseline conditions of the marine environment should be conducted prior to commencing activities, documenting the condition of the marine environment for the area of potential impact from the activities. Environmental baseline data should be sufficient to characterise the area of potential impact, including regional and local biodiversity, locations of sensitive habitat and resources, and impact from other users of the resource (e.g. fishermen), so that potential impacts from the activities on all components of the marine environment can be adequately assessed within the EIA and monitored by the operator over the duration of the activities.

52. Gap analysis of the desktop data identified will provide advice on which additional data is to be collected to augment the data gaps during subsequent field studies to the appropriate level of detail required for the EIA.

3.2.2. Environmental Baseline Surveys

53. In order to be able to assess and monitor any future change, a scientifically robust data set should be collected to determine the present environmental conditions (i.e. the baseline) of the activity location.

54. A well-designed environmental baseline survey will allow any changes in environmental conditions in the local area to be observed in the future, as well as to determine whether these changes are the result of the proposed activities or are due to natural variation or other external factors.

55. The environmental baseline survey should collect geophysical data (bathymetry, seabed features, etc.), as well as an adequate number of seabed samples for faunal identification, sediment characterisation and chemical analysis (e.g. particle size analysis, organic contaminants, heavy metals, etc.). The use of stills photography and drop-down video is a non-destructive method, which can be used for habitat assessment.

56. Additional baseline data that may be useful to collect include local hydrodynamic, metocean and water quality conditions in the area (e.g. local wind, currents, seawater and air temperatures, salinity and sediment transport).

57. Further guidance on Environment Baseline Survey (EBS) is provided in the list of parameters document (UNEP/DEPI/MED WG.434/4) submitted to the 1st OFOG Meeting held in Loutraki Greece, in April 2017, in which a number of Operator field environmental monitoring (including baseline environmental evaluation) criteria are proposed as follows:

- a. A field marine environment and seafloor surveys be undertaken to supplement the desktop-sourced baseline data where there are gaps found within desktop-sourced information and/or where the activity warrants such further evaluation;
- b. A pre-activity Marine Environment Baseline Survey (MEBS), gathering data regarding the baseline marine environment within the area of potential impact from the activity e.g. water and sediment, from sufficient sampling locations over the full area of potential zone of impact in order to provide a statistical representation of the baseline conditions in the area, as well as from sampling locations further afield for use as points of regional reference.
- c. Pre-activity Seafloor Survey (such as high resolution side scan sonar survey, 3D shallow hazards assessment, Remotely Operated Vehicle (ROV) video survey, etc. including the use of updated surveying future technologies) should be undertaken documenting site area and impact area seafloor conditions. The survey results will provide a reference for potential spatial and temporal changes in environmental conditions on the seafloor which may result from the activity.

58. All surveys should be designed in consideration of the Integrated Monitoring and Assessment Programme (IMAP) Common indicators described in UNEP/MED WG.476/Inf.4 Rationale for the Guidelines for the Conduct of Environmental Impact Assessment (EIA). More information on environmental survey strategies and the methodologies can also be found in UNEP/MED WG.476/Inf.5 Rationale for the Common Standards and Guidance on the Disposal of Oil and Oily Mixtures and on the Use and Disposal of Drilling Fluids and Cuttings.

59. The Operator Compliance Factsheets (OCF) should be used when collecting environmental data for the relevant common and candidate indicators. The completed OCFs (UNEP/DEPI)/MED WG. 434/inf.6) should be submitted to the Competent Authority of each country for authorisation and/appropriated corrective action, if necessary.

3.3. Impact Assessment Methodology Framework

3.3.1. Describing and Valuing the Baseline

60. A thorough understanding of the environment and the receptors that are likely to be affected by the proposed activity is essential for making predictions of potential impacts and effects, and for making appropriate mitigation recommendations. It is important to describe the presence or absence of relevant receptors, their current condition, natural variability, and any other characteristics relevant to

impact assessments. Valuations of receptors and the methodology employed should also be included. Details of the valuation methodology are described in Section 3.4.3 Valuation of Receptors.

61. The description of the baseline should incorporate both desk-based research and field survey data. Before commencing surveys or technical studies, guidance and agreement should be sought from the Competent Authority regarding appropriate data sources, desk-based assessments, survey design and sample analyses, modelling studies and appropriate stakeholder consultation. The scope of surveys and technical studies should consider the nature of activities and the corresponding zones of influence, the sensitivities of likely receptors, and potential pathways for activities to affect receptors. Formal analysis of potential pathways is known as source-pathway-receptor analysis, and a full description is provided in Section 3.3.4 Source-Pathway-Receptor Analysis.

3.3.2. Data Gaps and Uncertainty

62. During the EIA process, it is important to identify potential data gaps or uncertain datasets, acknowledge limitations of datasets, and attempt to fill those gaps or find alternative datasets to support impact assessment. Where alternative datasets cannot be found, it is important for the assessment to characterise any uncertainty within the supporting data or the underlying body of scientific knowledge, and to recognise and communicate any corresponding uncertainty in predictions of impacts and effects.

3.3.3. Identifying Impacts and Effects

63. The terms ‘Impact’ and ‘Effect’ are frequently used interchangeably in many published EIA reports and in certain guidance documents. The Offshore Protocol requires that “an application must include a survey concerning the effects of the proposed activities on the environment”. The distinction between impacts and effects (and their magnitude) is important for the overall assessment of the significance of effects described in Section 3.4.5 Assessment of Significance of Effects.

64. The Offshore Protocol stipulates the requirement for EIAs to describe and assess the “foreseeable direct or indirect short and long-term effects” of the activity. In particular, Annex IV to the Offshore Protocol requires:

- A description of the likely effects of the activity on the environment;
- A description of the features of the activity and/or measures proposed in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment, including possible alternatives.

65. The nature and characteristics of impacts and effects differ according to the topic and should be described in detail in the relevant EIA report chapters.

3.3.4. Source-Pathway-Receptor Analysis

66. Determining which receptors may be affected by activity-related actions relies on Source-Pathway-Receptor (SPR) analysis for the identification of impacts and consequential effects. The SPR Analysis process is presented in a schematic way in Appendix 3. SPR considers all potential routes and mechanisms for impacts to affect all potential receptors along predicted pathways. Pathways are processes or series of interactions that result in an impact upon a final receptor.

67. In some cases, receptors affected by activity related sources may themselves have effects upon other receptors, for example where there are effects on food webs or predator-prey relationships. SPR analysis should also identify all pathways and receptors when considering complex interactions where several inter-related receptors may be affected. In these cases, receptors may be affected in different ways and to different extents. For this reason, assessment of effects may need to be an iterative process, identifying several ultimate receptors, each with differing magnitudes of effects (Appendix 3).

3.4. Description and assessment of Impacts and Effects

68. All impacts identified as being potentially significant during the scoping phase should be taken forward for detailed assessment in the EIA report. Each impact should be described, quantified and assessed.

69. Although not an exhaustive list, a number of potential impacts associated with typical offshore oil and gas activities have been listed below. The assessment of the impacts should address all the phases of the project – construction/installation, pre-commissioning and commissioning, operation and decommissioning.

Seismic survey:

- a. Underwater noise generation on marine mammals and fish;
- b. Physical presence (e.g. survey vessel, streamers etc.) on other users of the sea and marine animals.

Drilling (exploration and production):

- a. Physical presence on other users of the sea and the seabed and associated communities (e.g. benthos);
- b. Drilling discharges (e.g. drilling muds, cement etc.) affecting the seabed and associated communities (e.g. benthos), water column and associated communities (e.g. fish);
- c. Atmospheric emissions (e.g. power generation, flaring etc.) on the atmosphere (local, transboundary and cumulative);
- d. Underwater noise generation on marine mammals and fish;
- e. Unplanned/accidental events (e.g. hydrocarbon spills) may affect plankton, benthos, coral reefs, fish, shellfish, marine mammals, marine turtles, seabirds, seagrass beds, designated sites, coasts and inshore habitats and other users of the sea;
- f. Waste management activities.

Production:

- a. Physical presence on other users of the sea and the seabed and associated communities (e.g. benthos);
- b. Oily discharges (e.g. produced water) on water column and associated communities (e.g. fish);
- c. Atmospheric emissions (e.g. power generation, flaring etc.) on the atmosphere (local, transboundary and cumulative);
- d. Accidental events (e.g. hydrocarbon spills) on plankton, benthos, coral reefs, fish, shellfish, marine mammals, marine turtles, seabirds, seagrass beds, designated sites, coasts and inshore habitats and other users of the sea;
- e. Waste management activities.

Pipelines (the main impacts of pipelines – during the laying and operation phases should be stated, including):

- a. Transportation of hydrocarbon from production or non-production installations onshore;
- b. Suspension of sediment particles during construction and sedimentation on sensitive hard substrate habitats;
- c. Underwater noise;
- d. Lighting during construction phase, especially in shallow waters;
- e. Unplanned/accidental events (e.g. hydrocarbon leakage) on plankton, benthos, coral reefs, fish, shellfish, marine mammals, marine turtles, seabirds, seagrass beds, designated sites, coasts and inshore habitats and other users of the sea.

70. Recognition of potential cumulative and transboundary impacts from the proposed activities should also be considered when assessing impacts and effects and included within the EIA report.

71. The Common Standards and Guidelines for Special Restrictions or Conditions for Specially Protected Areas (SPA) within the Framework of the Mediterranean Offshore Action Plan should be

taken into consideration for the assessment of activities on a formally designated area (e.g. SPA), in accordance with the Specially Protected Areas/Biological Diversity (SPA/BD) Protocol provisions.

3.4.1. Characterising and Assessing the Magnitude of Impacts

72. Predictions on changes in baseline conditions are made relative to the baseline. These should be measurable, and quantified or estimated, where possible. The characterisation and assessment of the magnitude of impacts are made according to the receptors affected and require receptor-specific context. Therefore, threshold values for specific factors such as area, frequency or duration should be provided within the relevant EIA report chapters.

3.4.2. Characterising and Assessing the Magnitude of Effects

73. The magnitude of potential environmental effects for each receptor should be assessed independently of its value or designated status. Even where high value receptors utilise the site, the magnitude of the effect upon those receptors may be relatively low if the habitat affected is relatively unimportant to them. Examples where the magnitude of effects upon high value receptors of concern may be low:

1. Loss/reduction of habitats of receptors that are a very small proportion of their foraging range;
2. Loss/reduction of habitats of receptors whose ranges are increasing;
3. Loss/reduction of habitats of receptors that are of very poor quality;
4. Loss/reduction of habitats not used for the purposes of breeding, sheltering or overwintering;
5. Loss/reduction of habitats of receptors that have many alternatives sites.

74. The sensitivity of each receptor must be considered when assessing the likely magnitude of the effect. Ecological sensitivity is defined as the relative change of a system or population in relation to the level of disturbance or perturbation (Miller et al., 2010). The sensitivity of socio-economic and socio-ecological systems may be defined in a similar manner (Holling, 2001).

75. The magnitude of ecological effects will be a product of the activity-specific impacts and the receptor specific characteristics that make those receptors sensitive or responsive to the relevant impacts. Definitions for topic-specific characteristics should be provided in individual EIA report chapters and should incorporate any receptor-specific guidelines and best practice.

3.4.3. Valuation of Receptors

76. The next stage is to determine the ecological, socio-economic or heritage value of the affected receptor. The methods and criteria for assigning value need to be specific to individual receptors and should be detailed in relevant EIA report chapters.

77. Special attention should be given to the receptors typically affected by offshore activities, including:

- a. Benthos;
- b. Coral reefs;
- c. Fish and shellfish;
- d. Marine mammals;
- e. Marine reptiles;
- f. Plankton;
- g. Seabirds;
- h. Seagrass beds;
- i. Nature Conservation Areas and/or sensitive areas formally designated (e.g. Specially Protected Areas);
- j. Other users of the sea e.g. fishing, shipping, tourism and recreation, oil and gas activities, renewable energy, submarine cables, military activity, aquaculture, archaeology etc.

3.4.5. Assessment of Significance of Effects

78. The significance of each effect is determined by scoring the value of the ecological, socio-economic or heritage feature against the magnitude of the predicted effect. This methodology is applied individually with respect to the specific ecologic, socio-economic or heritage characteristics of each receptor.

79. The level of effect significance is used to determine the use and level of mitigation measures. Where a potential effect is assessed as 'moderate' or 'major', then this should be considered "significant" in EIA terms. So far as practicable, mitigation (including offsetting) should be identified that reduces the potential magnitude or significance of effects, or the likelihood of significant effects. Minor adverse effects would not usually require any action beyond standard good management practices.

80. Mitigation recommendations should be explored as part of the EIA process for all 'moderate' and 'major' effects. Effects are reassessed as described above until either the effect significance is reduced to acceptable levels ('Minor Adverse' or 'Negligible') or no more mitigation can be applied. Residual effect significance is estimated, from which consenting decisions can be made.

3.4.6. Environmental Risk Assessment

81. It is also important to consider the likelihood that a potential effect could occur as predicted. Therefore, once the magnitude of an effect has been determined, the probability of the effect occurring should be categorised into a number of classifications ranging from 'Certain' to 'Extremely Unlikely'.

82. The reason for including an 'Extremely Unlikely' category is that while some potential effects may be very improbable, they may also be extremely serious should they occur, resulting in major adverse effects on some receptors. These cases will require contingency plans to be put into place. Where doubt exists between two categories within the scale of probability, a precautionary approach should be adopted, and the more conservative category selected.

83. Risk management strategies include managing or breaking receptor pathways, and/or protecting receptors. Mitigation measures or strategies to reduce environmental risk should be addressed for relevant activities that may cause operational pollution, "business-as-usual" as well as accidental events. Their subsequent influence on residual effects should be assessed for relevant receptors.

84. For accidental events, where it may not be possible to reduce the magnitude of potential impacts or effects, the overall environmental risk may be decreased by reducing the likelihood of an adverse event occurring through adequately designed-in mitigation measures (Gormley et al., 2011).

85. The assessment methodology used should be clearly described in the relevant EIA report chapter.

3.5. Cumulative and Transboundary Effects

86. Cumulative effects are those caused by the combined effects of past, present or reasonably foreseeable activities in the wider area and the activity itself. Assessment of in-combination effects considers other marine and terrestrial activities generating effects over similar temporal and spatial extents. Assessment of cumulative effects should consider all potential interacting effects. The assessment of cumulative effects should draw upon established guidelines and methodologies.

87. Factors considered in scoping other activities in or out for assessment of cumulative and transboundary effects should include connectivity, effects pathways, species distribution and foraging ranges. Consultation with the Competent Authority should be undertaken to confirm that the selection

of activities included is complete, and that the approach to the assessment of cumulative and transboundary effects is correct. Details regarding the rationale for considering cumulative and transboundary effects should be provided within relevant EIA report chapters.

3.6. Mitigation and Offsetting

3.6.1 Mitigation Measures and Residual Effects

88. The term mitigation is used in general to cover all efforts used to reduce potential impacts (and consequently, effects). These may include design changes, alteration of proposed methods, or other activities, in addition to the core activities to reduce or ameliorate impacts.

89. Mitigation measures are predominantly applied at source, to reduce impacts, with the intention of a corresponding reduction in residual effects upon the receptors in question. However, mitigation may also be applied directly at the receptor-level, with the intention of reducing effects, without any influence on the source or the impact.

90. All the mitigation recommendations described within the EIA report should be based upon the realistic worst-case scenarios and on the Best Available Techniques (BAT) approach, ensuring that all measures described are adequate to ameliorate the range of predicted effects. Mitigation recommendations may be revised during the determination of application.

3.6.2 Mitigation and Monitoring

91. Mitigation measures should be predominantly applied at source, to reduce impacts, with the intention of a corresponding reduction in residual effects upon the receptors in question to acceptable levels. However, mitigation may also be applied directly at the receptor-level, with the intention of reducing effects, without any influence on the source or the impact.

92. Many oil and gas operators are multinational companies, which operate in different countries under multiple regulatory regimes and are typically managed through their global corporate management systems to ensure all regulatory standards are met wherever they operate. Many offshore oil and gas activities do have inherent mitigation measures in place, as part of their “normal” operational procedures and practices. Such mitigation measures should, nevertheless, be assessed/reviewed on a case-by-case basis in order to make sure they correspond to the needs as identified through the EIA and should be included in the EIA report as a way to demonstrate that the impacts are being managed.

93. All environmental mitigation and monitoring requirements should be stated within the EIA report and the decision to grant development consent and should be taken forward in an Environmental Management Plan (EMP). In line with the requirements set out in the IMA, regular Operator Environmental Performance assessments should be carried out by an independent/third-party to assess and evaluate the operator’s environmental performance throughout the operations against that stated within the EIA report.

3.6.3 Compensation and offsetting

94. Compensation measures should be considered separate from mitigation. Compensation refers to ‘measures taken to make up for the loss of, or permanent damage to, biological resources through the provision of replacement areas’. Replacement areas should seek to offset as many of the features that were lost as possible.

3.7. The Environmental Impact Assessment Report

95. An EIA report submitted to the Competent Authority must identify, describe and assess the effects of the proposed activities on the environment, socio-economic and cultural domain, the

mitigation measures, information on geographical location, safety measures, contingency plan, operator details, monitoring and decommissioning procedures, precautions for Specially Protected Areas and information about responsibilities for any environmental damage.

96. Annex IV to the Offshore Protocol provides the minimum criteria that every EIA report must contain.

3.7.1 Content and Structure

97. The Environmental Impact Assessment report should contain, if not otherwise foreseen by national legislation at minimum:

- a. A description of the methods, installations and other means to be used, and possible alternatives to such methods and means and justification of the selected option;
- b. An indication of the nature, aims, scope and duration of the proposed activities;
- c. A description of the initial state/baseline of the environment of the area;
- d. A description of the reasonable alternatives to the proposed activities studied by the operator which are relevant to the project and its specific characteristics;
- e. A description of the geographical boundaries of the area within which the activities are to be carried out, including safety zones, where applicable;
- f. A reference to the methodology used for the environmental impact assessment;
- g. A description of the foreseeable direct or indirect short and long-term effects of the proposed activities on the environment, including fauna, flora and the ecological balance;
- h. A statement setting out the measures proposed for reducing to a minimum the risk of damage to the environment as a result of carrying out the proposed activities, including possible alternatives to such measures;
- i. An indication of the measures to be taken for the protection of the environment from pollution and other adverse effects during and after the proposed activities;
- j. An indication of whether the environment of any other State is likely to be affected by the proposed activities;
- k. Details of the environmental monitoring programme and the management plan.

3.8. Regulator Review and Public Consultation

98. After submission of the EIA report to the Competent Authority, it will be subject to a formal public consultation period. The general public should be notified that an EIA report has been submitted to allow for any persons or third parties likely to be interested in, or affected by, the relevant activity to comment. Notifying the public is typically undertaken through the publication of a notice in a newspaper or other publication inviting comments on the EIA report. Taking into account the wider significance of the activities and best practice, publication should take place electronically and for free (via the internet). It is recommended that a deadline for the submission of comments be applied to the consultation period e.g. 30 days after the date of public notice. Any comments raised during the public consultation must be sent to the Competent Authority.

99. If the Competent Authority considers that an activity could have a significant effect on the environment of an adjacent State, or where that State considers that its environment is likely to be significantly affected by the activity, the adjacent State should be invited to participate in the consultation process. The Competent Authority should always consider that the environment of an adjacent State is likely to be affected, if this possibility cannot be excluded with certainty on the basis of submitted information.

100. Once the consultation has concluded, the Competent Authority will undertake its review. The review is the process of establishing whether the environmental information submitted by the operator, as part of an EIA procedure, is adequate to grant consent. The review can be undertaken by the Competent Authority or by an independent organisation on behalf of the Competent Authority. The result of the public consultation with all questions and provided answers must be publicly available.

Relevant public comments must be taken into consideration and must be specifically addressed by the Competent Authority. Maastricht guidelines on public consultation (United Nations, 2015) should be considered best practice and is recommended.

101. Where the EIA report is considered to be inadequate, the operator will be asked to provide additional information and the consent decision process will not start until this information has been provided. There will usually be a procedure for appeal against requests for further information.

102. Following receipt of the operator's response, the Competent Authority will take the additional information into consideration when reviewing the submission. If the additional information is considered to be integral to the decision, it will also require the additional information to be subject to a further round of public consultation.

103. Where there are significant additional information requirements, the Competent Authority may request a formal addendum to the original EIA report, or even suggest that the operator should prepare a new EIA report, and the entire review process would have to be repeated.

3.9. Decision Making (Consenting)

104. Once all the issues raised during the consultation process and the Competent Authority's review have been resolved, authorisation will only be granted if the authority is satisfied that the activity is unlikely to have a significant impact on the receiving environment and that the installation has been planned, in accordance with accepted international standards and practice. The operator should also demonstrate the technical competence and financial capacity to carry out the activities.

105. Authorisation shall be refused if there are indications that the proposed activities are likely to cause significant adverse effects on the environment that could not be avoided by compliance with the conditions laid down in the authorisation. These conditions concern measures, techniques or methods designed to reduce to the minimum risks of and damage due to pollution resulting from the activities, as referred to in Article 6, paragraph 3 of the Offshore Protocol.

106. When considering approval of the siting of an installation, the Competent Authority should ensure that no detrimental effects will be caused to existing facilities, in particular, to pipelines and cables.

107. The Competent Authority will examine the EIA report against the requirements listed in the Offshore Protocol. Authorisation will be granted when the Competent Authority is satisfied with the information provided and that there are no environmental objections to the issue of consent for the activities. Authorisation will specify the activities and the period of validity, geographical limits, technical requirements, installations and necessary safety zones. The authorisation may impose conditions to reduce risks and damage due to pollution resulting from the activities. Any changes to the proposed activity/project must be reported to the Competent Authority and shall be subject to screening or EIA. When a decision to grant or refuse consent has been taken, the Competent Authority shall promptly inform the public and the authorities.

4. Guidance for the conduct of environmental assessment

4.1. Permitting

108. Following the screening decision, in the case of an activity that qualifies for an environmental assessment, the information to be provided by the operator should address the following aspects:

- a. A brief description of the activity, methods, installations and other means to be used during their entire lifespan;
- b. A brief description of the nature, aims, scope and duration of the proposed activities;
- c. A brief description of the initial state/baseline of the environment of the area;
- d. A brief description of the geographical boundaries of the area within which the activities are to be carried out, including safety zones, where applicable;
- e. A brief description of the potential direct or indirect, short and long-term effects of the proposed activities on the environment, including fauna, flora and the ecological balance;
- f. A description of the mitigation measures in place to avoid/minimise the risk of damage to the environment through pollution during and after the proposed activities;
- g. A notification, as per Article 17 of the Protocol, on whether it is likely that the environment of another State is to be affected by the proposed activities.

109. In describing the above points, the operator may consider the following provisions:

i. Description of Activity

110. A description of the activity including the activity methodologies, location of activity and work programme should be provided.

ii. Activity Schedule

111. The environmental assessment should confirm the proposed start date and duration of the activities. The schedule should also take into account potential delays, as there may be seasonal differences in environmental sensitivities.

iii. Description of Environmental Baseline

112. A description of all aspects of the environment likely to be affected by the activity should be included. Particular attention should be made to environmentally sensitive geographical areas, which are likely to be affected by the activity, including any protected species or habitats. Maps should be included, where relevant, to supplement the environmental baseline description. Consideration should also be given to other activities and users which use the location of the proposed activities, and the likely evolution of the current state of the environment without implementation of the project (baseline scenario).

iv. Significant effects of the activity

113. The Environmental Assessment should include any likely significant effects of the activity on the environment. The elements to be considered are shown in Section 2.1 paragraph 36.

v. Environmental Management and Mitigation Measures

114. Where relevant, any features or measures envisaged to avoid, prevent or reduce what might otherwise cause significant adverse effects on the environment should be included in the environmental assessment, as well as the monitoring and the management plan including oil spill contingency plan.

4.2. Permitting for the Use and Discharge of Chemical Additives

115. Details on the use and discharge of chemical additives are provided in separate guidance documents, including the Common Standards and Guidance on the Disposal of Oil and Oily Mixtures and the Use and Disposal of Drilling Fluids and Cuttings (Decision IG.24/9 Annex I) and the planned guidance on the use and discharge of harmful or noxious substances and material.

4.3. Regulator Review and Consultation

116. Environmental assessment (and chemical permit) applications will be reviewed by the Competent Authority and may also be subject to review by additional statutory consultees. Once all statutory requirements are met, the Competent Authority will issue a permit to undertake the proposed work. The permit may contain specific operational, temporal and reporting conditions/restrictions related to the proposed activities. Environmental assessment (and chemical permit applications) is not subjected to public consultation, so typically the permitting process will be much quicker than for activities that require an EIA.

4.4. Decision Making (Consenting)

117. When considering approval for environmental assessment (and chemical permit applications), consultee comments will be taken into consideration along with the outcome of the Competent Authority's review. If the information provided in the environmental assessment is acceptable, there are no objections from consultees and the Competent Authority is satisfied that the activity will not result in any significant adverse effects, the approval will be granted. If the Competent Authority is not satisfied, and considers the activity has the potential to cause significant adverse environmental effects, the application will be rejected. The Competent Authority will provide advice on how to proceed in this instance.

5. Bibliography

Gormley, A., Pollard, S, and Rocks, S., 2011. Guidelines for Environmental Risk Assessment and Management. Defra, London.

Holling, C.S., 2001. Understanding the Complexity of Economic, Ecological, and Social Systems. *Ecosystems*, 4(5), pp. 390-405.

Miller, F., Osbahr, H., Boyd, E., Thomalla, F., Bharwani, S., Ziervogel, G., Walker, B., Birkmann, J., Van Der Leeuw, S., Rockström, J., Hinkel, J., Downing, T., Folke, C. and Nelson, D., 2010. Resilience and Vulnerability: Complementary or Conflicting Concepts? *Ecology and Society*, 15(3), pp.11-35.

United Nations, 2015. Maastricht Recommendations on Promoting Effective Public Participation in Decision-making in Environmental Matters prepared under the Aarhus Convention Geneva.

ECE/MP.PP/10 - ECE/MP.EIA/SEA/5. Available at:

https://unece.org/fileadmin/DAM/env/pp/Publications/2015/1514364_E_web.pdf

Appendix 1
Reference documents

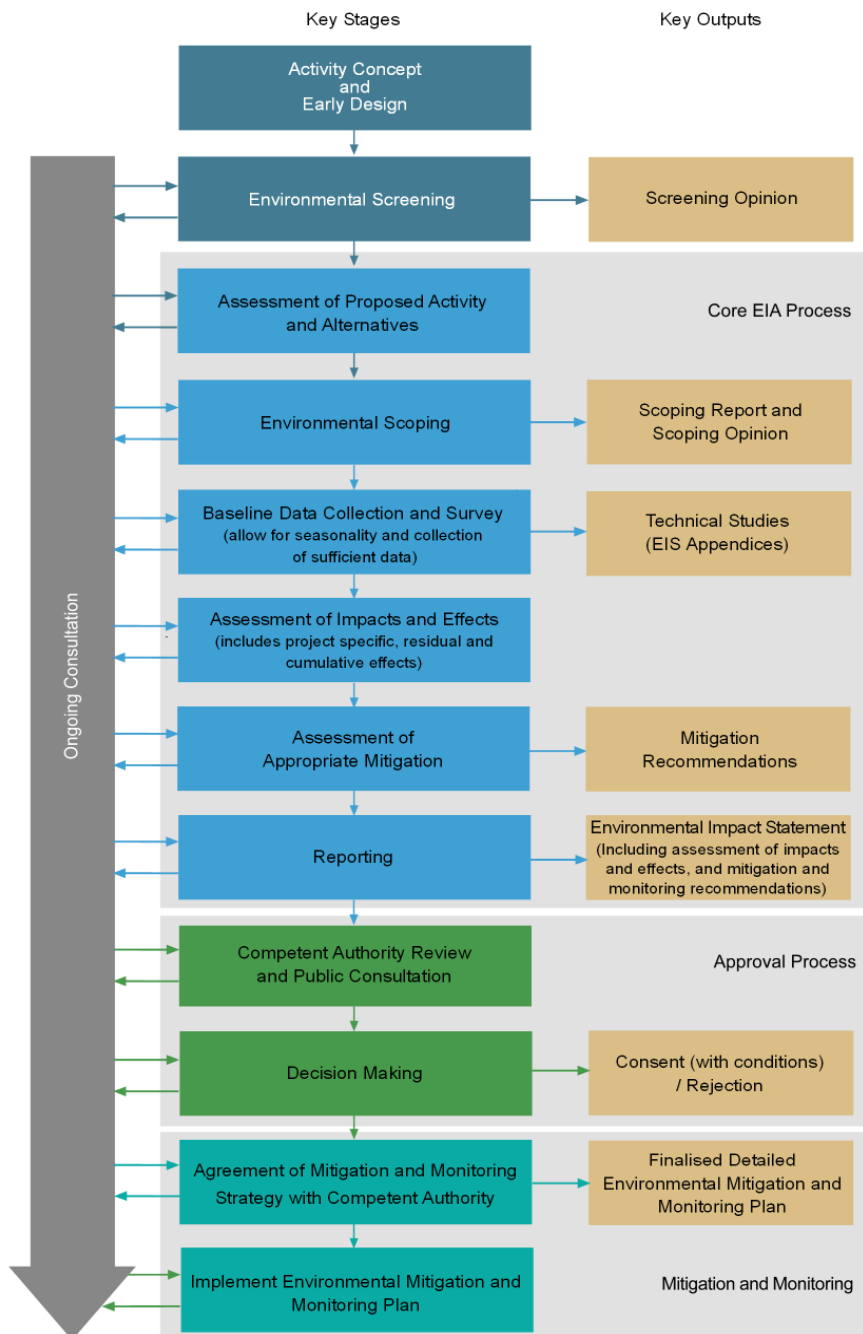
Reference documents

- BEIS Offshore Petroleum Regulator for the Environment and Decommissioning 2020. The Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020 – A Guide
www.gov.uk/government/publications.
- European Union. 2001a. Guidance on EIA – EIA Screening.
<http://ec.europa.eu/environment/eia/eiaguidelines/g-screening-full-text.pdf>
- European Union. 2001b. Guidance on EIA – EIA Scoping.
<http://ec.europa.eu/environment/eia/eiaguidelines/g-scoping-full-text.pdf>
- European Union. 2001b. Guidelines for the Assessment of indirect and cumulative impacts as well as impact interactions.
<http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf>
- European Union. 2001c. Guidance on EIA – EIA Review.
<http://ec.europa.eu/environment/eia/eiaguidelines/g-review-full-text.pdf>
- European Union. 2013c. Guidance on the application of the environmental impact assessment procedure for large-scale transboundary projects.
<http://ec.europa.eu/environment/eia/pdf/Transboundry%20EIA%20Guide.pdf>.
- IOGP 2020. Environmental management in the upstream oil and gas industry. IOGP Report 254.
<https://www.iogp.org/bookstore/product/environmental-management-in-the-upstream-oil-and-gas-industry/>
- REMPEC/WG.45/INF/16 Rational for the draft guidelines for the conduct of the Environmental Impact Assessment (EIA) - and references therein.
- REMPEC/WG.35/INF.3 Study on International Best Practices - and references therein.

Appendix 2

Key stages and outputs of the EIA process

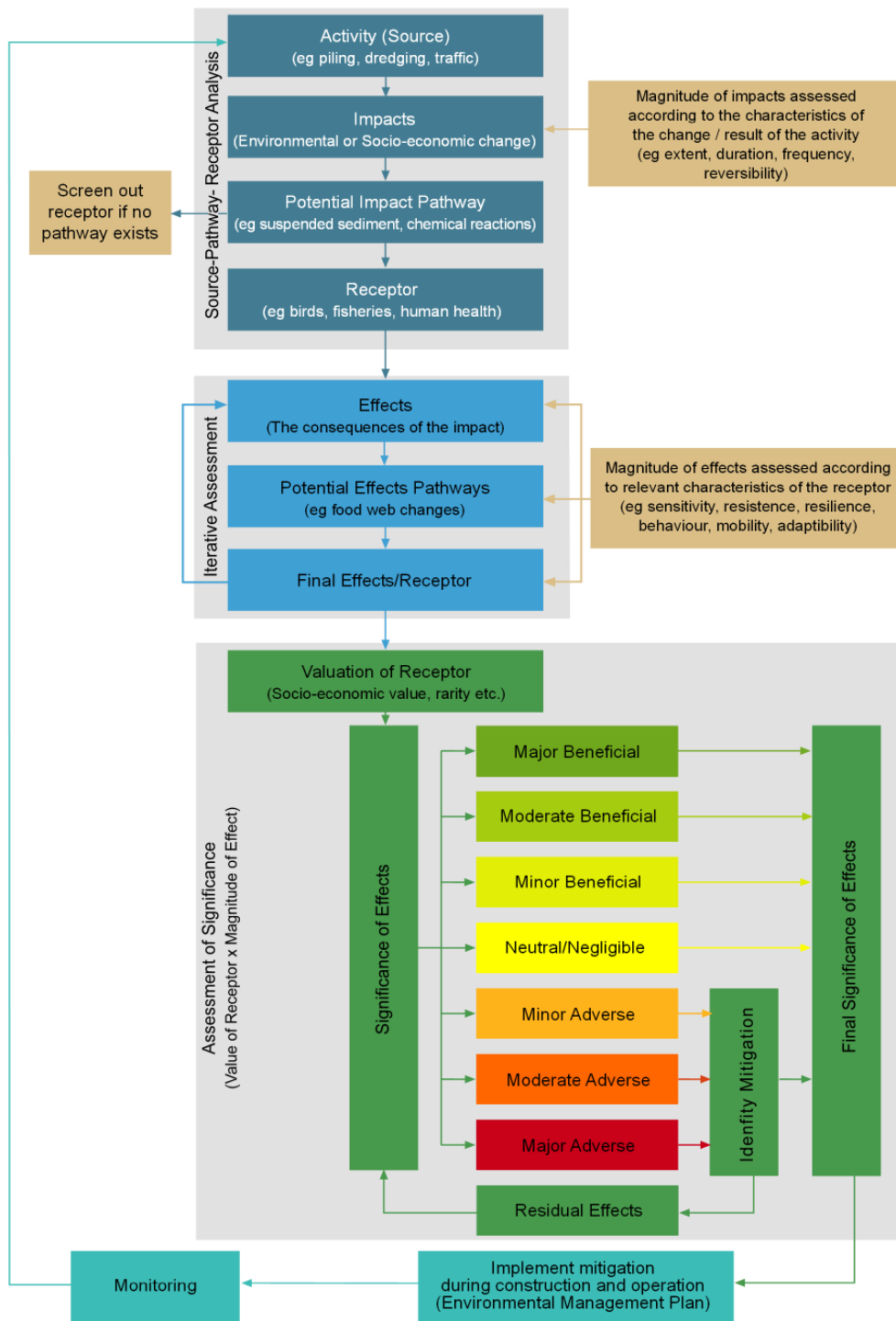
Key stages and outputs of the EIA process



Appendix 3

Source-Pathway-Receptor analysis, assessment of significance of effects, and implementation of mitigation and monitoring measures

Source-Pathway-Receptor analysis, assessment of significance of effects, and implementation of mitigation and monitoring measures



Draft Decision 25/16

Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031)

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res. 21 of 15 March 2019, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, in particular Article 6 thereof, whereby Contracting Parties shall take all measures in conformity with international law to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area caused by discharges from ships and to ensure the effective implementation in that Area of the rules which are generally recognised at the international level relating to the control of this type of pollution,

Having regard to the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, in particular Article 4 thereof, whereby the Parties shall take measures in conformity with international law to prevent the pollution of the Mediterranean Sea Area from ships in order to ensure the effective implementation in that Area of the relevant international conventions in their capacity as flag State, port State and coastal State, and their applicable legislation and Article 18 thereof, whereby the function of the meeting of the Contracting Parties shall be to formulate and adopt strategies, action plans and programmes for the implementation of this Protocol,

Having also regard to international instruments of relevance to the present decision, regulated through the International Maritime Organization (IMO), namely international conventions dealing with maritime safety and the prevention of pollution from ships, notably the International Convention for the Prevention of Pollution from Ships (MARPOL) and its Annexes, and the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004 (BWM Convention); as well as international conventions addressing pollution preparedness, response and co-operation, notably the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) and its Protocol, and international conventions addressing liability and compensation for pollution damage,

Considering the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021), hereinafter referred to as “the Regional Strategy (2016-2021)”, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016),

Conscious of the progress made and the challenges faced by Contracting Parties in the implementation of the Regional Strategy (2016-2021) and of the potential strategic areas of improvement identified based on key lessons learned in meeting its objectives,

Recalling the mandate of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Having considered the reports of the Regional Meeting of National Experts on the Mediterranean Strategy for the Prevention of, and Response to Marine Pollution from Ships (2022-

2031) (Online, Malta, 10 March 2021) and of the Fourteenth Meeting of the Focal Points of REMPEC (Online, 31 May-2 June 2021),

1. *Adopt* the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031), hereinafter referred to as “the Mediterranean Strategy (2022-2031)”, set out in the Annex to this Decision,

2. *Call upon* the Contracting Parties to take effective measures to implement the Mediterranean Strategy (2022-2031), thus enhancing the implementation of the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea,

3. *Urge* the Contracting Parties, which have not yet done so to ratify the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, in order to achieve universally the objectives of the Protocol in the Mediterranean region and *invite* Contracting Parties which have not yet done so to also ratify relevant IMO Conventions referred above,

4. *Request* the Secretariat (REMPEC) to provide technical support for the implementation of the Mediterranean Strategy (2022-2031), in synergy with the IMO, through technical cooperation and capacity building activities, including resource mobilisation (internal and external),

5. *Invite* stakeholders, including multilateral financial institutions, intergovernmental organizations, members of the industry and business sectors, and non-governmental organizations to actively contribute to the mobilisation of resources needed for the effective implementation of the Mediterranean Strategy (2022-2031),

6. *Encourage*, under the coordination of REMPEC, the building of sustainable partnerships, including partnerships between Parties and other stakeholders, at the global, regional and sub-regional levels as a means to leverage the financial resources and technical support that Contracting Parties need for the implementation of the Mediterranean Strategy (2022-2031), thus operationalising the regional platform that the Strategy represents to channel international cooperation and maximize synergies in implementation in the Mediterranean region.

ANNEX

**Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution
from Ships (2022-2031)**

PREAMBLE

Nothing in this Strategy shall prejudice the principles of Sovereignty of the States, principles of Freedom, rights of Navigation, and principles of Innocent Passage in the Territorial Sea. In case of any contradiction between the Strategy and national or international legislations, the latter shall prevail. For specific topics addressing national issues, the Secretariat should seek the authorisation of the concerned country prior to the publication of certain reports.

MEDITERRANEAN STRATEGY FOR THE PREVENTION, PREPAREDNESS, AND RESPONSE TO MARINE POLLUTION FROM SHIPS (2022-2031)

1. VISION

"A clean and healthy Mediterranean marine and coastal environment with a sustainable and pollution free maritime sector, supported by a rigorous enforcement system and strengthened multi-sectoral cooperation, for the benefit of present and future generations"

2. OVERARCHING OBJECTIVE

2.1. The objective of the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031), hereinafter referred to as the "Mediterranean Strategy (2022-2031)" is to provide guidance to the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, hereinafter referred to as "the Barcelona Convention", in meeting their obligations under Articles 4 (1), 6 and 9 thereof; the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, hereinafter referred to as "the 2002 Prevention and Emergency Protocol" and the Protocol Concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency (1976), hereinafter referred to as "the 1976 Emergency Protocol"¹.

2.2. The Mediterranean Strategy (2022-2031) also aims to contribute to the implementation of overarching and thematic Mediterranean strategies, particularly the Mediterranean Strategy for Sustainable Development (MSSD) (2016-2025), the United Nations (UN) Environment Programme / Mediterranean Action Plan (UNEP/MAP)'s Mid-Term Strategy (2022-2027), the Ecosystem Approach (EcAp) and its roadmap for implementation, the Mediterranean Strategy on Ships' Ballast Water Management (BWM) and the Regional Plan on Marine Litter Management in the Mediterranean adopted in the Framework of Article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol) to the Barcelona Convention. It also strives to contribute to global and other regional goals and strategies, notably, the UN Sustainable Development Goals (SDGs), the Paris Agreement, the International Maritime Organization's (IMO) Strategic Plan for the six-year period 2018 to 2023, the IMO Action Plan to address marine plastic litter from ships, the IMO strategy on the reduction of greenhouse gas emissions (GHG) from ships (IMO's GHG Strategy), disaster resilience, prevention, preparedness and response in line with the Sendai framework for Disaster Risk Reduction, the European Green Deal, the European Maritime Safety Agency (EMSA) 5-Year Strategy (2020-2024), the Union for the Mediterranean (UfM) ministerial declaration on Sustainable Blue Economy, and the work of the Convention on Biological Diversity through the Aichi Targets (specifically target 9 on invasive alien species), and the Post-2020 Biodiversity Framework which is currently in development.

3. GUIDING PRINCIPLES

3.1 The Mediterranean Strategy (2022-2031) outlines the main objectives and strategic directions for the period 2022 to 2031. Implementation of the Mediterranean Strategy (2022-2031), and work undertaken to deliver the objectives of the strategy will be undertaken with the following guiding principles:

- .1 Guiding the work of the Contracting Parties to the Barcelona Convention, wherever possible, towards achieving the UN 2030 Agenda for sustainable development and delivering on the SDGs (especially SDG 5 - Gender Equality, SDG 13 - Climate Action, and SDG 14 - Life Below Water) and the Good Environmental Status (GES) of the Mediterranean Sea and Coast, particularly the ecological objectives related to non-indigenous species (EO2), contaminants (EO9), and marine litter (EO10);

¹ For those Contracting Parties who have not yet ratified the 2002 Prevention and Emergency Protocol.

- .2 Strengthening cooperation among relevant organisations and stakeholders operating within the Mediterranean to maximise synergies (wherever possible) and impacts on the ground, and encourage more cohesive and effective working;
- .3 Building on the achievements and lessons learnt through the implementation of the regional Strategy 2016-2021;
- .4 Taking into account the precautionary approach when planning and undertaking activities to deliver the objectives of the Mediterranean Strategy (2022-2031);
- .5 Streamlining the Ecosystem Approach (EcAp) to the management of human activities in the Mediterranean marine and coastal environment;
- .6 Working, wherever possible, to promote gender equality and the empowerment of women within the maritime sector²;
- .7 Promoting, encouraging and enhancing wherever possible, regional and sub-regional cooperation between countries to tackle pollution from ships in the Mediterranean region;
- .8 Supporting, encouraging and strengthening collaboration with all stakeholders³ of the Mediterranean region, with a particular focus (as appropriate) on EU related regulatory instruments and institutions, with a view to encouraging more cohesive working, maximizing synergies and benefits for the Contracting Parties and effectiveness and enhancing impacts on the ground;
- .9 The Mediterranean Strategy (2022-2031) and its Action Plan shall apply to ships as well as port reception facilities, terminals, offshore installations and sea ports or handling facilities, as appropriate and in compliance with legal regulations aimed at preventing, reducing and controlling pollution of the marine environment from ships as adopted, at the regional global level and in conformity with international law, under the aegis of United Nations specialized agencies, and in particular of the IMO⁴, including but not limited to international conventions dealing with maritime safety and the prevention of pollution from ships, notably the International Convention for the Prevention of Pollution from Ships (MARPOL) and its Annexes, and the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention); as well as international conventions addressing pollution preparedness, response and co-operation, notably the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) and its Protocol, and international conventions addressing liability and compensation for pollution damage ; and
- .10 Promoting and developing innovative solutions, wherever possible, to address the objectives of the Mediterranean Strategy (2022-2031), within the framework of the IMO.

4. SETTING THE SCENE

The Mediterranean Region

4.1. The scope of the application of the Regional Strategy (2022-2031) is the Mediterranean Sea area as defined in Article 1 of the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution as amended by the 1995 Convention for the Protection of the Marine Environment and the Coastal Region of the

² Focussing on increasing the number of female trainees/number of female scientists / experts recruited, as well as engagement of women in working groups, networks, meetings, training exercises and operations.

³ For example, academic institutions, intergovernmental organisations, industry, non-governmental organisations, civic society, general public, etc.

⁴ Article 1 (definitions) paragraph (e) of the Prevention and Emergency Protocol.”

Mediterranean⁵. The region comprises a vast set of coastal and marine ecosystems that deliver valuable benefits to all its coastal inhabitants.

4.2. The 22 Contracting Parties to the Barcelona Convention are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syrian Arab Republic, Tunisia, Turkey, and the European Union. The Mediterranean region is undergoing intensive demographic, social, cultural, economic and environmental changes. The population continues to grow in coastal and urban areas of the Mediterranean region and is predicted to reach 572 million by 2030⁶. Mediterranean countries are the world's leading tourism destination, and furthermore the Mediterranean also stands as the second biggest cruising region in the world⁷. The combination of population growth, alongside the growth of coastal (peri) urban hubs and maritime traffic, generates multiple environmental pressures, which are further amplified by tourism (often concentrated in Mediterranean coastal areas), and climate change.

4.3. Although the Mediterranean Sea basin covers less than 1% of the world oceans, it is strategically located at the interface of the three continents of Asia, Europe and Africa and at the crossroads of three maritime corridors. The Mediterranean Sea is one of the busiest seas in the world, with 24% of the global fleet of ships calling ports or passing through the Mediterranean in 2019, including container ships, gas tankers and oil and chemical tankers representing 36.5%, 32.6%, and 27% of the world fleet, respectively⁸. Moreover, the Mediterranean is the second largest market globally (after the Caribbean) for cruising, accounting for 17.3% of worldwide cruises in 2019⁷. As maritime traffic is steadily increasing it adds environmental pressures, such as rising CO2 emissions, pollution by oil and hazardous and noxious substances (HNS), marine litter, collisions with large cetaceans, underwater noise and the introduction of non-indigenous species. Container port traffic development shows a clear trend of rapid growth of the sector, which undoubtedly increases the environmental pressure and strengthens the need for a transition to a sustainable maritime sector. Not least, preparedness and response to pollution incidents calls for a stronger inter-sectoral cooperation and for an integrated disaster management that enables coordinated response operations at sea and onshore.

Building on the Regional Strategy (2016-2021)

4.4. This Mediterranean Strategy (2022-2031) was developed building on the Regional Strategy for Prevention of, Preparedness for, and Response to Marine Pollution from Ships (2016-2021) adopted by the COP 19⁹ in 2016. Although much progress has been made in the last 15 years, several of the issues highlighted in previous strategies still have relevance today, and therefore it is important to build on past efforts and recognise the progress that has already been achieved.

4.5. The Contracting Parties to the Barcelona Convention have developed the Mediterranean Strategy (2022-2031) in collaboration with the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the IMO, UNEP/MAP and other key stakeholders in the Mediterranean, including IPIECA.

4.6. The development of the Mediterranean Strategy (2022-2031) was undertaken in parallel with the development of the UNEP/MAP Medium-Term Strategy 2022-2027. Considering the legal, financial and institutional framework of the UNEP/MAP Barcelona Convention system, including in particular the provisions

⁵ Mediterranean Sea Area shall mean the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between Mehmetcik and Kumkale lighthouses

⁶ Mediterranean Quality Status Report 2017, Barcelona Convention

⁷ MedCruise, 2018. 2018 Statistics. Cruise activities in MedCruise ports

⁸ REMPEC (2020). Study on trends and outlook of marine pollution from ships and activities and of maritime traffic and offshore activities in the Mediterranean

⁹ 19th Ordinary Meeting of the Contracting Parties to the Barcelona Convention its Protocols (Athens, Greece, 9-12 February 2016).

of the 2002 Prevention and Emergency Protocol, the Mediterranean Strategy (2022-2031) should be seen as an integral part of the UNEP/MAP Medium-Term Strategy.

Structure and presentation of the Mediterranean Strategy (2022-2031)

4.7 This document sets out the vision, overarching objective, guiding principles, strategy governance and Common Strategic Objectives (CSOs), which come together to form the Mediterranean Strategy (2022-2031). The Mediterranean Strategy (2022-2031) is supported by an Action Plan for Implementation, which is presented as an appendix to this document.

5. GOVERNANCE

Governance, partnership and resource mobilisation

5.1. The implementation of the Mediterranean Strategy (2022-2031) shall be governed through the comprehensive and integrated institutional, legal, and implementing framework of the Barcelona Convention and its Protocols, particularly the 2002 Prevention and Emergency Protocol, in collaboration and consultation with relevant national, regional and international organisations, institutions, agencies and stakeholders. This shall be done by coordinating parallel initiatives and processes to ensure the capitalisation of past and ongoing efforts, with a view to increasing the effectiveness of the resources mobilised to meet the common objective of the Mediterranean Strategy (2022-2031).

5.2. Non-governmental organisations (NGOs) contributing to the implementation of the Mediterranean Strategy (2022-2031) are invited to apply for accreditation as UNEP/MAP partners¹⁰ to become involved in the implementation of the present strategy. UNEP/MAP Partners provide expert policy and technical advice and promote the policies, strategies and programmes derived from the Barcelona Convention and its Protocols. UNEP/MAP Partners participate as Observers in the meetings of the Contracting Parties to the Barcelona Convention and its Protocols as well as in activities carried out within the framework of the UNEP/MAP Programme of Work.

5.3. The Contracting Parties to the Barcelona Convention further encourage regional and international institutions to formalise their cooperation to provide financial and technical support to Contracting Parties for the implementation of the Mediterranean Strategy (2022-2031) through specific partnership agreements, as appropriate.

Mid-term review and evaluation

5.4. The implementation of the Mediterranean Strategy (2022-2031) will be regularly monitored through a consultative process with Contracting Parties to the Barcelona Convention and relevant regional and international organizations.

5.5. Following a period of five (5) years, the Mediterranean Strategy (2022-2031) and its Action Plan will be reviewed based on an analysis of the progress of its implementation and on the outcome of discussions on emerging issues. The need to update and revise the Mediterranean Strategy (2022-2031) and its Action Plan will be assessed, in 2026, with a view to potentially adopt a revised strategy in 2027. The review will take into consideration the development of the forthcoming UNEP/MAP Mid-Term Strategy (2028–2032), alongside Contracting Party reporting on the status of implementation of the Mediterranean Strategy (2022-2031) and its Action Plan.

¹⁰ In accordance with the rights and responsibilities of MAP Partners, provided for in Decision IG.19/6 "MAP/Civil society cooperation and partnership"

Risk Mitigation

5.6. The successful implementation of the Mediterranean Strategy (2022-2031) and its Action Plan are subject to a number of identified risks, including, but not limited to:

- .1 **The COVID-19 global pandemic**, the associated global travel restrictions, and the subsequent pressures on government resources as staff and funding are redirected to deal with the health crisis;
- .2 Partly as a result of the above-mentioned global pandemic, but also as a general consideration, the implementation of the Mediterranean Strategy (2022-2031) and its Action Plan will be dependent on **appropriate and adequate funding** being available within Contracting Parties, and regional institutions; and
- .3 Furthermore, the complexities of the Mediterranean Sea Region's socio-politics could present **potential political instabilities** within the region, which could hinder the successful implementation of the Mediterranean Strategy (2022-2031) and its Action Plan.

5.7. In order to mitigate the risks identified above, the following considerations have been made for the implementation of the Mediterranean Strategy (2022-2031) and its Action Plan:

- .1 To mitigate the risks associated with the **COVID-19 global pandemic**, Contracting Parties will continue to work towards a digital transformation, making use of digital technologies to improve networking, capacity building and visibility;
- .2 To mitigate risks associated with ensuring **appropriate and adequate funding**, Contracting Parties will continue to ensure that the funds available are used in an efficient and appropriate manner, avoiding duplication of efforts wherever possible, in order to fully implement the Mediterranean Strategy (2022-2031) and its Action Plan. Contracting Parties will also coordinate with all stakeholders (including the private sector, NGOs, regional and international non-governmental organisations, etc), looking for opportunities to collaborate and join efforts whenever possible (and appropriate). REMPEC will assist Contracting Parties (where possible) to develop partnerships with regional and international organisations and seek funding opportunities (where possible) for the activities necessary to implement the Mediterranean Strategy (2022-2031) and its Action Plan;
- .3 To mitigate risks associated with **potential political instabilities**, Contracting Parties will continue the efforts within the framework of the Barcelona Convention to address jointly, and individually, common challenges through a regional consensus for the benefit of the entire region, and its individual Contracting Parties.

6. COMMON OBJECTIVES TO ACHIEVE THE VISION FOR THE MEDITERRANEAN

6.1. This section presents the seven identified Common Strategic Objectives (CSOs), which represent the thematic priority areas for the Mediterranean Strategy (2022-2031). The seven CSOs apply to the Mediterranean region as a whole, and Contracting Parties to the Barcelona Convention, alongside the various organisations and institutions of the Mediterranean, each have a role to play in achieving these objectives.

Common Strategic Objectives (CSO)

CSO 1 Prevent, prepare for, and respond to operational, illegal and accidental oil and HNS pollution from ships

6.2. The rates of accidental pollution from ships have decreased globally and regionally, despite the increase in shipping transportation. These results have been achieved in particular through the adoption of regional and international regulatory framework, through the UNEP/MAP Barcelona Convention System and IMO, respectively, namely the 2002 Prevention and Emergency Protocol, the International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocols of 1978 and 1997 relating thereto

(MARPOL) and its Annexes, the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC) and the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances 2000 (OPRC-HNS Protocol), as well as technical cooperation activities undertaken at national and regional level. However, risks associated with the transport by ships of oil and HNS with possible harmful consequences on biota and ecosystems cannot be eliminated, accidents can and still do occur. The practice of illegal discharge from ships has been increasingly monitored and enforcement procedures are being put in place progressively through the Mediterranean Network of Law Enforcement Officials relating to MARPOL within the framework of the Barcelona Convention (MENELAS) to prosecute offenders.

6.3. To meet this CSO, the Contracting Parties to the Barcelona Convention agree to reinforce the already established collaborative and collective effort, within the framework of the Mediterranean Strategy (2022-2031) and invite relevant organisations to cooperate and coordinate their actions for assistance to facilitate the ratification, effective implementation and strict enforcement of relevant legally binding instruments. The Contracting Parties also acknowledge the need to further develop policies to address current and new challenges in prevention, preparedness and response to operational, illegal and accidental pollution from ships in the Mediterranean, and to facilitate and enhance existing or new services to foster monitoring and exchange of knowledge and data. To maximise these efforts, closer synergies are required between relevant networks within, and outside the Mediterranean region.

6.4. Furthermore, Contracting Parties acknowledge that in maritime transport, the linear cycle of exploitation and use of resources and the elimination of waste is no longer feasible. Therefore, it is required that Contracting parties look towards a vision for a circular economy in maritime transport and the maritime industry, including: leisure (pleasure and entertainment, cruise business); harvesting of raw materials (oil and gas, offshore mining, fishing); logistics (shipping of food, energy, containers, bulk material); and infrastructure (ferries, local shipping, ports). In that line, Contracting Parties also recognise the key role of shipping, as the backbone of trade in the Mediterranean region, in enabling and capitalising on a circular conversion of supply chains and in determining what type of collaboration across value chains those changes would require.

6.5. Contracting Parties also recognise the need for a stronger inter-sectoral cooperation between at-sea, shoreline, and wildlife responders, port authorities, oil and chemical industry and agree to aim for a holistic / integrated management of marine pollution incidents that enable a coordinated response operation at sea and onshore, including the response to wildlife. Such a holistic approach should permeate the oil spill preparedness and response, both at a national level and in region-wide cooperation.

CSO 2 Promote and support the development and implementation of innovative global solutions to mitigate and respond to climate change

6.6. Climate change is generally recognised as one of the most pressing environmental emergencies of this generation. A globally warming climate causes weather patterns to change, sea levels to rise, weather events to become more extreme and may potentially impact freshwater resources, coastal systems and low-lying areas, ocean systems, food security and food production systems. Furthermore, climate change increases risks for human health; increased and longer heat waves are a health risk factor, especially for the elderly. The climate emergency affects every nation in the world and has the potential to disrupt national economies and displace entire communities. The 2013 report from the International Panel on Climate Change (IPCC) highlights the Mediterranean as one of the most vulnerable regions in the world to the impacts of global warming. The 2019 Report on the State of the Environment and Development in the Mediterranean (SoED) concludes that the Mediterranean basin is affected by climate change at a pace well above global average, in particular by more rapid warming of ambient air and sea surface in all seasons. Through the application of the Coastal Risk Index (CRI-MED) for the Mediterranean (on 21 Mediterranean countries), coastal hot-spots are found to be predominantly located in the south-eastern Mediterranean region.

6.7. The network of Mediterranean Experts on Climate and Environmental Change (MedECC) published its first report on the 'current situation and risks for the future' for climate and environmental changes in the

Mediterranean in 2020¹¹. The report concludes that due to both global and regional trends in the drivers of climate and environmental change, impacts in the Mediterranean region will be exacerbated in the coming decades, and that significantly enhanced efforts are needed to adapt to inevitable changes, mitigate change drivers and increase resilience.

6.8. Although shipping is one of the most energy-efficient modes of transportation, the shipping industry must still play its part in pursuing strategies to reduce GHG emissions globally and operate as efficiently and as cleanly as possible. It must also be acknowledged that most impacts of climate change are exacerbated by other environmental challenges.

6.9. The Fourth IMO Greenhouse Gas Study found that total GHG emissions from shipping rose by about 10% from 2012 to 2018. The GHG emissions (including CO₂, CH₄ and N₂O, expressed in CO_{2e}) of total shipping (international, domestic and fishing) have increased from 977 million tonnes in 2012 to 1,076 million tonnes in 2018 (9.6% increase). In 2012, 962 million tonnes were CO₂ emissions, while in 2018 this amount grew by 9.3% to 1,056 million tonnes of CO₂ emissions. The share of shipping emissions in global anthropogenic GHG emissions has increased from 2.76% in 2012 to 2.89% in 2018. Carbon intensity (fleet's CO₂ emissions per transport work) has improved for international shipping, as well as for most ship types. GHG emissions are projected to increase from about 90% of 2008 emissions in 2018 to 90-130% of 2008 emissions by 2050 for a range of six plausible long-term economic and energy scenarios.

6.10. International agreements and policy documents on responding to climate change include; the UN Paris Agreement and the 2030 Agenda for Sustainable Development; the London Convention and London Protocol (carbon capture and sequestration); the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas; and specifically related to GHG emissions from shipping activities, the IMO's GHG Strategy, which envisages, in particular, a reduction in carbon intensity of international shipping (to reduce CO₂ emissions per transport work, as an average across international shipping, by at least 40% by 2030 (through a necessary combination of technical and operational measures), pursuing efforts towards 70% by 2050, compared to 2008); and that total annual GHG emissions from international shipping should be reduced by at least 50% by 2050 compared to 2008. Furthermore, under MARPOL Annex VI, carbon intensity of ships is expected to decline through implementation of further phases of the Energy Efficiency Design Index (EEDI) for new ships and the requirement for Ship Energy Efficiency Management Plans (SEEMP).

6.11. In addition, the EU MRV Regulation (Regulation 2015/757) on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport and amending Directive 2009/16/EC applies to all ships above 5000 GT in respect to CO₂ emissions released in voyages to, from and between ports under the jurisdiction of EU Member States from the 1 January 2018.

6.12. With a view to addressing this global challenge, the Contracting Parties to the Barcelona Convention commit, through the present Mediterranean Strategy (2022-2031) to promote and support the development and implementation of innovative global solutions to mitigate and respond to climate change, specifically through supporting efforts to reduce GHG emissions from ships by at least 40% by 2030, in accordance with the levels of ambitions of the IMO Strategy on reduction of GHG from ships.

¹¹ MedECC (2020) Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report, Cramer, W., Guiot, J., Marini, K. (eds.) Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 600pp, in press

CSO 3 Reduce and monitor air emissions from ships to a level that is not harmful to the marine environment, or the health of the coastal population of the Mediterranean

6.13. Air emissions from ships are a contributor to the overall air quality degradation in the Mediterranean region, and more specifically in the Mediterranean coastal States. Sulphur oxide (SO_x) emissions can cause acid rain and can combine with other pollutants to generate fine particles, which can lead to respiratory and cardiovascular diseases including childhood asthmas, as well as reduced life expectancy and increase premature deaths. Acid rain is harmful to crops, forests and aquatic species, as well as contributing to the acidification of the oceans. Nitrogen oxides (NO_x) are also precursors of fine particles and ozone and are one of the main causes of ocean eutrophication. The key international regulatory framework regarding the requirements to control emissions from ships is established by MARPOL Annex VI.

6.14. MARPOL Annex VI, adopted by the Protocol of 1997, as amended in 2011¹², regulates the prevention of air pollution from ships in general and, in particular, establishes more stringent limits for emissions of SO_x, NO_x and Particulate Matter (PM) from ship engine exhausts. MARPOL Annex VI also introduces a new Chapter 4 with regulations on energy efficiency for ships. Regulation 14¹³ provides that from 1 January 2020, the sulphur content of fuel oil used onboard ships shall not exceed 0.50% m/m. However, within SO_x Emission Control Areas (SO_x ECAs), where a higher level of protection is needed due to the proximity of high density shipping traffic to populated areas (for example) or the susceptibility of a particular sea area to acidification or eutrophication, the limit is set at 0.10% m/m. Implementing SO_x ECA standards should (according to the REMPEC Technical and Feasibility Study¹⁴): prevent 1,000 premature deaths and more than 2,000 cases of childhood asthma; contribute to a decrease in the acidification of aquatic systems, thanks to a decrease in wet and dry sulphate deposition of 1.16% and 1.95% respectively; and should allow a reduction in haze, and therefore an improvement in visibility, which would be felt clearly above Gibraltar and northern Morocco and Algeria, and along the main shipping lanes connecting the Strait of Gibraltar, Malta and Suez.

6.15. In addition, in the European Union the requirements of MARPOL Annex VI as amended, have been transposed into EU law through Directive (EU) 2016/802. Therefore, the 0.50% m/m sulphur limit applies in EU waters (including the Mediterranean Sea) outside SO_x ECAs as of 1 January 2020. The SO_x ECA requirements apply in the North Sea, Baltic Sea and the English Channel.

6.16. MARPOL Annex VI standards are expected to reduce SO_x emissions by approximately 75% from typical operations using residual fuels. Implementing SO_x ECA standards would enable a reduction of approximately 95% in SO_x emissions from ships compared with existing regulations. PM reductions of about 51% are associated with MARPOL Annex VI, and SO_x ECA standards would increase that to a reduction of approximately 62% in emissions.

6.17. Regulation 13¹⁵ provides progressive reductions in NO_x emissions from marine diesel engines installed on ships, with a "Tier II" emission limit for engines installed on a ship constructed on or after 1 January 2011; and a more stringent "Tier III" emission limit for engines installed on a ship constructed on or after 1 January 2016 operating in NO_x ECAs. "Tier I" emissions limits apply to marine diesel engines installed on a ship constructed on or after 1 January 1990 but prior to 1 January 2000¹⁶. In the EU NO_x requirements from shipping sources are broadly addressed through existing Air Quality legislations but further developments,

¹² Resolution MEPC.203(62)

¹³ [http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Sulphur-oxides-\(SOx\)-%E2%80%93-Regulation-14.aspx](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Sulphur-oxides-(SOx)-%E2%80%93-Regulation-14.aspx)

¹⁴ Technical and feasibility study for the designation of Med SO_x ECA, undertaken by REMPEC in 2019, available: <https://www.rempec.org/en/our-work/pollution-prevention/hop-topics/med-eca/study>

¹⁵ [http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Nitrogen-oxides-\(NOx\)-%E2%80%93-Regulation-13.aspx](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx)

¹⁶ The NO_x ECA standards will apply as of 1 January 2021 in the North Sea, Baltic Sea and English Channel.

including the possibility to establish ECAs in all EU waters, are being explored under the Zero Pollution and Sustainable and Smart Mobility ambitions of the EU Green Deal.

6.18. In this context, the Contracting Parties to the Barcelona Convention pledge to fully implement the Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides Pursuant to MARPOL Annex VI, based on their decision adopted at COP 21¹⁷ in 2019¹⁸. The Contracting Parties will also explore, within the context of the Mediterranean Strategy (2022-2031) the possible designation of the Mediterranean Sea, as a whole, as an Emission Control Area for NO_x pursuant to MARPOL Annex VI, within the framework of the Barcelona Convention, and will call for coordinated regional and international efforts to that effect.

CSO 4 Prevent and reduce litter (in particular plastic) entering the marine environment from ships, in order to limit the environmental, health, and socio-economic impact of marine litter in the Mediterranean

6.19. Even though discharging plastics into the sea is already prohibited under regulations for the prevention of pollution by garbage from ships in MARPOL, plastics still enter the marine environment as a result of a wide range of land-based and sea-based activities. These plastics persist in the marine environment and have harmful effects on marine life and marine biodiversity, as well as negative impacts on human health. Marine litter can also cause risks to navigational safety. The abundance of floating litter in Mediterranean waters has been reported at quantities measuring from 0 items to over 600 items per square kilometre. The 2015 UNEP/MAP Marine Litter Assessment in the Mediterranean concludes that approximately 0.5 billion litter items are currently lying on the Mediterranean seafloor.

6.20. In the Mediterranean, although most of the marine litter originates from land-based sources, ship sources contribute to the accumulation of floating debris and litter. Studies assessing floating debris, focusing on the Mediterranean Sea floor, have suggested that accumulated litter, including high proportions of plastics, has a predominantly coastal origin, while litter collected on the open slope, dominated by heavy litter, is mostly ship-originated, especially at sites under major shipping routes¹⁹. Commercial fishing is recognised as a sea-based source of marine plastic litter, particularly derelict fishing gear (UNEP/MAP, 2015).

6.21. The main international and regional instruments and action plans in place to address plastics in the Mediterranean marine environment and the prevention of pollution by garbage from ships are MARPOL Annex V; the IMO action plan to address marine plastic litter from ships; the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the LBS Protocol to the Barcelona Convention; and Article 14 on the provision of adequate Port Reception Facilities of the 2002 Prevention and Emergency Protocol. In addition, the EU has a number of directives which aim at reducing marine litter, including the PRF Directive (Directive (EU) 2019/883 on port reception facilities for the delivery of waste from ships), the SUP Directive (Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment) and the various provisions of the Marine Strategy Framework Directive (Directive (EU) 2008/56). Finally, the Global Ghost Gear Initiative (GGGI) is a voluntary cross stakeholder alliance of fishing industry, private sector, corporates, NGOs, academia and governments focused on solving the problem of lost and abandoned fishing gear worldwide. Governments can become members of the GGGI and promote national action against ghost gear, including improved producer responsibility regimes.

6.22 To achieve this objective, the Contracting Parties to the Barcelona Convention accept to undertake collective and individual actions to fully implement the IMO Action Plan to address marine plastic litter from

¹⁷ 21st Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Naples, Italy, 2-5 December 2019).

¹⁸ Decision IG.24/8 establish that the proposal for the possible designation of the Mediterranean Sea as SO_x ECA may be submitted to IMO by the Contracting Parties in 2022.

¹⁹ Ramirez-Llodra, De Mol, Company, Coll, & Sardà, 2013

ships, and the UNEP/MAP Regional Plan on Marine Litter Management in the Mediterranean, and to ratify, and effectively implement related legally binding instruments as well as policies, and voluntary initiatives (such as the GGGI) to address marine plastic litter²⁰ in the Mediterranean.

CSO 5 Eliminate the introduction of non-indigenous species by shipping activities

6.23. Shipping is recognised as a major pathway for introducing non-indigenous species (NIS) to new environments. The introduction of NIS in new environments can present a major threat to marine ecosystems by overrunning existing ecosystems and causing local extinction of species. The effects experienced in many parts of the world have been devastating, including in parts of the Mediterranean. Over the last two decades, changes in the Mediterranean marine biodiversity related to the introduction of NIS have been reported as the consequences of several specific actions: intense maritime traffic; opening of artificial channels and aquaculture activities.

6.24 Vessel-introduced NIS have been estimated to account for 26% of new NIS introductions in the Mediterranean. Ships' ballast water is of particular concern as a vector of introduction of invasive alien species in the Mediterranean Sea because of the large quantities of ballast water coming from different marine environments around the world being discharged at Mediterranean ports. Biofouling on ships' hulls and within niche areas is also recognized as a major vector for NIS introduction. In the last decade, the species richness of marine organisms in the Mediterranean Sea has been reported to have reached ~17,000 taxa, among which some 820 can be considered NIS⁸.

6.25 The key regional and international instruments in place to address biosafety in Mediterranean waters are the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention), the Mediterranean Strategy on Ships' Ballast Water Management, including its Action Plan and Timetable, alongside the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines)²¹, the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention), and the Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea. Activities undertaken to meet this CSO will be conducted in close collaboration with the Regional Activity Centre for Specially Protected Areas and Biological Diversity within the Mediterranean (UNEP/MAP - SPA/RAC), and with consideration of the Protocol Concerning Specially Protected Areas and Biological Diversity (SPA/BD Protocol, 1995) alongside the Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAP BIO).

6.26. To meet this objective and address the introduction of harmful aquatic organisms and pathogens into the marine environment and the introduction of invasive species, the Contracting Parties to the Barcelona Convention agree to accelerate processes of ratification and to effectively implement relevant legally binding instruments as well as policies to address marine biosafety in the Mediterranean, and call for further coordinated technical assistance provided by relevant international and regional organizations.

CSO 6 Achieve a well-managed safe and pollution free Mediterranean, with integrated marine spatial planning and designation of special areas, where shipping activity has a limited impact upon the marine environment

6.27. Under the Protocol on Integrated Coastal Zone Management and the Protocol concerning Specially Protected Areas and biological Diversity in the Mediterranean to the Barcelona Convention, protective measures have been put in place through Marine Spatial Planning (MSP) to address land-sea interactions, Marine Protected Areas (MPAs), Specially Protected Areas of Mediterranean Importance (SPAMIs), and Environmentally or Biologically Significant Areas (EBSA).

²⁰ Plastic litter should be taken to include all types and sizes of marine plastic litter, including macro-, meso- and micro-plastics, as well as abandoned, lost and otherwise discarded fishing gear (ALDFG).

²¹ Resolution MEPC.207(62)

6.28 Recognising that certain sensitive marine environments can be subject to harm from operational and accidental pollution and vessel discharges, the IMO set-up a comprehensive regulatory framework to protect sensitive areas. In Annex I (Prevention of pollution by oil), Annex II (Control of pollution by noxious liquid substances), Annex IV (Prevention of pollution by sewage from ships) and Annex V (Prevention of pollution by garbage from ships), MARPOL defines certain sea areas as "special areas" in which, for technical reasons relating to their oceanographical and ecological condition and to their sea traffic, the adoption of special mandatory methods for the prevention of sea pollution is required. Under MARPOL, these special areas are provided with a higher level of protection than other areas of the sea. In this context, the Mediterranean Sea became a special area under MARPOL Annex I since October 1983, and Annex V since May 2009. CSO3 covers the establishment of Emission Control areas under MARPOL Annex VI for the prevention of air pollution from ships.

6.29. An area that requires special protection through action by the IMO because of its significance for recognised ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities can be designated as a Particularly Sensitive Sea Areas (PSSAs).

6.30. These instruments are complemented by the Traffic Separation Schemes (TSS) and other ship routing systems enshrined in Chapter V of the International Convention for the Safety of Life at Sea (SOLAS), 1974, which have been established in most of the major congested shipping areas of the Mediterranean, where the number of collisions and groundings has often been dramatically reduced.

6.31. In addition, the European Union has adopted Directive 2014/89/EU establishing a framework for maritime spatial planning aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources.

6.32. To meet this objective, the Contracting Parties to the Barcelona Convention call for coordinated and integrated measures between international and regional organisations, in consultation with UNEP/MAP and the IMO, and agree to take the required actions at national, sub-regional and regional level to set-up special areas and efficiently manage these instruments, as appropriate.

CSO 7 Identify and understand collectively emerging issues related to pollution from ships in the Mediterranean, and define required actions to address issues identified

6.33. The state of understanding of issues in the marine environment is constantly evolving and therefore there is a need to continually reflect on the current understanding and stay abreast of issues as they emerge. Current emerging issues include, but are not limited to, the impact of underwater noise from shipping, the regulation of black and grey water and marine cleaning products, the end-of-life management of fibre reinforced plastic (FRP) vessels as alternatives to disposal at sea; hull scrapings and marine coatings as a source of microplastics, the impact of historical munitions, and the environmental impacts of container loss etc.

6.34. With a view to meeting this objective, the Contracting Parties to the Barcelona Convention agree to share results of research and development studies and to address emerging issues related to pollution from ships in the Mediterranean within the framework of the Mediterranean Strategy (2022-2031), as appropriate.

Supporting Objectives

6.35. The primary responsibility for achieving the seven thematic CSOs remains with Contracting Parties to the Barcelona Convention, however, to support their individual and collective efforts there must be also a collaborative, coordinated and collective effort made by all relevant regional stakeholders in the Mediterranean. The Action Plan presented in the appendix to this document sets out the specific actions required to achieve the seven CSOs of the Mediterranean Strategy (2022-2031). Each of the actions identified are categorized under the following 'areas of influence':

- .1 Actions on people;
- .2 Actions on institutions;

- .3 Actions for infrastructure; and
- .4 Actions for information and knowledge sharing.

6.36. To guide the implementation of the Mediterranean Strategy (2022-2031) and its Action Plan, the following section sets out some supporting objectives for each 'area of influence' listed above.

Actions on people

6.37. Related to people, skills and networks within the Mediterranean.

Area of Influence	Supporting Objective
Networks	To support and encourage open and collaborative networks between all stakeholders of the Mediterranean for the sharing of knowledge, best practice and experiences, with the aim to identify synergies and strengthen multi-sectoral cooperation and collaboration.
Capacity Building / Technical Cooperation	<p>To support the Contracting Parties to ensure that they have adequate knowledge, expertise and experience to implement the Mediterranean Strategy 2022-2031, and any/all associated requirements to reduce marine pollution from ships in the Mediterranean.</p> <p>To support Contracting Parties to ensure that personnel responsible for responding to marine pollution incidents have adequate practical and operational training and are sufficiently prepared to act in the event of an emergency.</p>
Operations	To support Contracting Parties to ensure that they have developed or have access to pollution response services to act in the event of an emergency.

Actions on institutions

6.38. Related to existing institutions, administrations and organisations within the Mediterranean.

Area of Influence	Supporting Objective
Governance	To ensure that Contracting Parties have a clear understanding of the relevant roles and responsibilities of governing bodies, in terms of implementing the Mediterranean Strategy (2022-2031).
Ratification / Transposition	<p>To support the ratification by all Contracting Parties of all relevant international conventions which aim towards reducing pollution from ships in the marine environment.</p> <p>To ensure the transposition into national law of all relevant international conventions which aim towards reducing pollution from ships in the marine environment.</p>
Implementation	To support administrations with the implementation of relevant international conventions.
Enforcement	To set-up efficient and strict enforcement of all relevant international conventions, as transposed into national law, which aim towards reducing pollution from ships in the marine environment.

Actions for infrastructure

6.39. Related to the physical infrastructure, equipment and technology available within the Mediterranean.

Area of Influence	Supporting Objective
Port Reception Facilities	To ensure that adequate port reception facilities are available in the Mediterranean to limit the potential for marine pollution from ships.
Alternative Energy / New Technology	To ensure that there are appropriate facilities to support ships operating with alternative energy.
Response Means	To ensure that the required means to respond to marine pollution incidents are available and strategically placed throughout the Mediterranean region.
Surveillance / Monitoring Means	To ensure that the required surveillance and monitoring infrastructure (e.g. satellite imaging) means to deter and detect illicit discharges and emissions from ships, to exchange the monitoring information, and to assist in responding to marine pollution incidents, are available and strategically placed throughout the Mediterranean region.

Actions for information and knowledge sharing

6.40. Related to the sharing of best practices, communication, research and development within the Mediterranean.

Area of Influence	Supporting Objective
Standards / Guidelines	To establish, adopt, disseminate, implement and enforce required regional standards.
Decision Making Tools	To evaluate the need for, develop, maintain and upgrade decision support tools to support well-informed and prompt decisions by Contracting Parties.
Monitoring and Reporting Obligations	To support the coordination of monitoring and reporting efforts between Mediterranean coastal States.
Research and Development	To encourage Contracting Parties to participate in research and development of new technologies and techniques to address the issues of pollution from ships, and to share their results for the benefit of the Mediterranean regional and its coastal States. To develop and upgrade means/platforms enabling the Contracting Parties to communicate and exchange information in real time.

7. IMPLEMENTATION OF THE MEDITERRANEAN STRATEGY 2022-2031

Action Plan for the Implementation of the Mediterranean Strategy (2022-2031)

7.1. The Mediterranean Strategy (2022-2031) is supported by an Action Plan for the Implementation of the Mediterranean Strategy (2022-2031), which sets out the specific actions required under each CSO. The actions are grouped by ‘areas of influence’ and are guided by the supporting objectives set out in **Section 6** for each Area of Influence. Each action is presented with an indicator, target and is linked to the implementing / governing body responsible for delivering the action (the lead or partner). The actions are also prioritised as high, medium, or low. The Action Plan is presented in full in the appendix of this document.

7.2. **Figure 1** aims to visualise the interconnection between the CSOs, the corresponding areas of influence, and the implementing / governing body responsible for delivering the actions.

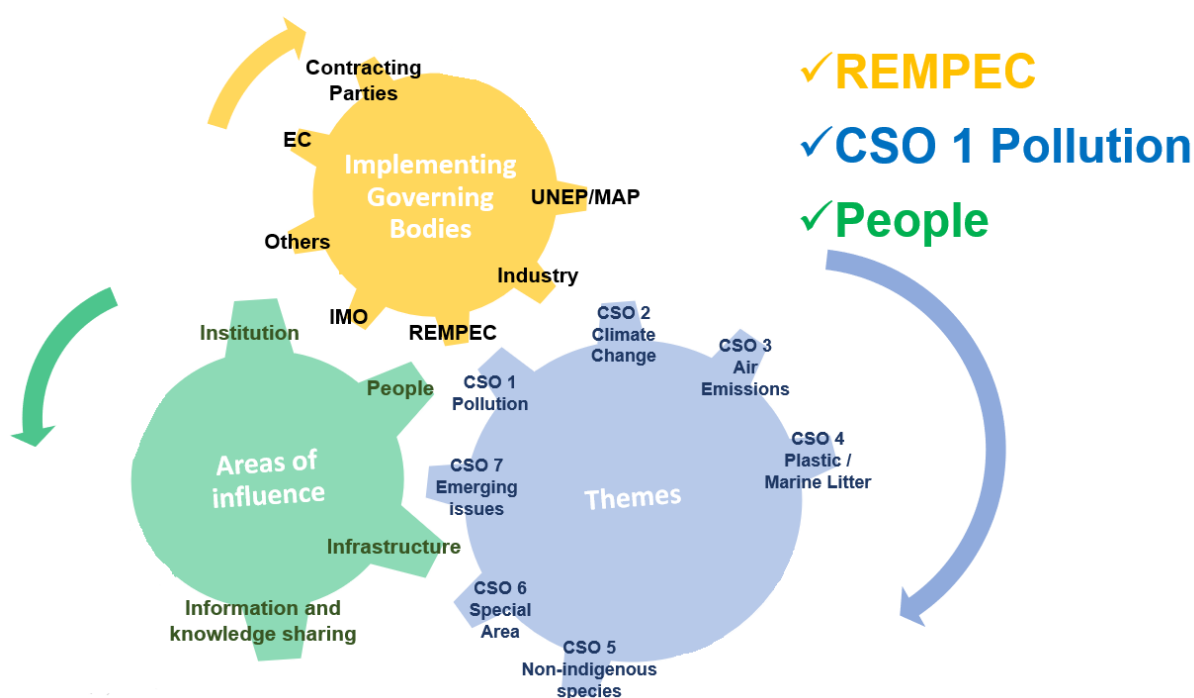


Figure 1 – Interlocking CSOs, areas of influence and implementing / governing bodies responsible for delivering on the actions of the Action Plan

Practical arrangements for the management and implementation of the Mediterranean Strategy (2022-2031)

7.3. To meet the CSOs of the Mediterranean Strategy (2022-2031) that are common for all stakeholders in the Mediterranean, a biennial meeting will be organised on the first year of each biennium, in order to:

- .1 Report and assess the progress made in the implementation of the Mediterranean Strategy (2022-2031);
- .2 Define priority actions and propose related activities for the following biennium; and
- .3 Define roles and responsibilities for the implementation of the proposed activities and establish operational and strategic synergies, through specific partnership agreements, if required, by coordinating parallel initiatives and processes to ensure the capitalisation of past and ongoing

efforts, with a view to increasing the effectiveness of the resources and expertise mobilised to meet the CSOs of the Mediterranean Strategy (2022-2031).

7.4. The Rules of procedure for Meetings and Conferences of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related Protocols (UNEP/IG.43/6, Annex XI) shall apply mutatis mutandis to the deliberations of this Meeting.

7.5. The Secretariat of the Meeting will be the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) administered by the IMO in cooperation with UNEP/MAP.

7.6. The meeting will be attended by:

- .1 Experts on the prevention of, and response to marine pollution from ships from Contracting Parties members of the Bureau of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (“the Barcelona Convention”) and its Protocols;
- .2 Relevant national, regional and international organizations, institutions and agencies as observers; and
- .3 Accredited UNEP/MAP Partners as observers.

7.7. The participation of the above representatives will be subject to the submission of the reports and contributions defined in the below reporting and monitoring procedures.

7.8. In line with the 2017 UN Secretary General’s System-wide Strategy on Gender Parity, the participation of female gender representatives will be encouraged, to contribute to joint efforts towards gender-balanced participation.

7.9. The outcome of the meeting will be considered for the preparation of the UNEP/MAP Programme of Work (PoW) and Budget to be submitted to the Meeting of the Focal Points of REMPEC for its review, to the Meeting of the MAP Focal Points for its approval and to the Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols for its adoption. Relevant national, regional and international organizations, institutions and agencies, and accredited UNEP/MAP Partners will be encouraged to build their respective programme of work taking into account the outcome of the meeting.

7.10. For each of the seven CSOs, Contracting Parties are committing to maintaining an effective and fully operational network of designated officials, who will ensure coordination at national level between relevant competent authorities and other stakeholders including the private sector. Contracting Parties will exchange lists of official national designations between relevant regional and international organisations to ensure coordination. Furthermore, Contracting Parties will have nominated officials from each Contracting Party, who have clear responsibilities to deliver on the actions set out in the action plan.

Reporting and monitoring procedure

7.11. In preparation for the above-mentioned meeting, CPs, relevant national, regional and international organisations, institutions and agencies as well as accredited MAP Partners, the activities of which are relevant to the objectives of the Mediterranean Strategy (2022-2031), will be requested to complete an online concise progress report and provide input on ongoing and future related actions based on the action tables of the Action Plan.

7.12. For each CSO and corresponding Area of Influence, the progress report and input will focus on action, indicator, target and financial resources mobilised.

7.13. The report of the above-mentioned meeting will be publicly available and will be submitted to the Meeting of the Focal Points of REMPEC and to other fora, as appropriate.

Public awareness

7.14. Contracting Parties will be encouraged to regularly communicate to the public on key issues relevant to the Mediterranean Strategy (2022-2031) and to engage with coastal communities and civil society. Contracting Parties will demonstrate to stakeholders that they are delivering on the objectives of the strategy, successfully and effectively. Contracting Parties will also be encouraged to promote the work undertaken to deliver on the CSOs through supporting increased media exposure of relevant activities, the promotion and dissemination of relevant studies, and through the organisation of activities to increase public engagement.

Appendix – Action Plan

CSO 1: Prevent, prepare for, and respond to, operational, illegal and accidental oil and HNS pollution from ships

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
PEOPLE					
1.1 Networks	1.1.1 To maintain and actively participate in the: a) MENELAS b) Mediterranean Technical Working Group (MTWG) c) Clean/SeaNet National Competent Authorities (CSN NCAs) d) Mediterranean AIS Experts Working Group (MAREΣ EWG)	% of CPs having designated officials	100%	To be defined	low
	1.1.2 To capitalize on experience and on knowledge available in other sectors (e.g. knowledge sharing lessons learnt)	Number of seminars, webinars, presentations from other sectors, etc	At least 2 per year	To be defined	low
	1.1.3 To strengthen synergies between relevant networks including: a) IMO Sub-Committee on Pollution Prevention and Response (PPR) b) MTWG c) MENELAS d) Consultative Technical Group for Marine Pollution Preparedness and Response (CTG MPPR) e) the Bonn Agreement and its Working Group on Operational, Technical and Scientific Questions Concerning Counter Pollution Activities (OTSOPA); f) Helsinki Commission (HELCOM); g) North Sea Network of investigators and Prosecutors (NSN) h) the Baltic Sea Network of Environmental Crime Prosecutors (ENPRO) i) NCAs j) Inter-Secretariat Meeting	Number of documents submitted Number of joint products delivered	1 activity report submitted to the various sessions on work carried out by other relevant networks 1 joint product per biennium	To be defined	low

²² Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	k) Union Civil Protection Mechanism (UCPM) l) The Union for the Mediterranean (UfM) m) Relevant EU Marine Strategy Framework Directive (MSFD) Expert Groups, including JRC Expert Group for descriptors 8 and 9 n) Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) o) MEDPAN; p) IUCN; q) MAP; r) SPA/RAC; and s) other institutions concerned with conservation, pollution abatement etc.				
	1.1.4 To foster peer learning (exchange of experts and meeting)	Number of peer reviews in the region	5	To be defined	low
1.2 Capacity Building / Technical Cooperation	1.2.1 To increase as much as practical, the level of knowledge in the field of preparedness and response to accidental marine pollution by oil and other harmful substances by delivering trainings on the following subjects: a) IMO OPRC Model Courses (Level 1, 2 and 3) b) IMO HNS Model Courses (Operational and Manager Level) c) POSOW Model Courses (Train the trainer course, Volunteer management, Oiled Shoreline Assessment, Oiled Shoreline Cleanup, Oiled Wildlife response, Fishermen's Support in Oil Spill Response, Oil Spill Waste Management) d) Waste Management e) Surveillance and monitoring f) MARPOL (Annex I, Annex II, Annex III and Annex IV) g) IMO Port State Control Model Course h) IMO Flag State Implementation Model Course	Number of newly trained personnel per subject	2 newly trained personnel per country per training subject	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	i) EUROWA model wildlife courses (BASIC Responder, ADVANCED Responder, SPECIALIST Responder, Manager, Wildlife Branch Director).				
	1.2.2 To attend workshops, seminars and trainings offered by REMPEC, EMSA and other established networks addressing other topics, for example: a) Circular economy and Sustainable Consumption and Production measures applying to maritime transport and the main maritime business Leisure (pleasure and entertainment cruise business), harvesting of raw materials (oil and gas, offshore mining, fishing), logistics (shipping of food, energy, containers, bulk material) and infrastructure (ferries, local shipping, ports).	% of CPs attending	100%	To be defined	high
	1.2.3 To develop and implement (in cooperation with the chemical industry) multi-sectoral training and contingency planning in case of chemical pollution at sea, for decision makers, citizens and volunteers, on-shore responders, and port authorities.	Training developed	Year tbc	To be defined	high
	1.2.4 To increase awareness on and use of (if needed), the services offered by EMSA in support of the transposition, implementation, and Enforcement following the Ratification of International Conventions including IMSAS within the framework of the SAFEMED project, including: a) the enforcement and implementation of environment related international and European legislation b) Earth Observation services developed and offered by EMSA c) EMSA Remotely Piloted Aircrafts (RPAS) services developed to assist in maritime surveillance operations to support authorities involved in maritime pollution and emissions monitoring; d) Pollution Response Services offered by EMSA	% of CPs aware of services offered	100%	To be defined	high
	1.2.5 To develop an e-learning platform on the prevention, preparedness and response to marine pollution	e-learning platform developed	Year tbc	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	1.2.6 To enhance number of REMPEC Mediterranean Assistance Units (MAU) creating a network within MAU and CPs through REMPEC	Number of MAU	Number tbc	To be defined	high
1.3 Operations	1.3.1 To organise annual / biennial national exercises (standard, table-top; communications) to test national response capabilities, cooperation and mutual assistance between Contracting Parties, REMPEC Mediterranean Assistance Unit (MAU), EMSA pollution response services (where applicable), private sector drills, etc.	Number of full-scale national exercise Number of communication exercise Number of table-top exercise	1 per year 1 per year 1 every two years	To be defined	high
	1.3.2 To organise sub-regional / regional / international exercises to test cooperation arrangements	Number of drills and exercises Number of full-scale or table-top international exercise	1 per sub-region every 2 year 1 every 2 year	To be defined	high
	1.3.3 To develop and implement a process to capture lessons identified during real accidents and exercises and to integrate the follow-up in relevant trainings and subsequent exercises	Successful development and implementation of process Number of training programmes adapted to reflect lessons identified Number of exercises where previously identified lessons are tackled with new approaches	Year tbc 1 programme 1 exercise	To be defined	high
	1.3.4 To develop a framework for holistic integrated management of marine pollution incidents that enable a coordinated preparedness and response operation at sea and onshore, incorporating the response to oil-affected wildlife, at a national level and in the region-wide cooperation	Guidelines, training and exercises on the integrated management for marine pollution incidents developed	Year tbc	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	1.3.5 To establish systems and procedures for national and sub-regional monitoring and surveillance including regular individual or Coordinated Aerial Surveillance Operation for illicit ship pollution discharges in the Mediterranean (OSCAR-MED) in the waters under the jurisdiction of CPs, if the CPs so agree, and results reported to the Meeting of MENELAS;	Number of OSCAR-MED Number of detentions of vessels	1 OSCAR-MED per year 50% reduction in number of detained vessels	To be defined	high
	1.3.6 To increase awareness and facilitate the use of Earth Observation services and RPAS services developed and offered by EMSA	% of CPs aware of services	100%	To be defined	high
	1.3.7 To facilitate the use of EMSA maritime application as platform to exchange AIS information that is shared by the MAREΣ participating countries.	% of CPs aware of services	100%	To be defined	high
	1.3.8 To organise and follow-up analysis of concentrated inspection campaigns on MARPOL-related deficiencies	Number of inspections carried out	5,000 per year	To be defined	high
	1.3.9 To make use of the data collected under THETIS-MeD database to produce meaningful statistics in relation to MARPOL related deficiencies.	% reduction of detentions Number of analysis carried out	5% per year 1 per year	To be defined	high
INSTITUTION					
1.4 Governance	1.4.1 To strengthen the capacity of individual coastal States to respond efficiently to marine pollution incidents at sea and onshore through the establishment and the update of national system for responding to marine pollution, the development and update of national contingency plan (NCP) and sub-regional operational agreements and contingency plans.	% of CPs with established and updated National systems % of CPs with updated and adopted NCP	100% 100%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	1.4.2 To set-up an operational network of Subregional Contingency Plans (SCP), and to define and implement synergy activities between the SCPs	% of CPs Parties to have a SCP in force Number of SCP operationally connected, and synergy activities defined and implemented	At least 80% At least 3	To be defined	medium
	1.4.3 To extend the mandate of SCP to address prevention of pollution from ships	Number of SCP addressing prevention issues	At least 3	To be defined	medium
	1.4.4 To set-up the modalities of possible creation and operation, including in terms of governance and financing of a regional "Blue Fund"	Date for official establishment	year tbc	To be defined	medium
1.5 Ratification / Transposition	1.5.1 To ratify and implement the following legal instrument, to ensure their transposition into national law, and to cooperate to ensure full compliance with their provisions: a) the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, ("2002 Prevention and Emergency Protocol") b) the International Convention for the Prevention of Pollution from Ships (MARPOL) and its Annex I, Annex II, Annex III, and Annex IV c) the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 90 Convention) d) the Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances, 2000 (2000 OPRC-HNS Protocol) e) the 1992 International Convention on Civil Liability for Oil Pollution Damage (CLC Convention) f) the 2001 International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER Convention)	% of CPs having ratified, transposed and enforcing: a) 2002 Prevention and Emergency Protocol b) MARPOL i. Annex I ii. Annex II iii. Annex III iv. Annex IV c) OPRC Convention d) OPRC-HNS Protocol e) CLC Convention f) BUNKER Convention g) FUND 1992 h) The 2010 HNS Protocol	At least 80% for each instrument	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	<p>g) the 1992 International Fund for Compensation for Oil Pollution Damage (FUND 1992)</p> <p>h) the 2010 Protocol to the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996 (The 2010 HNS Protocol).<i>(Still not into force)</i></p>				
1.6 Implementation	1.6.1 To undertake the IMO Member State Audit Scheme (IMSAS), using the III Code as the audit standard and following the Framework and Procedures for the IMO Member State Audit Scheme and implemented corrective measures to address identified gaps	% of CPs having undertaken the IMSAS and implemented corrective measures to address identified gaps	At least 100%	To be defined	high
1.7 Enforcement	1.7.1 To set-up a national legal framework (regulations) as a basis for prosecuting discharge offenders for infringements of MARPOL Annex I, II, III and IV	% of CPs with legal framework in place	At least 80%	To be defined	high
	1.7.2 To use the common marine oil pollution detection / investigation report	% of CPs using report	At least 80%	To be defined	high
	1.7.3 To apply criteria for a common minimum level of fines for each offense provided for under MARPOL Annex I, II, III and IV (without prejudice to the sovereign right of each State to freely define the level of fines for infringements taking place within its jurisdiction)	% of CPs applying common minimum level of fines	At least 80%	To be defined	high
	1.7.4 To set-up the modalities of possible creation and operation, including in terms of governance and financing of a regional "Blue Fund" (Refer to action 1.4.4)	Amount collected from fines	amount tbc	To be defined	high
	1.7.5 To improve effectiveness of the Memorandum of Understanding (MoU) on port State Control (PSC) in the Mediterranean region (Mediterranean MoU) and to facilitate cooperation between the Paris MoU and the Mediterranean MoU	Number of meetings	1 per year	To be defined	high
INFRASTRUCTURE					
1.8 Port Reception Facilities	1.8.1 To provide adequate reception facilities in Mediterranean ports, enabling their use as soon as they are available at a fee which should be reasonable and should not serve as a disincentive for those ships that use	<p>a) For oily wastes</p> <p>i. % of major ports having</p>	100%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	<p>them for disposal of:</p> <ul style="list-style-type: none"> a) oily wastes b) Noxious Liquid Substances (NLS) c) sewage 	<p>established collection, treatment and disposal procedures for bilge waters, oily residues and dirty ballast waters; and</p> <ul style="list-style-type: none"> ii. % of major ports with collection, treatment and disposal procedures for bilge waters, oily residues and dirty ballast waters in place <p>b) For Noxious Liquid Substances (NLS):</p> <ul style="list-style-type: none"> i. % of major ports handling NLS having established collection, treatment and disposal procedures for NLS; and ii. % of major ports with collection, treatment and disposal procedures for NLS in place. <p>c) For sewage:</p> <ul style="list-style-type: none"> i. % of major ports having established collection and treatment procedures for sewage; and 	<p>100%</p> <p>100%</p> <p>100%</p> <p>100%</p>		

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
		ii. % of major ports with collection and treatment procedures for sewage in place.	100%		
1.9 Alternative Energy / New Technologies	1.9.1 To follow-up on international development on response techniques to alternative fuel spills and provide necessary guidances and capacity building to CPs	Development on response techniques shared with CPs	Upon approval of relevant documents at IMO	To be defined	high
1.10 Response Means	1.10.1 To have and maintain adequate oil and / HNS pollution response capabilities (both in human resources and equipment)	% of CPs having carried out national assessments on response capacities	At least 80%	To be defined	high
		% of CPs having adequate oil pollution response capabilities	At least 80%		
		% of CPs with adequate HNS response capabilities	At least 80%		
% of CPs contributing to the pool of equipment		100%			
	1.10.2 To establish a pool of oil and HNS pollution response means at sub-regional and regional level	Pool established	year tbc	To be defined	low
	1.10.3 To raise awareness on the EMSA pollution response services available in the Mediterranean.	% CPs aware of services	100%	To be defined	high
1.11 Surveillance / Monitoring Means	1.11.1 To have and maintain adequate surveillance and monitoring capabilities	% of CPs with adequate surveillance and monitoring capabilities	At least 50%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
		% of CPs with access to CleanSeaNet	100%		
	1.11.2 To increase awareness on the Earth Observation services developed and offered by EMSA and on the EMSA RPAS services for surveillance	% of CPs aware of services	100%	To be defined	medium
	1.11.3 To increase awareness on the AIS based traffic monitoring services offered by EMSA (e.g. SafeSeaNet Ecosystem Graphical User Interface (SEG) and the regional cooperation entities (e.g. Mediterranean regional AIS server (MAREΣ)).	% of CPs aware of services	100%	To be defined	medium
	1.11.4 To set up a common emergency communication system for the whole Mediterranean	% of CPs with access to the common system	100%	To be defined	high
INFORMATION AND KNOWLEDGE SHARING					
1.12 Standards / Guidelines	1.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the implementation of the 2002 Prevention and Emergency Protocol, MARPOL (Annex I, Annex II, Annex III, Annex IV), OPRC Convention, OPRC-HNS Protocol, CLC Convention, BUNKER Convention, The 2010 HNS Protocol	Number of Guidelines revised and/or updated Number of downloads of Guidelines per year	To be defined through the MTWG To be defined through the MTWG	To be defined	medium
	1.12.2 To consider regional host nation support guidelines (alternatively a dedicated chapter could be included in the the Mediterranean Guide on Cooperation and Mutual Assistance)	Date guidelines developed / dedicated chapter is included	Year tbc	To be defined	medium
	1.12.3 To apply existing and new guidelines in particular:	% of CPs having applied these guidelines	100%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	<ul style="list-style-type: none"> a) Guide for Combating Accidental Marine Pollution in the Mediterranean Sea. (REMPEC, 2000) b) Guidelines for the use of dispersants for combating oil pollution at sea in the Mediterranean region (REMPEC, 2011) c) Mediterranean Oiled Shoreline Assessment Guidelines (REMPEC, 2009) d) Mediterranean Oil Spill Waste Management Guidelines (REMPEC, 2012) e) The significance of a material safety data sheet (REMPEC, 2001) f) Personal protective equipment and monitoring devices for maritime chemical emergencies (REMPEC, 2003) g) Theory and practice of foams in chemical spill response (REMPEC, 1992) h) Risks of gaseous releases resulting from maritime incidents (REMPEC, 2018) i) Practical Guide for Marine Chemical Spills (REMPEC, 2000) j) Mediterranean Guide on Cooperation and Mutual Assistance in Responding to Marine Pollution Incidents (REMPEC, 2018) k) Oiled Shoreline Assessment Manual (POSOW,2013) l) Oiled Shoreline Cleanup Manual (POSOW, 2013) m) Oil Spill Volunteer Management Manual (POSOW, 2013) n) Oiled Wildlife Response Manual (POSOW, 2013) o) Oil Spill Waste Management Manual (POSOW,2016) p) Fishermen's Support in Oil Spill response Manual (POSOW, 2016) q) HNS Response Manual (2021) adopted at the next meeting of focal point of REMPEC r) Manual on oil spill risk evaluation and assessment of response preparedness (2010 edition) s) IMO/UNEP Guidance Manual on the assessment and restoration of environmental damage following marine oil spills (2009 edition) 				

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	<ul style="list-style-type: none"> t) Guidance document on the implementation of an incident management system (IMS) (2012 edition) u) Guidance on the safe operation of oil pollution combating equipment (2017) v) Guideline for oil spill response in fast currents (2013 edition) w) Bioremediation in marine oil spills (2004 edition) x) Guidelines for the development of shipboard marine pollution emergency plans (2010 edition) y) IMO/FAO Guidance on managing seafood safety during and after oil spills (2002 edition) z) Manual on chemical pollution: <ul style="list-style-type: none"> o Section 1 – Problem Assessment and Response Arrangements (1999 edition) o Section 2 – Search and Recovery of Packaged Goods lost at Sea (2007 edition) aa) Field guide for oil spill response in Tropical waters (1997 edition) bb) Guide on the implementation of the OPRC convention and OPRC-HNS Protocol (2020 edition) cc) Bonn Agreement Helcom REMPEC Marine HNS Response Manual (2021) dd) Other relevant guidelines as made available, alongside any relevant documents produced, including lessons learnt from accident experience. 				
1.13 Decision Making Tools	<p>1.13.1 To improve the quality, speed and effectiveness of decision-making process through the maintenance, update, upgrade, development and inter-connection of technical and decision support tools, including:</p> <ul style="list-style-type: none"> a) Barcelona Convention Reporting System (BCRS) b) REMPEC Country Profile c) MENELAS Information system 	<p>Number of decision support tool maintained, updated and upgraded</p> <p>Number decision support tool developed</p>	<p>6</p> <p>To be defined</p>	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	<ul style="list-style-type: none"> d) The Maritime Integrated Decision Support Information System on Transport of Chemical Substances (MIDSIS-TROCS) e) The Mediterranean Integrated Geographical Information System on Marine Pollution Risk Assessment and Response (MEDGIS-MAR) f) Mediterranean Oil Spill Waste Management Decision Support Tool (Waste Management) g) Common Emergency and Information System (CECIS) h) EU SafeSeaNet, the vessel traffic monitoring and information system covering the waters in and around EU i) Data and images from Earth Observation satellites (CleanSeaNet and Copernicus services) j) THETIS-MeD k) Mediterranean AIS experts working group (MAREΣ) l) Global Integrated Shipping Information System (GISIS) 				
	<p>1.13.2 To update country specific information on existing and new decision support tool notably the BCRS, REMPEC Country Profile, MENELAS Information system, MEDGIS-MAR, Waste Management and CECIS.</p>	<p>% of CPs having updated national information for each decision support tool</p> <p>% of CPs using each decision support tool</p>	<p>At least 80%</p> <p>At least 80%</p>	<p>To be defined</p>	<p>high</p>
	<p>1.13.3 To establish a system of notification to a vessel's next port of call of the status of its on board retention of bilge waters, oily wastes, HNS residues, sewage, garbage, ozone-depleting substances and exhaust gas cleaning residues;</p>	<p>Date of establishment</p>	<p>2030</p>	<p>To be defined</p>	<p>low</p>
<p>1.14 Monitoring and Reporting Obligations</p>	<p>1.14.1 To ensure compliance with reporting obligations under the Barcelona Convention and the 2002 Prevention and Emergency Protocol by reporting measures undertaken through the BCRS and inter-linked reporting databases, such as the IMAP and MEDGIS-MAR, notably:</p>	<p>% of CPs having reported measure on the BCRS</p>	<p>At least 80%</p>	<p>To be defined</p>	<p>high</p>

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
	a) All incidents; b) The presence, characteristics and extent of spillages of oil and HNS; c) Immediately inform all CPs likely to be affected by the incident; d) Continue to observe the situation for as long as possible; e) POLREP (POLWARN, POLINE and POLFAC); and f) Information on illicit discharges on the MEDGIS-MAR				
	1.14.2 To comply with IMO reporting requirement (SOLAS, MARPOL, OPRC-90 & OPRC-HNS Prot) notably: a) Mandatory reporting system under MARPOL (MEPC/Circ.318) b) Condition Assessment Scheme c) Pollution Prevention Equipment d) Contact Points e) Marine Casualty and Incidents f) Port States Control g) Information on assistance that may be made available to other States; and h) Copies of bilateral or multilateral agreements.	% of CPs being compliant with IMO GISIS and other reporting requirements	At least 80%	To be defined	high
	1.14.3 To update MEDGIS-MAR with national inventory of response equipment	% of CPs having shared their equipment	At least 80%	To be defined	high
	1.14.4 To further streamline reporting procedures	Number of reporting systems	1	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²²	Priority Level
1.15 Research and Development	1.15.1 To provide assistance to regional institutions and industry in identifying fields of research in which there is a need for enhancement of the state-of-the-art of marine pollution prevention, preparedness and response technologies and techniques.	% of CPs having shared the results of their research	At least 80%	To be defined	medium
	1.15.2 To provide assistance and encourage scientific and technical institutions, as well as industry, to actively participate in research and development activities and programmes related to accidental marine pollution prevention, preparedness and response, and to share systematically the results of their research to all Mediterranean Coastal States	% of CPs having share the results of their research	At least 80%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²³	Priority Level
	<p>k) EU MRV Regulation (Regulation 2015/757 of the European Parliament and of the Council) on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport</p> <p>l) Reporting requirements to THETIS MRV, enabling companies responsible for the operation of large ships using EU ports to report their CO₂ emissions under the Regulation (EU) 2015/757 on Monitoring, Reporting and Verification of CO₂ from marine transport.</p>				
	2.2.2 To promote technologies and operations to improve energy efficiency in the maritime sector building on the experience of Maritime Technologies Cooperation Centres (MTCCs)	% of CPs aware of new technologies and operations	100%	To be defined	medium
	2.2.3 To use the provision of services, in support of the Transposition, Implementation, and Enforcement following the Ratification of International Conventions, offered under the SAFEMED project.	% CPs making use of such services	100%	To be defined	high
	2.2.4 To contribute to the possible establishment of externally funded major projects under the auspices of IMO in support of the Initial IMO Strategy on Reduction of GHG Emissions from Ships, such as the on-going IMO-Norway GreenVoyage2050 Project, and their subsequent implementation in the Mediterranean, as appropriate	Number of CPs contributing	At least 2	To be defined	low
2.3 Operations	2.3.1 To organise campaigns to monitor ship emissions	Number of campaigns	1 per year	To be defined	medium

INSTITUTION					
2.4 Governance	2.4.1 To support the implementation of the ‘Initial IMO Strategy on Reduction of GHG Emissions from Ships’ (Res. MEPC.304(72))	% of CP implementing the Initial IMO Strategy on Reduction of GHG Emissions from Ships	100%	To be defined	high
	2.4.2 To include enforcement of MARPOL Annex VI, in the context of the setting up of the modalities of possible creation and operation, including in terms of governance and financing of a regional ”Blue Fund”	Modalities of possible creation and operation, including in terms of governance and financing of a regional ”Blue Fund”	Adopted	To be defined	high
2.5 Ratification / Transposition	2.5.1 To ratify and implement MARPOL Annex VI, to ensure its transposition into national law, and to cooperate to ensure full compliance with its provisions	% of CPs having ratified, transposed and enforcing: MARPOL Annex VI	100%	To be defined	high
2.6 Implementation	2.6.1 To undertake the IMO Member State Audit Scheme (IMSAS), using the III Code as the audit standard and following the Framework and Procedures for the IMO Member State Audit Scheme and implemented corrective measures to address identified gaps	% of CPs having undertaken the IMSAS and implemented corrective measures to address identified gaps % of ships adhering to MARPOL Annex VI requirements % of CPs’ administrations being effective in carrying out all their responsibilities and obligations under MARPOL Annex VI	100% At least 80% At least 80%	To be defined	high
	2.6.2 To comply with the mandatory technical and operational requirements which apply to ships of 400 GT and above, i.e. the EEDI, applicable to new ships, which sets a minimum energy efficiency level for the work undertaken (e.g. CO ₂ emissions per tonne-mile) for different ship types and sizes, and the SEEMP, applicable to all ships	% of ships transiting the Mediterranean region constructed in 2025 to be at least 30% more energy efficient than those constructed in 2014	100%	To be defined	high
2.7 Enforcement	2.7.1 To define appropriate technical assistance, guidance and knowledge required for setting up national legal framework (regulations) for prosecuting offenders for infringements of MARPOL Annex VI, through MENELAS	% of CPs contributing to the definition of appropriate technical	At least 50%	To be defined	high

		assistance, guidance and knowledge required			
	2.7.2 To set-up a national legal framework (regulations) as a basis for prosecuting offenders for infringements of MARPOL Annex VI	% of CPs with legal framework in place	At least 80%	To be defined	high
INFRASTRUCTURE					
2.8 Port Reception Facilities	2.8.1 To provide adequate reception facilities in Mediterranean ports, enabling their use as soon as they are available at a fee which should be reasonable and should not serve as a disincentive for those ships that use them for disposal of ozone-depleting substances and exhaust gas cleaning residues	% of major ports having established collection and treatment procedures for ozone-depleting substances and exhaust cleaning residues	100%	To be defined	high
		% of major port with collection and treatment procedures for such substances and residues in place	100%		
2.9 Alternative Energy / New Technology	2.9.1 To promote the use of zero emission fuels and introduced related facilities	% availability of adequate facilities in the Mediterranean region	100%	To be defined	medium
	2.9.2 To promote a zero-emissions berth standard	% of CPs with zero emissions berth standard in place	100%	To be defined	medium
	2.9.3 To provide adequate onshore power supplies	% of CPs having onshore electrical power supply in place.	100%	To be defined	high
2.10 Response Means	N/A	N/A	N/A	N/A	N/A

2.11 Surveillance / Monitoring Means	2.11.1 To have and maintain adequate surveillance and monitoring capabilities, including, if possible, access to the Remotely Piloted Aircraft System Services (RPAS)	% of CPs having surveillance and monitoring capabilities	100%	To be defined	high
INFORMATION AND KNOWLEDGE SHARING					
2.12 Standards / Guidelines	2.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the implementation of MARPOL Annex VI	% of CPs having downloaded/been provided with such guidelines	100%	To be defined	medium
	2.12.2 To apply existing and new guidelines in particular: <ul style="list-style-type: none"> a) GloMEEP Ship emissions toolkit guide no.1: Rapid assessment of ship emissions in the national context b) GloMEEP Ship emissions toolkit guide no.2: Incorporation of MARPOL Annex VI into national law c) GloMEEP Ship emissions toolkit guide no.3: Development of a national ship emissions reduction strategy d) GloMEEP Port emissions toolkit guide no.1: Assessment of port emissions e) GloMEEP Port emissions toolkit guide no.2: Development of port emissions reduction strategies f) 2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships, as amended (resolution MEPC.245(66)); g) 2016 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP) (resolution MEPC.282(70)); h) 2014 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI), as amended (resolution MEPC.254(67)); i) 2013 Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI) (resolution MEPC.231(65)); j) 2018 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for new Ships (MEPC.308(73)); 	% of CPs having applied these guidelines	100%	To be defined	medium

	2.12.3 . To develop guidelines for alternative energy applications	Guidelines developed	Year tbc	To be defined	medium
2.13 Decision Making Tools	2.13.1 Increase awareness of any decision-support tools available to CPs and industry in particular those developed within the GloMEEP and the “Capacity Building for Climate Mitigation in the Maritime Shipping Industry – The Global MTCC Network (GMN)” projects	% of CPs being provided access to such tool % of CPs using each decision support tool	100% A 100%	To be defined	medium
	2.13.2 To establish a system of notification to a vessel’s next port of call of the status of its on board retention of ozone-depleting substances and exhaust gas cleaning residues;	Date of establishment	2030	To be defined	low
2.14 Monitoring and Reporting Obligations	2.14.1 To comply with the mandatory reporting obligations under MARPOL Annex VI, Regulation 22, taking into consideration the guidance notes as set out in MEPC.320(74), MEPC.282(70), MEPC.292(71), MEPC.293(71),	% of CPs to have complied with the mandatory reporting obligations	100%	To be defined	high
2.15 Research and Development	2.15.1 To support research and development to improve energy efficiency of international shipping	% of CPs participating in research and development activities	50%	To be defined	medium
	2.15.2 To provide assistance to regional institutions and industry in identifying fields of research in which there is a need to improve energy efficiency of international shipping	% of CPs having shared the results of their research	At least 80%	To be defined	medium
	2.15.3 To encourage scientific and technical institutions, as well as the industry, to actively participate in research and development activities and programmes related to energy efficiency of international shipping, and to share systematically the results of their research to all Mediterranean Coastal States	% of CPs having shared the results of their research	At least 80%	To be defined	medium
	2.15.4 To promote, disseminate relevant studies on energy efficiency of international shipping, notably: a) Study of emission control and energy efficiency measures for ships in the port area b) Study of emission control and energy efficiency measures for ships in the port area c) Study on the optimization of energy consumption as part of implementation of a ship energy efficiency management plan (SEEMP)	% of CPs aware of such studies	100%	To be defined	medium

	<ul style="list-style-type: none"> d) Studies on the feasibility and use of zero emission fuels (such as green hydrogen and green ammonia) for shipping e) Investigation of appropriate control measures (abatement technologies) to reduce black carbon emissions from international shipping f) Third IMO Greenhouse gas study 2014 g) Fourth IMO Greenhouse gas study 2020 				
	<p>2.15.5 Assess the contribution of the shipping industry to sea acidification</p>	<p>Number of reports prepared on sea acidification</p>	<p>1 report prepared</p>	<p>To be defined</p>	<p>medium</p>

CSO 3: Reduce and monitor air emissions from ships to a level that is not harmful to the marine environment, or the health of the coastal population of the Mediterranean

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
PEOPLE					
3.1 Networks	3.1.1 To actively participate in existing global and regional working groups established to reduce SOx and NOx emissions from ships notably the SOx/NOx Technical Committees of Experts, MENELAS, IMO Working Group on Reduction of GHG Emissions from Ships, and Global Network of Maritime Technology Cooperation Centres (MTCC) and Regional Seas Programmes (HELCOM, OSPAR, Bonn Agreement)	% of CPs participating in existing global and regional working groups	At least 50%	To be defined	low
3.2 Capacity Building / Technical Cooperation	3.2.1 To increase as much as practical, the level of knowledge in the field of SOx and NOx emission control area requirements under MARPOL Annex VI by providing technical assistance and capacity building activities	% of personnel trained	2 newly trained personnel per country	To be defined	high
	3.2.2 To increase as much as practical, the level of knowledge in the field of SOx requirements under Directive (EU) 2016/802 relating to a reduction in the sulphur content of certain liquid fuels and tools and the relevant services developed by EMSA (THETIS-EU / RPAS) for its implementation	Number of CPs updated with such information	100%	To be defined	high
	3.2.3 To increase awareness on and use of, if needed, the services made available by EMSA in support of the Transposition, Implementation, and Enforcement following the Ratification of International Conventions under the SAFEMED project	Number of CPs aware of such information	100%	To be defined	high
	3.2.4 To increase awareness on and use of, if needed, the services made available by EMSA with the aim to extend cooperation in the area of Directive 2002/59/EC – VTMIS (as amended)	Number of CPs aware of these services	100%	To be defined	high

²⁴ Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
	3.2.5 To increase awareness / knowledge on sea acidification and its impact on marine ecosystems.	Circulation of report(s) on the impact of sea acidification	At least 1 report circulated to CPs	To be defined	medium
3.3 Operations	3.3.1 To organise campaigns to monitor ship emissions	Number of campaigns	1 per year	To be defined	high
	3.3.2 To contribute to the possible establishment of externally funded major projects under the auspices of IMO in support of the Initial IMO Strategy on Reduction of GHG Emissions from Ships, such as the on-going IMO-Norway GreenVoyage2050 Project, and their subsequent implementation in the Mediterranean, as appropriate	Number of CPs contributing	At least 2	To be defined	low
INSTITUTION					
3.4 Governance	3.4.1 To support the implementation of ‘Decision IG. 24/8 on the Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides Pursuant to MARPOL Annex VI, within the Framework of the Barcelona Convention’.	Status of implementation of Decision IG. 24/8	100% implemented	To be defined	high
	3.4.2 To agree upon and implement a Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Nitrogen Oxides Pursuant to MARPOL Annex VI, within the Framework of the Barcelona Convention’.	Roadmap submitted	To be defined	To be defined	high
	3.4.3 To include enforcement of MARPOL Annex VI, in the context of the setting up of the modalities of possible creation and operation, including in terms of governance and financing of a regional ”Blue Fund”	Modalities of possible creation and operation, including in terms of governance and financing of a regional ”Blue Fund”	Adopted	To be defined	high
3.5 Ratification / Transposition	3.5.1 To ratify and implement MARPOL Annex VI, to ensure its transposition into national law, and to cooperate to ensure full compliance with its provisions	% of CPs having ratified, transposed and enforcing MARPOL Annex VI	100%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
3.6 Implementation	3.6.1 To undertake the IMO Member State Audit Scheme (IMSAS), using the III Code as the audit standard and following the Framework and Procedures for the IMO Member State Audit Scheme and implemented corrective measures to address identified gaps	<p>% of CPs having undertaken the IMSAS and implemented corrective measures to address identified gaps</p> <p>% of ships adhering to MARPOL Annex VI requirements</p> <p>% of CPs' administrations being effective in carrying out all their responsibilities and obligations under MARPOL Annex VI</p>	<p>100%</p> <p>100%</p> <p>100%</p>	To be defined	high
3.7 Enforcement	3.7.1 To set-up a national legal framework (regulations) as a basis for prosecuting discharge offenders for infringements of the MARPOL Annex VI	% of CPs with legal framework in place	At least 80%	To be defined	high
INFRASTRUCTURE					
3.8 Port Reception Facilities	3.8.1 To provide adequate reception facilities in Mediterranean ports, enabling their use as soon as they are available at a fee which should be reasonable and should not serve as a disincentive for those ships who use them for disposal of scrubbers' residues.	% of major ports having the required PRF for scrubber waste in place	100%	To be defined	high
3.9 Alternative Energy / New Technologies	3.9.1 To provide low-sulphur oxides fuels for international shipping	Number of ports providing adequate low-sulphur oxides bunkering facilities in the Mediterranean region	At least one per country	To be defined	medium
	3.9.2 To introduce alternative bunkering facilities and use LNG gas as fuel for international shipping	Number of ports providing adequate LNG bunkering facilities in the Mediterranean region	At least one per country	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
	3.9.3 To provide adequate onshore power supplies	Number of ports having onshore electrical power supply in place.	At least one per country	To be defined	high
3.10 Response Means	N/A	N/A	N/A	N/A	N/A
3.11 Surveillance / Monitoring Means	3.11.1 To have and maintain adequate surveillance and monitoring capabilities, including, if possible, access to the Remotely Piloted Aircraft System Services	% of CPs having surveillance and monitoring capabilities in place	100%	To be defined	high
	3.11.2 To make use of THETIS-MED which serves as a platform to record and exchange information on the results of individual compliance verifications performed by Member States as foreseen by Directive (EU) 2016/802 on the reduction in the sulphur content of marine fuels.	% of CPs using THETIS-MED for such analysis	100%	To be defined	high
	3.11.3 Within the framework of EMSA's implemented cooperation projects, to make use of EMSA maritime application which serves as a platform to exchange AIS information that is shared by the Mediterranean AIS Regional Server (MAREΣ) participating Contracting Parties.	% of Cps making use of application	100%	To be defined	high
INFORMATION AND KNOWLEDGE SHARING					
3.12 Standards / Guidelines	3.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the implementation of MARPOL Annex VI	% of CPs having downloaded/been provided with such guidelines	100%	To be defined	medium
	3.12.2 To apply existing and new guidelines in particular: a) GloMEEP Ship emissions toolkit guide no.1: Rapid assessment of ship emissions in the national context b) GloMEEP Ship emissions toolkit guide no.2: Incorporation of MARPOL annex VI into national law	% of CPs having applied these guidelines	100%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
	<ul style="list-style-type: none"> c) GloMEEP Ship emissions toolkit guide no.3: Development of a national ship emissions reduction strategy d) GloMEEP Port emissions toolkit guide no.1: Assessment of port emissions e) GloMEEP Port emissions toolkit guide no.2: Development of port emissions reduction strategies f) 2015 Guidelines for exhaust gas cleaning systems (MEPC.259(68)); g) 2019 Guidelines for PSC under MARPOL Annex VI, Chapter 3 (MEPC.321(74)); h) 2019 Guidelines for consistent implementation of the 0.5% sulphur limit under MARPOL Annex VI (MEPC.320(74)) 				
3.13 Decision Making Tools	3.13.1 To increase awareness of all the decision-support tools available to CPs and industry	<p>% of CPs being provided access to such tools</p> <p>% of CPs using each decision support tool</p>	<p>100%</p> <p>100%</p>	To be defined	medium
3.14 Monitoring and Reporting Obligations	3.14.1 To comply with all the mandatory reporting obligations under MARPOL Annex VI, Regulations, 11, 18, noting contents of MEPC.320(74), MEPC.1/Circ.880	% of CPs to have complied with the mandatory reporting obligations	100%	To be defined	high
	3.14.2 To establish monitoring systems in their ports and coastal region	% of CPs with monitoring systems in place in major ports around the Mediterranean	100%	To be defined	high
	3.14.3 To provide information on the monitoring, reporting and verification of SOx and NOx emissions	% of CPs having shared relevant information	50%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁴	Priority Level
3.15 Research and Development	3.15.1 To encourage CPs to participate in research and development and studies carried out on national, regional and international (within IMO) levels	% of CPs participating in relevant research and development activities	50%	To be defined	medium

CSO 4: Prevent and reduce litter (in particular plastic) entering the marine environment from ships, in order to limit the environmental, health, and socio-economic impact of marine litter in the Mediterranean

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁵	Priority Level
PEOPLE					
4.1 Networks	4.1.1 To contribute to the work of United Nations bodies and agencies, as well as international fora, which are active in the matter of marine plastic litter from shipping, notably the <ul style="list-style-type: none"> a) IMO Working Group on Marine Plastic Litter b) Food and Agriculture Organization of the United Nations (FAO) through the Joint FAO/IMO Ad Hoc Working Group on Illegal Unreported and Unregulated (IUU) Fishing & Related Matters (JWG); Private stakeholders (Cruise liners, etc) c) Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP); d) UN Environment-managed Global Partnership on Marine Litter (GPML); e) UN Open-ended informal Consultative Process on Oceans and the Law of the Sea (ICP); and f) United Nations Environment Assembly (UNEA); and g) UNEP Expert group h) MSFD TG Marine Litter 	% of CPs participating into the relevant international working groups	At least 50%	To be defined	low
	4.1.2 To make information available to UNEA through IMO or UNEP/MAP, as appropriate	Number of updates provided	1 per year	To be defined	medium

²⁵ Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁵	Priority Level
4.2 Capacity Building / Technical Cooperation	4.2.1 To implement targeted technical cooperation and Capacity-building activities, in the Mediterranean to address relevant implementation issues related to the Regional Plan on Marine Litter Management in the Mediterranean and the IMO Action Plan to Address Marine Plastic Litter from Ships especially within the framework of the “Marine Litter-MED II” Project (e.g. scaling up and pilot project implementation of related measures of the Regional Plan on Marine Litter Management in the Mediterranean) and the IMO’s Integrated Technical Cooperation Programme (ITCP), as appropriate;	Number of trained personnel	2 newly trained personnel per country per training subject	To be defined	high
	4.2.2 To promote the collaboration among private sector operators, particularly cruise companies, to address single-use-plastics within their operations (i.e. hospitality services, toileteries)	Number of companies that take measures to address SUP	5	To be defined	low
	4.2.3 To contribute to the possible adjustments of the IMO model course “Marine Environmental Awareness 1.38” to specifically address marine plastic litter, and promote its use in the Mediterranean.	% of CPs contributing	50%	To be defined	low
	4.2.4 To contribute to the possible establishment of externally funded major projects under the auspices of IMO in support of the IMO Action Plan to Address Marine Plastic Litter from Ships, such as the] IMO-FAO-Norway GloLitter Partnerships Project, and their subsequent implementation in the Mediterranean, as appropriate	Number of CP contributing	At least 3	To be defined	low
	4.2.5 To increase awareness on and use of, if needed, the services made available by EMSA in support of the Transposition, Implementation, and Enforcement following the Ratification of International Conventions offered under the SAFEMED project	% of CPs aware of such services	100%	To be defined	high
	4.2.6 To increase awareness on and use of, if needed, the services developed and made available by EMSA with the aim to extend cooperation in the area of Directive 2002/59/EC – VTMS (as amended).	% of CPs aware of such services	100%	To be defined	high
4.3 Operations	N/A	N/A	N/A	N/A	N/A

INSTITUTION					
4.4 Governance	4.4.1 To strengthen the capacity of individual coastal States to respond efficiently to pollution by marine plastic litter	% of CPs having the capacity to respond efficiently to pollution by marine plastic litter	100%	To be defined	high
	4.4.2 To implement specific actions to address marine plastic litter from ships in the Mediterranean arising from the Regional Plan on Marine Litter Management in the Mediterranean, the IMO Action Plan to Address Marine Plastic Litter from Ships, as well as other relevant plans or initiatives, including the forthcoming IMO Strategy on marine plastic litter from ships, as appropriate;	% of CPs having fully implemented relevant provisions of the: - Regional Plan on Marine Litter Management in the Mediterranean, - IMO Action Plan to Address Marine Plastic Litter from Ships	100% 100%	To be defined	high
	4.4.3 To explore with the IMO and UNEP/MAP steps that could be taken within their respective mandates to establish synergies with a view to enhancing cooperation and coordination in implementing their respective plans or strategies on marine plastic litter from ships as well as other relevant plans or initiatives.	Number of meetings held	1 per year	To be defined	medium
4.5 Ratification / Transposition	4.5.1 To ratify and implement MARPOL Annex V, to ensure its transposition into national law, and to cooperate to ensure full compliance with its provisions and as appropriate, actions from the IMO Action Plan on plastic litter and microplastics. Transposition and implementation of related UNEA resolutions/provisions.	% of CPs having ratified, transposed and enforcing MARPOL Annex V	100%	To be defined	high
	4.5.2 To implement national regulations empowering maritime authorities to require, if they deem it necessary, the Masters of vessels to discharge wastes into designated port reception facilities before sailing	% of CPs having implemented the national regulations	At least 80%	To be defined	high
4.6 Implementation	4.6.1 To undertake the IMO Member State Audit Scheme (IMSAS), using the III Code as the audit standard and following the Framework and Procedures for the IMO Member State Audit Scheme and implemented corrective measures to address identified gaps	% of CPs having undertaken the IMSAS and implemented corrective measures to address identified gaps	100%	To be defined	high

	4.6.2 To encourage CPs to implement the relevant measures provided for in the Regional Plan on Marine Litter Management in the Mediterranean in line with the timetables, using the Operational Guidelines on the Provisions of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes in the Mediterranean (Decision IG.24/11, Annex III) as well as the Guidance Document to Determine the Application of Charges at Reasonable Costs for the Use of Port Reception Facilities or, when Applicable, Application of the No-Special-Fee System, in the Mediterranean (Decision IG.24/11, Annex IV), and sharing best practices and lessons learned in this process in the Mediterranean	% of ships adhering to MARPOL Annex V requirements % of CPs implementing relevant obligations under the Regional Plan on Marine Litter Management in the Mediterranean	100% 100%	To be defined	high
	4.6.3 To provide assistance to CPs to effectively implement their obligation to provide adequate facilities at ports and terminals for the reception of garbage, as required by regulation 8 of MARPOL Annex V	% of CPs' administrations being effective in carrying out all their responsibilities and obligations under MARPOL Annex V	100%	To be defined	high
	4.6.4 To explore and implement (to the extent possible) ways and means to charge reasonable costs for the use of port reception facilities or when applicable, apply a 'No-Special-Fee' system (including provisions for passively fished waste and the right of delivery).	Number of ports with a 'no special fee' system in place	1 per country	To be defined	high
	4.6.5 To encourage Contracting Parties to become members of the GGGI and promote national action against ghost gear, including improved producer responsibility regimes.	% of CPs signed up to the GGGI	80%	To be defined	high
4.7 Enforcement	4.7.1 To contribute to the development of possible IMO mechanisms to enhance the enforcement of MARPOL Annex V requirements for the delivery of garbage to reception facilities, and their implementation in the Mediterranean;	% of CPs contributing	50%	To be defined	high
	4.7.2 To set-up a national legal framework (regulations) as a basis for prosecuting discharge offenders for infringements of MARPOL Annex V	% of CPs with legal framework in place	At least 80%	To be defined	high
	4.7.3 To apply criteria for a common minimum level of fines for each offense provided for under MARPOL Annex V	% of CPs applying common minimum level of fines	At least 80%	To be defined	high

	4.7.4 To carry out FSI inspections to ensure that registered vessels, including pleasure carft and fishing boats, comply with MARPOL Annex V requirements and any other national rules and regulations;	Number of inspections, deficiencies found, and ships detained	100% compliance	To be defined	high
	4.7.5 To improve effectiveness of the Memorandum of Understanding (MoU) on port State control (PSC) in the Mediterranean region (Mediterranean MoU) and to facilitate cooperation between the Paris MoU and the Mediterranean MoU	Number of joint concentrated inspections	1 per year	To be defined	high
INFRASTRUCTURE					
4.8 Port Reception Facilities	4.8.1 To contribute to the development of IMO tools to support the implementation of cost frameworks associated with port reception facilities, taking into account the need not to create disincentives for the use of port reception facilities, the potential benefits of cost incentives that provide no additional fees based on volume and identifying waste types that can be reduced, reused or recycled through schemes that identify waste revenue	Number of ports having installed facilities for the collection of garbage and procedures for its disposal;	At least one per country	To be defined	high
	4.8.2 To provide adequate reception facilities in Mediterranean ports, enabling their use as soon as they are available at a fee which should be reasonable and should not serve as a disincentive for those ships that use them for the disposal of garbage	Number of ports with collection and disposal procedures for garbage in place	At least one per country	To be defined	high
	4.8.3 To contribute to the establishment of possible IMO requirement for port reception facilities	% CPs contributing	50%	To be defined	high
	4.8.4 To provide for separate garbage collection for plastic waste from ships, including fishing gear	% of CPs provided seperate collection	50%	To be defined	high
	4.8.5 To provide assistance to CPs to effectively manage marine litter accidentally collected during fishing activities (the so-called “Fishing for Litter”) as well as damaged fishing gears, providing assistance to realise adequate port reception facilities and cooperation within stakeholders	% of CPs to have requested assistance	50%	To be defined	high
4.9 Alternative energy / New Technologies	N/A	N/A	N/A	N/A	N/A
4.10 Response means	N/A	N/A	N/A	N/A	N/A

4.11 Surveillance / Monitoring Means	4.11.1 To assist CPs in setting up surveillance / monitoring systems, including procedures and systems both in port and around the coast (aerial surveillance using RPAS)	% number of CPs having a surveillance / monitoring system in place	At least 80%	To be defined	high
	4.11.2 To carry out FSI and PSC inspections to ensure that vessels and crafts are in compliance with MARPOL Annex V	Number of inspections / detentions	No detentions	To be defined	high

INFORMATION AND KNOWLEDGE SHARING					
4.12 Standards / Guidelines	4.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the implementation of MARPOL Annex V: a) IMO Action Plan to address marine plastic litter from Ships (Res. MEPC.310(73)); b) 2017 Guidelines for the Implementation of MARPOL Annex V (Res.MEPC.295(71)) c) Guidelines concerning Pleasure Craft Activities and the Protection of the Marine Environment in the Mediterranean (Decision IG 17/9); d) Operational Guidelines on the Provisions of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes in the Mediterranean (Decision IG.24/11, Annex III); and e) Guidance Document to Determine the Application of Charges at Reasonable Costs for the Use of Port Reception Facilities or, when Applicable, Application of the ‘No Special Fee System’, in the Mediterranean (Decision IG.24/11, Annex IV).	% of CPs having downloaded/been provided with such guidelines	100%	To be defined	medium
	4.12.2 To contribute to the IMO review of the application of placards, garbage management plans and garbage record-keeping in MARPOL Annex V in the Mediterranean.	% CPs contributing	50%	To be defined	medium

	4.12.3 To support and promote the uptake of the FAO Voluntary Guidelines of the Marking of Fishing Gear in the Mediterranean	% of CPs using guidelines	100%	To be defined	medium
	4.12.4 To promote the use of the regional policy guidelines to tackle single-use pastics, being developed under the Barcelona Convention, by port authorities and private sector operators.	% of CPs using guidelines	100%	To be defined	medium
4.13 Decision Making Tools	4.13.1 To increase awareness of any decision-support tools available to the CPs and industry	% of CPs being provided access to such tools % of CPs using each decision support tool	100% 100%	To be defined	medium
4.14 Monitoring and Reporting Obligations	4.14.1 To comply with the mandatory reporting obligations under the London Convention, the London Protocol, MARPOL Annex V, and on a regional basis, the Dumping Protocol, while noting contents of MEPC.1/Circ834/Rev1; MEPC.295(71), MEPC.310(73)	% of CPs to have complied with the mandatory reporting obligations	100%	To be defined	high
	4.14.2 To establish a single and uniform monitoring systems in ports and coastal region in connection with UNEP/MAP IMAP	% of CPs with monitoring systems in place in major ports around the Mediterranean	50%	To be defined	high
	4.14.3 To provide information on the monitoring, reporting and verification of the level of marine plastic litter in ports and within coastal waters and to share their experiences and best practices;	% of CPs having shared relevant information	50%	To be defined	high
4.15 Research and Development	4.15.1 To encourage the CPs and relevant international or regional organisations that have conducted any scientific research related to marine litter in the Mediterranean to share the results of such research, including any information on the areas contaminated by marine plastic litter from ships in the Mediterranean	% of CPs to participating in relevant studies	50%	To be defined	medium
	4.15.2 To encourage CPs to contribute, by undertaking studies at national level, to the IMO study on marine plastic litter and other regional studies and projects of regional or sub-regional scope, such as those funded by the EU including macro and microplastics, from all ships, pleasure boats and fishing boats	% CPs contributing	50%	To be defined	medium

	4.15.3 To invite CPs and relevant international or regional organisations to undertake studies to better understand microplastics from ships in the Mediterranean.	% CPs / int'l organisations contributing	50%	To be defined	low
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CSO 5: Eliminate the introduction of non-indigenous species by shipping activities

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
PEOPLE					
5.1 Networks	5.1.1 To contribute to the work of United Nations bodies and agencies, as well as international fora, which are active in the matter of biosafety, notably the: <ul style="list-style-type: none"> a) IMO (MEPC; PPR-WGs; CGs on ballast water and biofouling) b) Regional Activity Centre for Specially Protected Areas (SPA/RAC); and c) EMSA 	% of CPs participating in relevant international working groups	At least 50%	To be defined	low
5.2 Capacity Building / Technical Cooperation	5.2.1 To implement targeted technical cooperation and Capacity-building activities, in the Mediterranean to address implementation issues related to biosafety, namely the effective implementation of: <ul style="list-style-type: none"> a) the Mediterranean Strategy on Ships' Ballast Water Management, including its Action Plan and Timetable (the "Mediterranean BWM Strategy") b) the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention); c) the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention); and d) the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines), and associated best practices 	Number of newly trained personnel per subject	1 newly trained personnel per country per subject	To be defined	high
	5.2.2 To contribute to the possible establishment of externally funded major projects under the auspices of IMO in support of the BWM Convention, AFS Convention or Biofouling Guidelines, such as the on-going Global Environment Facility (GEF)-United Nations Development Programme (UNDP)-IMO	Number of CPs contributing	At least 2	To be defined	medium

²⁶ Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
	GloFouling Partnerships, and their subsequent implementation in the Mediterranean, as appropriate				
	5.2.3 To increase awareness on and use, if needed, the services made available by EMSA in support of the Transposition, Implementation, and Enforcement following the Ratification of International Conventions offered under the SAFEMED project.	% of CPs aware of such services	100%	To be defined	high
	5.2.4 To increase awareness on and use, if needed, the services made available by EMSA with the aim to extend cooperation in the area of Directive 2002/59/EC – VTMISS (as amended).	% of CPs aware of such services	100%	To be defined	high
5.3 Operations	N/A	N/A	N/A	N/A	N/A
INSTITUTION					
5.4 Governance	5.4.1 To implement the Mediterranean BWM Strategy	% of CP having implemented the Mediterranean Strategy	100%	To be defined	high
5.5 Ratification / Transposition	5.5.1 To ratify and transpose the BWM Convention and the AFS Convention	% of CPs having ratified, transposed and enforcing the BWM Convention and the AFS Convention	100%	To be defined	high
5.6 Implementation	N/A	N/A	N/A	N/A	N/A
5.7 Enforcement	5.7.1 Establish a effective Compliance Monitoring and Enforcement (CME) system in the Mediterranean region	Date of establishment of CME	To be defined	To be defined	high
	5.7.2 To set-up a national legal framework (regulations) as a basis for prosecuting discharge offenders for infringements of the BWM Convention and AFS Convention	% of CPs with legal framework in place	At least 100%	To be defined	high
	5.7.3 To apply criteria for a common minimum level of fines for each offense provided for under the BWM Convention and AFS Convention	% of CPs applying common minimum level of fines	At least 80%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
	5.7.4 FSI to ensuring that registered vessels, including pleasure carft and fishing boats, comply with the BWM Convention and AFS Convention requirements and any other national rules and regulations;	Number of inspections, of inspections, deficiencies found, and ships detained	100% Compliance	To be defined	high
	5.7.5 To improve effectiveness of the Mediterranean MoU and to facilitate cooperation between the Paris MoU and the Mediterranean MoU	Number of meetings	1 per year	To be defined	high
INFRASTRUCTURE					
5.8 Port Reception Facilities	5.8.1 To provide adequate reception facilities in Mediterranean ports, enabling their use as soon as they are available at a fee which should be reasonable and should not serve as a disincentive for the disposal of ships' ballast water sediments.	% of major ports and terminals where cleaning or repair of ballast tanks comply with the provisions of the BWM Convention	100%	To be defined	high
5.9 Alternative Energy / New Technologies	N/A	N/A	N/A	N/A	N/A
5.10 Response Means	N/A	N/A	N/A	N/A	N/A
5.11 Surveillance / Monitoring Means	5.11.1 Operational and accessible testing of ballast water in national laboratories	% of CPs having testing facilities	80%	To be defined	high
	5.11.2 To develop a database of new introductions of non-indigenous species recorded in the Mediterranean via ballast water	Database established	Year tbc	To be defined	medium
INFORMATION AND KNOWLEDGE SHARING					
5.12 Standards / Guidelines	5.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the implementation of the BWM Convention, AFS Convention and the Biofouling Guidelines, notably (but not limited to): a) Guidance for Minimizing the Transfer of Invasive Aquatic Species as Biofouling (Hull Fouling) for Recreational Craft (MEPC.1/Circ.792)	% of CPs having downloaded/been provided with such guidelines	100%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
	<ul style="list-style-type: none"> b) Guidance for Evaluating the 2011 Guidelines for the Control and Management of Ships' Biofouling to minimize the Transfer of Invasive Aquatic Species (MEPC.1/Circ.811) c) Guidelines Concerning Pleasure Craft Activities and the Protection of the Marine Environment in the Mediterranean (Decision IG 17/9). d) Ballast Water Management - Guidance for best practices on sampling (EMSA 2019) e) Guidelines for Sediment Reception Facilities (G1) (MEPC.152(55)); f) Guidelines for Ballast Water Sampling (G2) (MEPC.173(58)); g) Guidelines for Ballast Water Management equivalent compliance (G3) (MEPC.123(53)); h) Guidelines for Ballast Water Management and Development of Ballast Water Management Plans (G4) (MEPC.127(53)); i) Guidelines for Ballast Water Reception Facilities (G5) (MEPC.153(55)); j) 2017 Guidelines for Ballast Water Exchange (G6) (MEPC.288(71)); k) 2017 Guidelines for Risk Assessment under Regulation A-4 of the BWM Convention (G7) (MEPC.289(71)); l) Guidelines for approval of Ballast Water Management Systems (G8) (MEPC.279(70)); m) Procedure for approval of Ballast Water Management Systems that make use of active substances (G9) (MEPC.169(57)); n) Guidelines for approval and oversight of prototype Ballast Water Treatment technology programmes (G10) (MEPC.140(54)); o) Guidelines for Ballast Water exchange design and construction standards (G11) (MEPC.149(55)); p) 2012 Guidelines on design and construction to facilitate sediment control on ships (G12) (MEPC.209(63)); q) Guidelines for additional measures regarding ballast water management including emergency situations (G13) (MEPC.161(56)); 				

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
	<ul style="list-style-type: none"> r) Guidelines on designation of areas for ballast water exchange (G14) (MEPC.151(55)); s) The Experience-building phase associated with the BWM Convention, (MEPC.290(71)); t) Implementation of the BWM Convention, (MEPC.287(71)); u) Guidelines for Port State Control under the BWM Convention, (MEPC.252(67)); v) Information reporting on type approved ballast water management systems, (MEPC.228(65)); w) Procedures for approving other methods of ballast water management in accordance with Regulation B-37 of the BWM Convention, (MEPC.206(62)); x) Installation of ballast water management systems on new ships in accordance with the application dates contained in the BWM Convention, (MEPC.188(60)); y) Application of the BWM Convention to ships operating in sea areas where ballast water exchange in accordance with requirements B-4.1 and D-1 is not possible, (BWM.2/Circ.63)); z) Guidance on contingency measures under the BWM Convention, (BWM.2/Circ.62)); aa) Guidance on methodologies that may be used for enumerating viable organisms for type approval of ballast water management systems, (BWM.2/Circ.61)); bb) Guidance on best management practices for removal of anti-fouling coatings from ships including TBT hull paints, (AFS.3/Circ.3)); cc) 2010 Guidelines for Survey and Certification of Anti-Fouling Systems on Ships, MEPC.195(61)). 				
5.13 Decision Making Tools	5.13.1 To explore possible interaction and capitalisation of decision support tools available at Mediterranean and European levels, notably:	% of CPs being provided access to such tools	100%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁶	Priority Level
	a) Set up a web-based Mediterranean mechanism for exchanging information based on existing tools including the Marine Mediterranean Invasive Alien Species (MAMIAS) b) Use risk assessment as a reliable tool to assist in ballast water management decision-making and in compliance, monitoring and enforcement procedures	% of CPs using each decision support tool	50%		
5.14 Monitoring and Reporting Obligations	5.14.1 To comply with the mandatory reporting obligations under the BWM Convention, and on a regional basis, under the Regional Strategy addressing Ship's ballast water management and invasive species (Decision IG20/11), while noting contents of resolutions MEPC.289(71), MEPC.151(55), MEPC.152(55), MEPC.161(56), MEPC.228(65),	% of CPs to have complied with the mandatory reporting obligations	50%	To be defined	high
	5.14.2 To establish a survey, biological monitoring and risk assessment system for Mediterranean ports.	System established	year tbc	To be defined	medium
5.15 Research and Development	5.15.1 To participate in IMO and Industry initiatives on new technologies and studies both on a national and regional levels	% of CPs participating in relevant studies and initiatives	50%	To be defined	medium

CSO 6: Achieve a well-managed safe and pollution free Mediterranean, with integrated marine spatial planning and designation of special areas, where shipping activity has a limited impact upon the marine environment

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁷	Priority Level
PEOPLE					
6.1 Networks	6.1.1 To actively participate in networks and groups, and strengthen synergies between relevant networks related to marine spatial planning and the designation of special areas in the Mediterranean, including through: <ul style="list-style-type: none"> a) the Priority Actions Programme/Regional Activity Centre (PAP/RAC) for other measure related to Marine Special Planning (MSP), b) the Regional Activity Centre for Specially Protected Areas (SPA/RAC) for other measure related to Marine Protected Areas (MPAs), Specially Protected Areas of Mediterranean Importance (SPAMIs), Environmentally or Biologically Significant Areas (EBSA) c) REMPEC, for other measures related to Special Areas under MARPOL and Particularly Sensitive Sea Areas (PSSAs) 	Number of joint activities organised	At least 2 joint activities organised	To be defined	low
6.2 Capacity Building / Technical Cooperation	6.2.1 To implement targeted technical cooperation and Capacity-building activities, in the Mediterranean to address implementation issues related to designation of special areas namely : <ul style="list-style-type: none"> a) Special areas under MARPOL b) PSSAs c) Traffic separation schemes (TSS) and other ship routeing systems 	Number of workshops / seminars organised at national or regional levels	2 or 3	To be defined	high
	6.2.2 To increase awareness on and use, if needed, the Traffic Density Mapping (TDM) services developed and made available by EMSA and aimed at facilitating the marine spatial planning and designation of special areas, where shipping activity has or has no impact on the marine environment	% of CPs aware of services	100%	To be defined	high

²⁷ Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁷	Priority Level
6.3 Operations	N/A	N/A	N/A	N/A	N/A
INSTITUTION					
6.4 Governance	6.4.1 To ensure coordination with the relevant national competent authorities and in cooperation with other Mediterranean coastal States to achieve a well-managed safe and pollution free Mediterranean, with integrated marine spatial planning and designation of special areas, where shipping activity has a limited impact upon the marine environment	% of CPs having coordinated with relevant national competent authorities % of CPs concerned consulted	100% 100%	To be defined	high
	6.4.2 When and where possible, and without prejudice to the sovereign right of the States, in close collaboration with the relevant national competent authorities and in cooperation with other Mediterranean coastal States: a) to assess the feasibility to designate the Mediterranean region as a Special Area under MARPOL Annex IV Prevention of pollution by sewage, and to submit the related proposal to IMO, as appropriate including an assessment on the inclusion of black and grey water, b) to continue assessing the feasibility of the designation of certain areas the Mediterranean, as PSSA, and to submit the related proposals to IMO, as appropriate, c) to propose additional appropriate routeing systems in the Mediterranean to IMO, where necessary, for possible adoption in accordance with international law; d) to draw up plans to deal with ships in distress, including, appropriate equipment and means, as required, and have defined the modalities of the response according to its nature and to the risk incurred;	Status of assessment Status of assessment Number of proposals % of CPs having drawn up plans to deal with ships in distress	Completed Completed To be defined-100%	To be defined	high
	6.4.3 To take into account conservation management recommendations as described in ACCOBAMS Resolution 7.12	% of CPs implementing recommendations	70%	To be defined	high

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁷	Priority Level
6.5 Ratification / Transposition	6.5.1 To ensure through appropriate national laws and regulations and institutional arrangements proper implementation, compliance monitoring and enforcement of domestic legislation of IMO measures related to PSSAs, routing systems and Special Areas under MARPOL	% of CPs having national laws and regulations and institutional arrangements in place	100%	To be defined	high
6.6 Implementation	6.6.1 To develop a national work plan to execute the development and implementation of PSSA, routing systems and Special Areas under MARPOL	% of CPS with a national work plan	100%	To be defined	high
6.7 Enforcement	6.7.1 To set-up a national legal framework (regulations) as a basis for prosecuting offenders for infringements of requirements of routing measures, PSSAs, and Special Areas under MARPOL	% of CPs with national legal framework in place	100%	To be defined	high
	6.7.2 To set-up an effective compliance programme incorporating all of the following elements: a) Compliance monitoring through routine inspections, surveys, and/or examinations; b) Detection and policing “patrols”; c) Reporting procedures and incentives, including incentives for self-reporting; d) Adequate investigations of violations reported or otherwise detected; e) A system of adequate sanctions in respect of violations; f) Education and public awareness programmes; and g) Co-operation and co-ordination with other States parties.	Date compliance programme is set up.	To be defined	To be defined	high
INFRASTRUCTURE					
6.8 Port Reception Facilities	N/A	N/A	N/A	N/A	N/A
6.9 Alternative Energy / New Technologies	N/A	N/A	N/A	N/A	N/A

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁷	Priority Level
6.10 Response Means	N/A	N/A	N/A	N/A	N/A
6.11 Surveillance / Monitoring Means	6.11.1 To establish a robust surveillance and monitoring system including installation of Vessel Traffic Services (VTS)	% of CPs having established a surveillance system	100%	To be defined	high
	6.11.2 To enhance maritime safety, maritime security and marine pollution prevention/ response by strengthening the cooperation on AIS matters and taking part in projects on AIS information sharing thorough the MAREΣ,	% of CPs participating	100%	To be defined	high
INFORMATION AND KNOWLEDGE SHARING					
6.12 Standards / Guidelines	<p>6.12.1 To promote, disseminate and revise the existing recommendations, principles and guidelines, to develop new ones aimed at facilitating the establishment and management of special areas and routeing systems including the:</p> <ul style="list-style-type: none"> a) Guidance Document for Contracting Parties to the Barcelona Convention with regard to identifying and designating Particularly Sensitive Sea Areas in relation to Specially Protected Areas of Mediterranean Importance b) Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs) (resolution A.982(24)); c) Guidance note on the preparation of proposals on ships' routeing reporting systems (MSC.1/Circ.1060, as amended); d) Procedure for the submission of documents containing proposals for the establishment of, or amendments to, ships' routeing systems or ship reporting systems (MSC.1-Circ.1608); and e) Revised Guidelines for vessel traffic services, including Guidelines on Recruitment, Qualifications and Training of VTS Operators (A.857(20)). 	% of CPs having downloaded/been provided with such guidelines	100%	To be defined	medium

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁷	Priority Level
	6.12.2 To consider the recommendations from the “joint IWC-IUCN-ACCOBAMS workshop on how the data and process used to identify important Marine Mammal Areas (IMMAs) can assist in identifying areas of high risk for ship strikes” (6-7 April 2019, Messinia, Greece) as presented in Annex of the ACCOBAMS Resolution 7.12, and more particularly regarding (i) the process for the designation of a PSSA by IMO at a scale that includes the North West Mediterranean Sea, Slope and Canyon IMMA, plus potentially the Spanish corridor, and (ii) risk reduction measures in the Hellenic Trench .	% of CPs aware of such recommendations	100%	To be defined	medium
6.13 Decision Making Tools	6.13.1 To increase awareness of any decision-support tools available to CPs and industry	% of CPs being provided access to such tools % of CPs using each decision support tool	100% 100%	To be defined	medium
6.14 Monitoring and Reporting Obligations	N/A	N/A	N/A	N/A	N/A
6.15 Research and Development	6.15.1 To carry out the required studies for a submission to IMO addressing all criteria for the designation of a particular area as PSSAs and Special Areas under MARPOL	Number of studies carried out by interested CPs	At least 1 / to be defined	To be defined	medium

CSO 7: Identify and understand collectively emerging issues related to pollution from ships in the Mediterranean, and define required actions to address issues identified

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁸	Priority Level
PEOPLE					
7.1 Networks	7.1.1 Identification of relevant network for each issue as it emerges, and active participation in said network on the identified issue	% of CPs actively participating in networks related to specifically identified emerging issues	50%	To be defined	low
7.2 Capacity Building / Technical Cooperation	7.2.1 Identification of training needs, and subsequent implementation of training, related to emerging issues as they arise	number of trained personnel for each emerging issue	Adequate number of personnel to be trained	To be defined	high
7.3 Operations	N/A	N/A	N/A	N/A	N/A
INSTITUTION					
7.4 Governance	7.4.1 To include the discussion of 'new and emerging issues' as a rolling agenda item at the Meeting of the Mediterranean Strategy (2022-2031)	Number of discussions held on potential new and emerging issues	Once per year	To be defined	high
	7.4.2 To submit proposals for the inclusion of new emerging issues to assess the need for a revised Strategy and Action Plan at the Meeting of the Mediterranean Strategy (2022-2031)	Number of submissions	As appropriate	To be defined	medium
7.5 Ratification / Transposition	N/A	N/A	N/A	N/A	N/A
7.6 Implementation	N/A	N/A	N/A	N/A	N/A
7.7 Enforcement	N/A	N/A	N/A	N/A	N/A
INFRASTRUCTURE					

²⁸ Column to be completed during the first meeting of the Mediterranean Strategy (2022-2031) management and implementation group

Area of Influence	Action	Indicator	Target	Supporting Institution ²⁸	Priority Level
7.8 Port Reception Facilities	N/A	N/A	N/A	N/A	N/A
7.9 Alternative Energy / New Technology	N/A	N/A	N/A	N/A	N/A
7.10 Response Means	N/A	N/A	N/A	N/A	N/A
7.11 Surveillance / Monitoring Means	N/A	N/A	N/A	N/A	N/A
INFORMATION AND KNOWLEDGE SHARING					
7.12 Standards / Guidelines	N/A	N/A	N/A	N/A	N/A
7.13 Decision Making Tools	N/A	N/A	N/A	N/A	N/A
7.14 Monitoring and Reporting Obligations	N/A	N/A	N/A	N/A	N/A
7.15 Research and Development	7.4.1 To support and participate in research and development initiatives to investigate new and emerging issues related to pollution from ships in the Mediterranean	Number of CPs participating	50%	To be defined	medium

Draft Decision 25/17

Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling also the United Nations Environment Assembly resolution UNEP/EA.4/Res. 21 of 15 March 2019, entitled “Towards a pollution-free planet”,

Having regard to the Barcelona Convention, in particular Article 6 thereof, whereby Contracting Parties shall take all measures in conformity with international law to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area caused by discharges from ships and to ensure the effective implementation in that Area of the rules which are generally recognised at the international level relating to the control of this type of pollution,

Having also regard to the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, in particular Article 4 paragraph 2 thereof, whereby the Parties shall take measures in conformity with international law to prevent the pollution of the Mediterranean Sea Area from ships in order to ensure the effective implementation in that Area of the relevant international conventions in their capacity as flag State, port State and coastal State, and their applicable legislation, as well as Article 18 thereof, whereby the function of the meeting of the Contracting Parties shall be to formulate and adopt strategies, action plans and programmes for the implementation of this Protocol,

Having further regard to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, in particular Article 13 paragraph 1 thereof, whereby the Parties shall take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area where this Protocol applies,

Acknowledging the role of the International Maritime Organization (IMO) and the importance of cooperating within the framework of this Organisation, in particular in promoting the adoption and the development of international rules and standards to prevent, reduce and control pollution of the marine environment from ships,

Having regard to the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004 (the “BWM Convention”), in particular Article 13 paragraph 3 thereof, whereby, in order to further the objectives of this Convention, Parties with common interests to protect the environment, human health, property and resources in a given geographical area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention,

Acknowledging that, since the adoption of the Mediterranean Strategy on Ships’ Ballast Water Management by Contracting Parties at their 17th Meeting (COP 17) (Paris, France, 8-10 February 2012), key global and regional developments have rendered it obsolete in a number of respects, namely the entry into force of the BWM Convention in 2017, the adoption and entry into force of a number of amendments to the BWM Convention and associated Guidelines, the adoption of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) and of the updated Action Plan concerning Species Introductions and

Invasive Species in the Mediterranean Sea, as well as the development of the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031),

Desirous to continue addressing the risk arising from the introduction of invasive alien species through ships' ballast water in the Mediterranean region, which has been recognised as one of the four greatest threats to the world's oceans and which can cause extremely severe and irreversible environmental, economic and public health impacts,

Noting further that achieving Good Environmental Status (GES) in the Mediterranean region cannot be done solely by the management of ships' ballast water, but also the management of all pathways and vectors – including ships' biofouling,

Recalling the mandates of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) and the Regional Activity Centre for Specially Protected Areas (SPA/RAC) as laid down in Decision IG. 19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP 16) (Marrakesh, Morocco, 3-5 November 2009) and their relevance to the implementation of this Decision,

Having considered the reports of the Fourteenth Meeting of the Focal Points of REMPEC (online, 31 May-2 June 2021) and of the Fifteenth Meeting of SPA/BD Focal Points (videoconference, 23-25 June 2021),

1. *Adopt* the Ballast Water Management Strategy for the Mediterranean Sea (2022-2027), hereinafter referred to as “the Mediterranean BWM Strategy (2022-2027)”, set out in the Annex to this Decision;
2. *Call upon* the Contracting Parties to take effective measures to implement the Mediterranean BWM Strategy (2022-2027), thus enhancing the implementation of the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea as well as of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean;
3. *Urge* the Contracting Parties, which have not yet done so, to ratify the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, as well as the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, in order to achieve universally the objectives of the Protocols in the Mediterranean region;
4. *Encourage* the Contracting Parties, which have not yet done so, to ratify and effectively implement the BWM Convention, as soon as possible; and
5. *Request* the Secretariat (REMPEC and SPA/RAC) to provide technical support for the implementation of the Mediterranean BWM Strategy (2022-2027), in synergy with the International Maritime Organization (IMO), through technical cooperation and capacity building activities, including resource mobilisation (internal and external).

ANNEX

Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)

BALLAST WATER MANAGEMENT STRATEGY
FOR THE MEDITERRANEAN SEA
(2022-2027)



The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations (UN), the Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP), the Regional Activity Centre for Specially Protected Areas (SPA/RAC), the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) or the International Maritime Organization (IMO), concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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Figure 1: Annual density (2018) of vessels transiting in the Mediterranean (Source: REMPEC, 2020)

Figure 2: Number of reported NIS per pathway (CBD terminology) (Source: MAMIAS)

Figure 3: Transition from D-1 to D-2 standards for BWM (Source: IMO)

ABBREVIATIONS AND DEFINITIONS

Term	Explanation
BSC	Commission on the Protection of the Black Sea Against Pollution or Black Sea Commission
BWE	Ballast Water Exchange
BWM	Ballast Water Management
BWMC	Ballast Water Management Convention
BWMPs	Ballast Water Management Plans
BWMS	Ballast Water Management System
BWRB	Ballast Water Record Book
CBD	Convention on Biological Diversity
cfu	colony-forming unit
CME	Compliance Monitoring and Enforcement
COP	Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols
CSO	Common Strategic Objective
DDs	Data Dictionaries
DSs	Data Standards
dwt	deadweight ton
EBP	Experience-building phase associated with the BWM Convention
EcAp	Ecosystem Approach
GBO	Global Biodiversity Outlook
GEF	Global Environment Facility
GES	Good Environmental Status
GISIS	Global Integrated Shipping Information System
HELCOM	Baltic Marine Environment Protection Commission or Helsinki Commission
IAS	Invasive Alien Species
IBWMC	International Ballast Water Management Certificate
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria
IMO	International Maritime Organization
ITCP	Integrated Technical Cooperation Programme
MAMIAS	Marine Mediterranean non-indigenous and Invasive Species Database
MAP	Mediterranean Action Plan
MEPC	Marine Environment Protection Committee
NGO	Non-governmental organisation
NIS	Non-indigenous species
NIS Action Plan	Action Plan concerning species introductions and invasive species in the Mediterranean Sea
PCU	Project Coordination Unit
PERSGA	Regional Organization for the conservation of the Environment of the Red Sea and Gulf of Aden
Post-2020 SAP BIO	Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region
PSC	Port State Control
REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
RIS	Regional Information System
ROPME	Regional Organization for the Protection of the Marine Environment
SRA	Same Risk Area

SEIS	Shared Environmental Information System
SPA	Specially Protected Areas
SPA/BD	Specially Protected Areas and Biological Diversity
SPA/RAC	Regional Activity Centre for Specially Protected Areas
UNDP	United Nations Development Programme
UNEP/MAP	Mediterranean Action Plan of the United Nations Environment Programme

1. BACKGROUND

The present document is entitled the “*Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)*” (“this Strategy”).

1.1 Shipping as a pathway for introduction of alien and invasive species

Alien or non-indigenous species (NIS) are species that have been translocated from their natural distribution range to new geographic areas either intentionally (e.g., for fisheries purposes) or unintentionally (e.g., in ships’ ballast water or via biofouling). Should these alien species survive and establish viable populations in these new areas, they may become “invasive”. Invasive Alien Species (IAS) are those that have serious economic, environmental, and human health impacts. They are now recognised as one of the greatest threats to biodiversity globally. In marine and coastal environments, IAS have been identified as one of the four greatest threats to the world’s oceans.

Shipping is of particular concern as a pathway for the introduction of IAS because of its international nature with vessels moving between different marine environments around the world on a regular basis. The large quantities of ballast water that are taken on board at “source ports” before being discharged at the “destination ports” may translocate thousands of species given that just one m³ of ballast water may contain up to 50,000 zooplankton species (Locke et al., 1993¹; Kabler, 1996²) or 10 million phytoplankton cells (Subba Rao et al., 1994³). The sediments that accumulate in ballast water tanks are also of concern as they provide a substrate for a variety of marine species, notably dinoflagellates. Ships also translocate alien species via biofouling.

The Mediterranean Sea comprises less than 1% of the global oceans but, because of its strategic location, it has a significant volume of shipping traffic. Passenger and merchant vessels making port calls, together with ships just transiting the area, represent just over 24% of global shipping. In 2019 this included some 27% of the global fleet of oil and chemical tankers, and 17.3% of worldwide cruises, while the number of port calls was 453,000 made by 14,403 ships. In the same year, ships transiting the area numbered 5,251. Importantly, the majority of commercial maritime traffic is intra-Mediterranean (REMPEC, 2020⁴). The annual density of maritime traffic for 2018 is shown in **Figure 1** below.

Information on NIS in the Mediterranean varies considerably depending on the source – both with respect to the number of introductions and the relative importance of pathways of introduction. In relation to pathways, this is due to a number of factors including differences in the terminology used in different analyses, the fact that the importance of any particular pathway can change over time, and that the importance may differ from one sub-region to the next. Corridors, for example, are of particular importance for introductions in the Eastern Mediterranean whereas the majority of introductions to the Western Mediterranean have been linked to maritime transport (as stowaways in the ballast water or biofouling on ships) (Tsiamis et al, 2018⁵). The most up-to-date data available through the Marine Mediterranean non-indigenous and Invasive Species Database (MAMIAS)⁶ suggests that – although the degree of certainty in the numbers is quite low – for the Mediterranean as a whole, stowaways linked to shipping comprise over 70% of the recorded NIS (see **Figure 2** below).

¹ Locke, A.; Reid, D.M.; van Leeuwen, H.C.; Sprules, W.G. & Carlton, J.T. 1993. Ballast water exchange as a means of controlling dispersal of freshwater organisms by ships. *Can. J. Fish. Aquat. Sci.*, 50, 2086-2093.

² Kabler, L.V. 1996. Ballast water invaders: breaches in the bulwark. Bd. 1, *Aquatic Nuisance Species Digest*, 1: pp. 34-35.

³ Subba Rao, D.V.; Sprules, W.G.; Locke, A. & Carlton, J.T. 1994. Exotic phytoplankton from ships’ ballast waters: risk of potential spread to mariculture sites on Canada’s East coast. *Can. Data Rep. Fish. Aquatic. Sci.*, 937: pp. 1-51.

⁴ REMPEC 2020. Study on trends and outlook of marine pollution from ships and activities and of maritime traffic and offshore activities in the Mediterranean.

⁵ Tsiamis et al (2018). The native distribution range of the European marine non-indigenous species. *Aquatic Invasions* Vol. 13. <https://doi.org/10.3391/ai.2018.13.2.01>.

⁶ Available at: <http://dev.mamias.org/services/dash/med> and will soon be released at <http://www.mamias.org>.

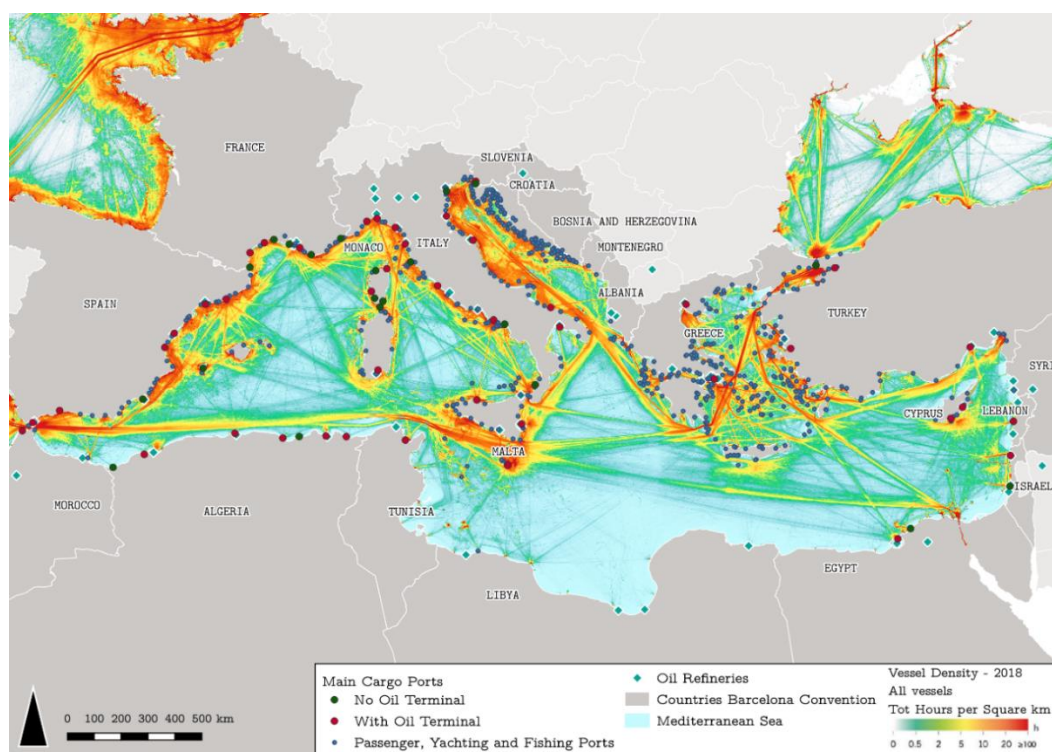


Figure 1: Annual density (2018) of vessels transiting in the Mediterranean (Source: REMPEC, 2020)

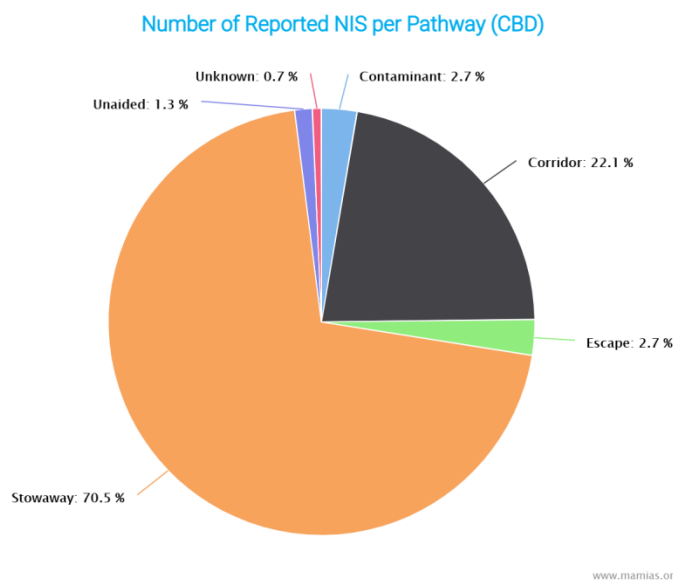


Figure 2: Number of reported NIS per pathway (CBD terminology) (Source: MAMIAS)

Regardless of origin, alien or NIS that become invasive are one of the main threats to the marine and coastal biodiversity of the Mediterranean. There are currently about 1,000 NIS in the Mediterranean, two thirds of which have established viable populations (Zenetos & Galanidi, 2020⁷). They are therefore considered a high priority for the Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAP BIO) developed within the framework of the Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP). The Post-2020 SAP BIO is aligned with the

⁷ Zenetos, A. and Galanidi, M. (2020). Mediterranean non indigenous species at the start of the 2020s: recent changes. Marine Biodiversity Records 13(10). Available at: <https://doi.org/10.1186/s41200-020-00191-4>.

Sustainable Development Goals and the Post-2020 Global Biodiversity Framework of the Convention on Biological Diversity (CBD).

1.2 The Ballast Water Management Convention

Concern over the introduction of IAS via ballast water was raised by Member States of the International Maritime Organization (IMO) – the specialised agency of the United Nations responsible for the regulation of shipping – at a meeting of the IMO’s Marine Environment Protection Committee (MEPC) in the late 1980’s⁸. This led to the establishment of a Ballast Water Working Group by the IMO’s MEPC. The activities of this group led ultimately to the development of an international legal instrument, the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004 – commonly known as the Ballast Water Management (BWM) Convention. This was adopted by consensus at a Diplomatic Conference at IMO Headquarters in London on 13 February 2004 and entered into force on 8 September 2017. To date, it has been ratified by eighty-six (86) States, the combined merchant fleets of which constitute approximately 91.12% of the gross tonnage of the world’s merchant fleet, including thirteen (13) Mediterranean coastal States that are Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the “Barcelona Convention”).

The BWM Convention sets out the general rights and responsibilities of Parties thereto in its preamble and articles, with regulations on more specific matters (e.g., the application of and exceptions to the BWM Convention, BWM standards, Ballast Water Management Plans (BWMPs), recording requirements, and designation of special areas with differing requirements) encapsulated in the Annex.

Article 13.3 of the BWM Convention specifically encourages regional cooperation in its implementation stating that: “...Parties with common interests to protect the environment, human health, property and resources in a given geographic area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention. Parties shall seek to co-operate with the Parties to regional agreements to develop harmonized procedures.”

1.3 The 2012 Ballast Water Management Strategy for the Mediterranean Sea

In keeping with the above, COP 17⁹ in 2012 adopted the Mediterranean Strategy on Ships’ Ballast Water Management, including its Action Plan and Timetable¹⁰ (the “2012 Mediterranean BWM Strategy”), the general objectives of which were to establish a framework for a regional harmonised approach in the Mediterranean on ships’ ballast water control and management that was consistent with the requirements and standards of the BWM Convention.

COP 17 requested the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) and the Regional Activity Centre for Specially Protected Areas (SPA/RAC) to assist the Contracting Parties to the Barcelona Convention in the implementation of the 2012 Mediterranean BWM Strategy.

Strategic Priority 7 of the 2012 Mediterranean BWM Strategy stipulated that “*the Strategy and Action Plan should be subject to periodic review to take into account emerging issues, outcomes of research and development (R&D) activities and experience gained*”. In this context, the Eleventh Meeting of the Focal Points of REMPEC (Attard, Malta, 15-17 June 2015) agreed that the relevance and effectiveness of the 2012 Mediterranean BWM Strategy be evaluated. At the same time, it agreed that the Contracting

⁸ More information is available at:

<https://www.imo.org/en/OurWork/Environment/Pages/BallastWaterManagement.aspx>.

⁹ Seventeenth Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Paris, France, 8-10 February 2012).

¹⁰ UNEP(DEPI)/MED IG.20/8, Decision IG.20/11.

Parties to the Barcelona Convention should continue implementing the said Strategy, including its Action Plan, irrespective of its original Timetable.

An assessment of the level of implementation of the 2012 Mediterranean BWM Strategy was carried out in 2016, the outcome of which¹¹ was submitted to the Twelfth Meeting of the Focal Points of REMPEC (St. Julian's, Malta, 23-25 May 2017) for consideration. At this meeting, it was acknowledged that the 2012 Mediterranean BWM Strategy was still relevant and that activities carried out under its Action Plan had been effective. It was agreed that it was a crucial time for technical support to Contracting Parties to the Barcelona Convention to assist with the ratification and effective implementation of the BWM Convention to continue, especially given the availability of the assets developed within the framework of the Global Environment Facility (GEF)-United Nations Development Programme (UNDP)-IMO GloBallast Partnerships Programme. The meeting also concurred that it was not an appropriate time for a formal revision of the 2012 Mediterranean BWM Strategy, which would be time-consuming and resource-demanding for both the Secretariat and the Contracting Parties to the Barcelona Convention without the immediate added value required for effective implementation.

This was however subsequently reconsidered at COP 21¹² in 2019 and provision was made in the UNEP/MAP Programme of Work and Budget 2020-2021¹³ for a specific activity, as follows: 3.2.1.3 (a) "*Mediterranean Strategy and Action Plan on Ships' Ballast Water Management updated to achieve GES*".

1.4 Key developments

Since 2016, there have been a number of key developments that are of direct relevance to BWM in the Mediterranean. These include: the entry into force of the BWM Convention in 2017; the adoption of a number of amendments to the BWM Convention and associated Guidelines; the entry into force of some of these amendments in 2019; the adoption of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) in 2016; the adoption of the Updated Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea in 2016; and the adoption of the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031) in 2021.

1.4.1 Amendments to the BWM Convention and associated Guidelines

A number of amendments to the BWM Convention were adopted, some at the seventy-second session of the IMO's MEPC in 2018 (MEPC 72) and others at the seventy-fifth session of the IMO's MEPC in 2020 (MEPC 75). The amendments adopted in 2018 entered into force in October 2019, while those adopted in 2020 are expected to enter into force in June 2022¹⁴. In addition, amendments were made to a number of Guidelines and other relevant guidance documents that play a key role in supporting implementation of the BWM Convention.

It is also noted that the experience-building phase associated with the BWM Convention (EBP), which was established by the IMO in 2017 through resolution MEPC.290(71), includes a systematic and evidence-based process for reviewing and improving the BWM Convention. This process is therefore likely to lead to future amendments to the BWM Convention.

¹¹ REMPEC/WG.41/7.

¹² Twenty-first Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Naples, Italy, 2-5 December 2019).

¹³ UNEP/MED IG.24/22, Decision IG.24/14.

¹⁴ More information is available at:

<https://www.imo.org/en/OurWork/Environment/Pages/BWMConventionandGuidelines.aspx>.

The amendments to the BWM Convention, which entered into force in 2019, include:

- Amendments to regulations A-1 and D-3 of the BWM Convention, which make the Code for Approval of Ballast Water Management Systems (BWMS Code) mandatory (resolution MEPC.296(72))¹⁵;
- Amendments to regulation B-3 of the BWM Convention concerning the implementation schedule of ballast water management for ships (resolution MEPC.297(72)); and
- Amendments to regulations E-1 and E-5 of the BWM Convention concerning endorsements of additional surveys on the International Ballast Water Management Certificate (resolution MEPC.299(72)).

MEPC 72 also adopted two resolutions which are of relevance to BWM:

- Resolution MEPC.298(72) which deals with the determination of the survey referred to in regulation B-3, as amended, of the BWM Convention; and
- Resolution MEPC.300(72) in which the BWMS Code was adopted, and which revoked the *2016 Guidelines for approval of ballast water management systems (G8)* (resolution MEPC.279(70)) from when the BWMS Code took effect (13 October 2019).

MEPC 75 adopted amendments to regulation E-1 and appendix I of the BWM Convention concerning the commissioning testing of ballast water management systems and form of the International Ballast Water Management Certificate (resolution MEPC.325(75)). It also approved the *2020 Guidance for the commissioning testing of ballast water management systems (BWM.2/Circ.70/Rev.1)* and the *2020 Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2)* (BWM.2/Circ.42/Rev.2).

The main Guidelines to which there have been amendments include:

- the *Guidelines for ballast water exchange (G6)* (resolution MEPC.124(53)), which were revoked and superseded by the *2017 Guidelines for ballast water exchange (G6)* (resolution MEPC.288(71)) (the “2017 Guidelines (G6)”);
- the *Guidelines for risk assessment under regulation A-4 of the BWM Convention (G7)* (resolution MEPC.162(56)), which are superseded by the *2017 Guidelines for risk assessment under regulation A-4 of the BWM Convention (G7)* (resolution MEPC.289(71)) (the “2017 Guidelines (G7)”); and
- the *Guidelines for ballast water management and development of ballast water management plans (G4)* (resolution MEPC.127(53), as amended by resolution MEPC.306(73)).

The amendment of regulation B-3 of the BWM Convention, which formalises the schedule for transition from the D-1 (ballast water exchange (BWE)) to the D-2 standard (which requires ballast water to meet specific biological criteria prior to discharge), is of particular relevance to this Strategy. It will result in the phasing out of the D1 Standard by 2024 (thus during the timeframe of this Strategy – see **Figure 3** below). This is a key development since, although it is not prescribed in the BWM Convention, in practice it will mean, amongst others, that most vessels will likely choose to install BWM equipment to meet the D-2 standard – unless they have been granted exemptions. Therefore, there is also likely to be an increase in applications for such exemptions.

¹⁵ The BWMS Code has specific requirements for BWMS testing, test reporting, type approval certificates, and control and monitoring. All BWMS installed onboard ships on or after 28 October 2020 will need to be approved in accordance with the BWMS Code.

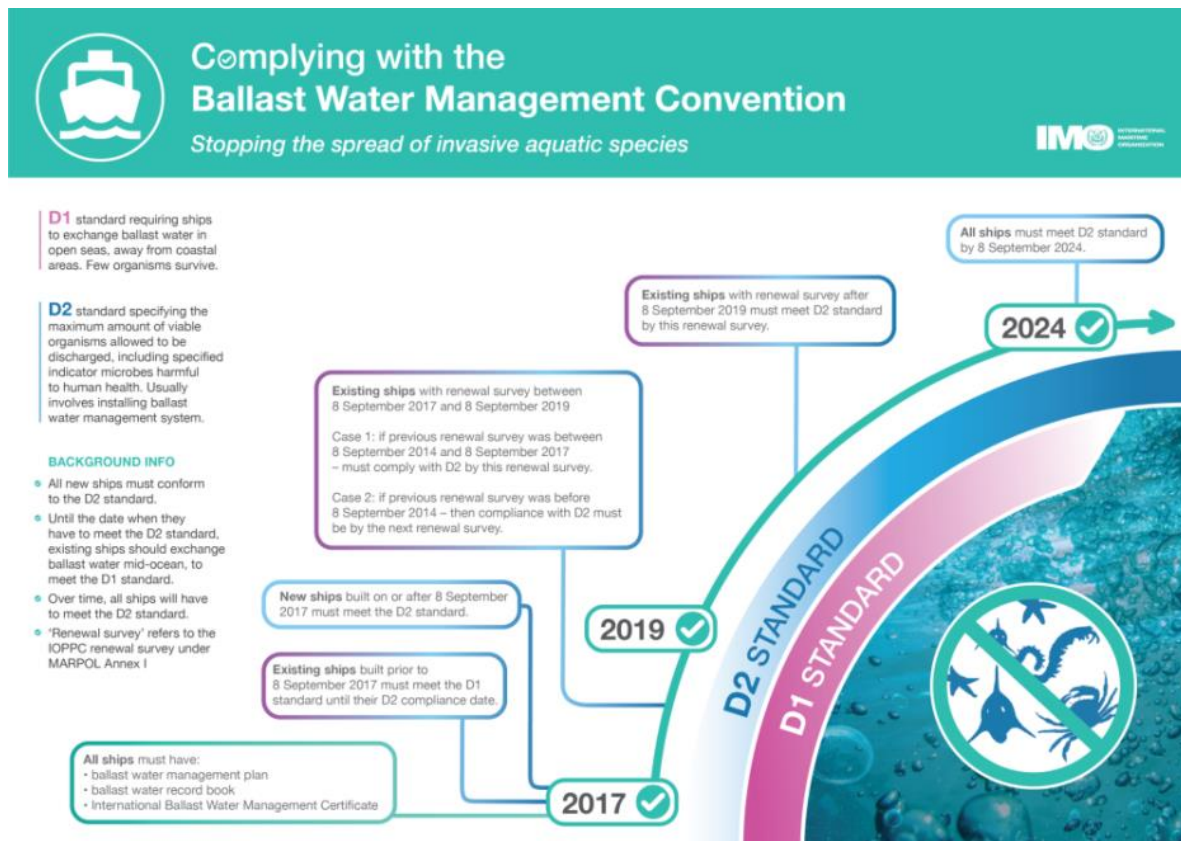


Figure 3: Transition from D-1 to D-2 standards for BWM (Source: IMO)

1.4.2 Ecosystem Approach and IMAP

The Ecosystem Approach (EcAp) in the Mediterranean is being implemented in accordance with a seven-step roadmap. It is now fully integrated into the MAP and Barcelona Convention framework and is in line with the Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), as amended, and the decisions of the CBD regarding the ecosystem approach and the “Aichi Biodiversity Targets”.

Monitoring and assessment of the sea and coast, based on scientific knowledge, are the indispensable basis for the management of human activities, in view of promoting the sustainable use of the seas and coasts and conserving marine ecosystems and their sustainable development.

COP 19¹⁶ in 2016 adopted the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP)¹⁷. IMAP was an outcome of the EcAp process that has been central to the vision for the Mediterranean from as early as 2008. It has introduced a quantitative, integrated mechanism for the analysis of the state of the marine and coastal environment, with criteria covering pollution, marine litter, biodiversity and NIS, as well as coast and hydrography. The descriptors for these criteria have evolved over time. The Integrated list of Mediterranean Good

¹⁶ Nineteenth Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Athens, Greece, 9-12 February 2016).

¹⁷ UNEP(DEPI)/MED IG.22/28, Decision IG.22/7.

Environmental Status and related targets¹⁸ adopted at COP 18¹⁹ set out specific Good Environmental Status (GES) and targets for the Mediterranean in relation to the specific operational objectives and indicators of the agreed ecological objectives related to NIS, as follows:

- Operational Objectives:
 - *Invasive non-indigenous species introductions are minimized; and*
 - *The impact of non-indigenous particularly invasive species on ecosystems is limited.*
- Indicators:
 - *Spatial distribution, origin and population status (established vs. vagrant) of non-indigenous species;*
 - *Trends in the abundance of introduced species, notably in risk areas;*
 - *Ecosystem impacts of particularly invasive species; and*
 - *Ratio between non-indigenous invasive species and native species in some well-studied taxonomic groups.*
- The GES Definition:
 - *Introduction and spread of NIS linked to human activities are minimised, in particular for potential IAS;*
 - *Decreasing abundance of introduced NIS in risk areas;*
 - *No decrease in native species abundance, no decline of habitats and no change in community structure that have been generated by IAS via competition, predation or any other direct or indirect effect; and*
 - *Stable or decreasing proportion of NIS in different habitats.*
- GES Targets:
 - *State (1): The number of species and abundance of IAS introduced as a result of human activities is reduced;*
 - *Pressure/Response (1): (i) Improved management of the main human related pathways and vectors of NIS introduction (Mediterranean Strategy for the management of ballast waters, Aquaculture early warning systems, etc.); and (ii) Action plans developed to address high risk NIS should they appear in the Mediterranean;*
 - *State (2): Abundance of NIS introduced by human activities reduced to levels giving no detectable impact;*
 - *Pressure/Response (2): Impacts of NIS reduced to the feasible minimum; and*
 - *State (3): To be set upon species choice and their related impact degree of the invasive upon the indigenous ones, taking into account the role of Climate Change in accelerating the establishment of NIS populations.*

The IMAP implementation is in line with Article 12 of the Barcelona Convention and several monitoring related provisions under different Protocols to the Barcelona Convention, with the main objective to assess GES, based on twenty-seven (27) common indicators. The one in relation to NIS under Ecological Objective (EO) 2 (Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem) is: “*Common Indicator 6: Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species in the water column and seabed, as appropriate)*”.

The IMAP monitoring programme for Common Indicator 6 under EO 2 is aligned with the Marine Strategy Framework Directive.

¹⁸ UNEP(DEPI)/MED IG.21/9, Decision IG.21/3.

¹⁹ Eighteenth Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Istanbul, Turkey, 3-6 December 2013).

IMAP also envisages the establishment of an information system based on a regional pool of data and Shared Environmental Information System (SEIS) principles that will allow the production of common indicator assessment reports in an integrated manner, following the monitoring specifics and data provided, which ensures comparability across the Mediterranean region.

1.4.3 Updated Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea

COP 19 in 2016 adopted the Updated Action Plan concerning Species Introductions and Invasive Species in the Mediterranean Sea²⁰ (the “updated NIS Action Plan”). The main objective of the updated NIS Action Plan is to promote the development of coordinated efforts and management measures throughout the Mediterranean region in order to prevent as appropriate, minimise and limit, monitor, and control marine biological invasions and their impacts on biodiversity, human health, and ecosystem services, particularly by:

- strengthening the capacity of the Mediterranean countries to deal with the issue of alien species, within the framework of the EcAp;
- supporting a regional information network for the efficient exploitation of alien species data and support to regional policies on biological invasions;
- further developing MAMIAS, an online platform for the collection, exploitation, and dissemination of information on marine biological invasions in the Mediterranean Sea to support relevant regional and international policies;
- strengthening the institutional and legislative frameworks at the level of the countries of the region;
- conducting baseline studies and establishing monitoring programmes, within the framework of IMAP, to collect reliable and pertinent scientific data that can be used for decision-making where necessary;
- setting up mechanisms for cooperation and the exchange of information among the Mediterranean countries;
- elaborating guidelines and any other technical documentation.

The updated NIS Action Plan elaborates a number of actions at both national and regional level aimed at achieving these objectives some of which are pertinent to this Strategy. Therefore, this Strategy should be closely aligned with the updated NIS Action Plan. This should be taken into consideration during the next revision of the updated NIS Action Plan during 2022-2023 such that it complements the provisions of this Strategy.

1.4.4 Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031)

COP 22²¹ in 2021 adopted the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031) (the “Mediterranean Strategy (2022-2031)”), as a follow-up to the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021)²² adopted by COP 19 in 2016. The Mediterranean Strategy (2022-2031) was developed on the basis of an extensive analysis and consultation process, following discussions at the Regional Meeting of National Experts on the Mediterranean Strategy for the Prevention of, and Response to Marine Pollution from Ships (2022-2031) (online, 10 March 2021), the Fourteenth Meeting of the Focal Points

²⁰ UNEP(DEPI)/MED IG.22/28, Decision IG.22/12.

²¹ Twenty-second Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Antalya, Turkey, 7-10 December 2021).

²² UNEP(DEPI)/MED IG.22/28, Decision IG.22/4.

of REMPEC (online, 31 May-2 June 2021) and the Meeting of the MAP Focal Points (Teleconference, 10-17 September 2021).

The Mediterranean Strategy (2022-2031) includes a Common Strategic Objective (CSO) related to NIS, namely CSO 5 (*Eliminate the introduction of non-indigenous species by shipping activities*). It is noted that the Action Plan associated with the Mediterranean Strategy (2022-2031) includes numerous activities under CSO 5, which directly overlap with this Strategy.

2. THE BALLAST WATER MANAGEMENT STRATEGY FOR THE MEDITERRANEAN SEA (2022-2027)

2.1 Introduction

The 2012 Mediterranean BWM Strategy initially covered the period 2011-2015, but its implementation carried on thereafter following discussions at the Eleventh Meeting of the Focal Points of REMPEC (Attard, Malta, 15-17 June 2015) and the Twelfth Meeting of the Focal Points of REMPEC (St. Julian's, Malta, 23-25 May 2017), as described in Section 1.3 above. However, the key developments outlined in Section 1.4 above rendered it obsolete in a number of respects and COP 21 in 2019 made provision in the UNEP/MAP Programme of Work and Budget 2020-2021 for the updating of the 2012 Mediterranean BWM Strategy with a view to producing a "*Mediterranean Strategy and Action Plan on Ships' Ballast Water Management updated to achieve GES*".

2.2 Scope and Objectives

As noted above, the COP decision which led to the updating of this Strategy specified that it should achieve GES. As detailed in Section 1.4.2, the NIS descriptors for GES include a target on pathways and vectors which reads: "*Improved management of the main human related pathways and vectors of NIS introduction*". **Figure 2** indicates that transport stowaways (i.e. alien species in ships' ballast water and biofouling) are the source of some 70% of the introductions to the Mediterranean. It is therefore critical to the achievement of GES that management of the shipping pathway as a whole be improved – rather than just one of the associated vectors. In this context, while the focus of this Strategy remains on ballast water, the scope has been expanded to include some preliminary activities on biofouling. This will also allow the countries implementing this Strategy to derive some benefit from the GEF-UNDP-IMO GloFouling Partnerships Project which is currently being implemented by the IMO.

The overall objectives of this Strategy are to:

- establish a framework for a regional harmonised approach in the Mediterranean on ships' ballast water control and management which is consistent with the requirements and standards of the BWM Convention, as outlined in its Article 13.3;
- initiate some preliminary activities related to the management of ships' biofouling in the Mediterranean region; and
- contribute to the achievement of GES with respect to NIS as defined in IMAP.

2.3 Definitions

The **Mediterranean Sea** refers to the area as defined in Article 1 of the Barcelona Convention.

There are a variety of terms which are used in the context of alien and invasive species. The BWM Convention, for example, uses the term "**Harmful Aquatic Organisms and Pathogens**" which is defined in Article 1.8 to mean: "*aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas*". The *2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (resolution MEPC.207(62)) (the "Biofouling Guidelines") use the term "**Invasive aquatic species**" which are defined as "species which may pose threats to human, animal and plant life, economic and cultural activities and the aquatic environment".

The CBD uses the terms Alien and Invasive. “**Alien species**” refers to a ‘species, subspecies or lower taxon, introduced outside its natural past or present distribution; including any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce’. The CBD defines an “**Invasive Alien Species**” (IAS) as an alien species whose establishment and spread threatens ecosystems, habitats or species with economic or environmental harm”.

The updated NIS Action Plan and IMAP use the term “**Non-indigenous species**” (NIS) which they define as species, subspecies, or lower taxa introduced outside of their natural range (past or present) and outside of their natural dispersal potential while noting that synonyms for NIS include **alien**, exotic, and non-native.

IMAP defines “**Invasive alien species**” (IAS) as a subset of established NIS which have spread, are spreading, or have demonstrated their potential to spread elsewhere, and which have an effect on biological diversity and ecosystem functioning (by competing with and on some occasions replacing native species), socioeconomic values, and/or human health in invaded regions.

For purposes of this Strategy:

- the terms NIS and alien species are used interchangeably; and
- the term IAS is taken to encompass the terms “Harmful Aquatic Organisms and Pathogens” and “Invasive aquatic species” as defined in the BWM Convention and the Biofouling Guidelines, respectively.

A **pathway** is broadly defined as the means (e.g., aircraft, vessel, or person), purpose or activity (e.g. mariculture, shipping, or aquarium trade), or commodity (e.g. fisheries) by which an alien species may be transported to a new location, either intentionally or unintentionally. The more specific mechanism for species transfer - linked to the pathway – is referred to as a **vector**. Thus, for example, shipping is a pathway, which has associated with it, a number of different vectors, including ballast water, hull-fouling, and cargo.

2.4 Structure

This Strategy comprises six (6) Strategic Priorities as outlined in Section 3, each of which is supported by a number of Actions and Activities that are described in more detail in the Action Plan (Section 4). Appendix 1 sets out a work plan and implementation timetable while Appendix 2 outlines supplementary information for regional harmonisation of BWM measures.

3. STRATEGIC PRIORITIES

The objectives of this Strategy will be met through the implementation of the following Strategic Priorities:

1. Support ratification and implementation of the BWM Convention;
2. Contribute to the achievement of Good Environmental Status (GES);
3. Enhance expertise for the management of ballast water and biofouling in the Mediterranean region;
4. Build political will for the implementation of ballast water and biofouling management measures in the Mediterranean;
5. Keep this Strategy under review and assess progress of implementation on a regular basis; and
6. Identify and secure adequate resources to implement the activities under this Strategy.

3.1 STRATEGIC PRIORITY 1: Support ratification and implementation of the BWM Convention

The most recent data available through MAMIAS²³ indicates that stowaways linked to shipping (i.e. alien species in ballast water and biofouling) comprise over 70% of the recorded NIS in the Mediterranean (as shown in **Figure 2**). Moreover, the 2017 Mediterranean Quality Status Report (2017 MED QSR) suggested that there is an increasing trend in the rate of new alien species introductions, and Zenetos and Galanidi (2020)²⁴ reported that there are currently about 1,000 NIS in the Mediterranean two thirds of which have established viable populations. There is therefore an urgent need to escalate efforts to manage the pathways and vectors which lead to these introductions, including the ballast water and biofouling vectors associated with shipping.

As of 21 April 2021, only thirteen (13) of the twenty-one (21) Mediterranean coastal States that are Contracting Parties to the Barcelona Convention ratified the BWM Convention. Moreover, the assessment of the level of implementation of the 2012 Mediterranean BWM Strategy carried out in 2016 reported that only five (5) of the responding countries had developed national law. Therefore, there is still a need to provide support to those countries that are in the process of ratification, or that are considering it. In addition, support may be required to facilitate incorporation of its provisions into national law. When national law is needed to carry out the obligations laid down in a convention, countries must ensure that this is done. Otherwise, countries risk being in breach of their convention obligations, as well as liable in international law. Moreover, if the implementation by a Party is flawed, it undermines the BWM Convention global regime to protect the marine environment from the threat of introduction of IAS via ballast water. Therefore, all Parties to the BWM Convention have a mutual interest in securing full implementation.

At the same time, with the entry into force of the BWM Convention in 2017 as well as the amendments in 2019 – and bearing in mind the additional amendments adopted and anticipated - there is a need to take appropriate actions to enhance implementation of the BWM Convention in a harmonised manner across the region.

- **The Contracting Parties to the Barcelona Convention support the work for the minimisation of the introduction of IAS carried out by the relevant organisations and fora, particularly the work of the IMO, and are committed to take all appropriate actions towards the ratification and implementation of the BWM Convention in the Mediterranean.**

²³ Available at: <http://dev.mamias.org/services/dash/med> and will soon be released at <http://www.mamias.org>.

²⁴ Zenetos, A. and Galanidi, M. (2020). Mediterranean non indigenous species at the start of the 2020s: recent changes. Marine Biodiversity Records 13(10). Available at: <https://doi.org/10.1186/s41200-020-00191-4>.

The associated Actions are, as follows:

- ❖ **Action 1:** Ratification of the BWM Convention;
- ❖ **Action 2:** Harmonisation of BWM measures in the Mediterranean region;
- ❖ **Action 3:** Development, adoption, and implementation of a regional protocol for port baseline surveys and biological monitoring in Mediterranean ports;
- ❖ **Action 4:** Promotion of the use of risk assessment as a tool to assist in ballast water (and, more generally, IAS) management and decision-making; and
- ❖ **Action 5:** Alignment of BWM measures with neighbouring regions.

3.2 STRATEGIC PRIORITY 2: Contribute to the Achievement of Good Environmental Status (GES)

Shipping is but one of numerous pathways for the introduction of NIS to the Mediterranean. Moreover, ballast water is not the only vector for the introduction of NIS by shipping. Thus, while managing ships' ballast water through ratification and implementation of the BWM Convention will contribute to achieving GES, it is important to recognise that in order to achieve the Operational Objectives for NIS, all vectors associated with shipping – as well as all other pathways – must be effectively managed. In addition, species that have already established must be eradicated where possible, or at least be controlled.

There is already a strong legal framework for the broader management of NIS both internationally and at the regional level. Article 8(h) of the CBD, for example, provides the basis for measures to protect biodiversity against IAS (Article 8(h)) and comprehensive Guiding Principles for the Implementation of Article 8(h) were adopted in 2002. The Strategic Plan for Biodiversity 2011-2020 of the CBD included the “Aichi Biodiversity Targets” of which Target 9 stated: “*By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.*” According to the Fifth Global Biodiversity Outlook (GBO 5), this target has only been partially achieved. It will be, in any event, replaced by a new target in the Post-2020 Global Biodiversity Framework of the CBD to be adopted at the fifteenth Meeting of the Conference of the Parties to the CBD. There have been a number of proposals in this regard, including that from the IUCN that has proposed that the target should address pathways, species, and sites; that it should be quantitative, be supplemented by a set of indicators that can be applied to track progress, and that it should be evaluated at medium-term (2030) and long-term (2050) time horizons (Essl et al, 2020²⁵).

At the regional level, Article 13.1 of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean to the Barcelona Convention (the “SPA/BD Protocol”), which was adopted in 1995 and entered into force in 1999, provides for Contracting Parties thereto to “*take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area where this Protocol applies*”²⁶. The SPA/BD Protocol is complemented by the updated NIS Action Plan, the main objective of which is to promote the development of coordinated efforts and management measures throughout the Mediterranean to prevent, minimise, monitor, and control biological invasions and their impacts. Objectives include strengthening capacity, supporting a regional information network, further development of MAMIAS, strengthening institutional and legal frameworks at national level, baseline studies, monitoring programmes and development of guidelines. There are also various NIS-related criteria in IMAP as

²⁵ Essl et al (2020). The Convention on Biological Diversity (CBD)'s Post-2020 target on invasive alien species – what should it include and how should it be monitored? *Neobiota* 62: 99–121 (2020). Available at: <https://doi.org/10.3897/neobiota.62.53972>.

²⁶ Article 7(e) of the Protocol Concerning Mediterranean Specially Protected Areas (the “SPA Protocol”), which was adopted in 1982 and entered into force in 1986, also prohibited introduction of exotic species.

described in Section 1.4.2. Finally, NIS are a high priority for the Post-2020 SAP BIO, which is aligned with the Sustainable Development Goals and the Post-2020 Global Biodiversity Framework of the CBD.

There is therefore significant potential for overlap between the updated NIS Action Plan and this Strategy as well as the implementation of IMAP. Care must therefore be taken to align these initiatives and avoid duplication of efforts. The Actions proposed in support of this Strategic Priority are therefore focussed on the shipping pathway, including the management of biofouling on vessels, port baseline surveys etc. With respect to biofouling, the IMO developed the Biofouling Guidelines. REMPEC organised, in cooperation with IMO, the IMO Regional Workshop on the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS Convention) and the Biofouling Guidelines in November 2019. The workshop was intended to provide, amongst others, the necessary knowledge and information to support further steps by the Governments of the region towards implementation of the Biofouling Guidelines. This Strategy builds on the outcomes of that workshop²⁷.

- **The Contracting Parties to the Barcelona Convention support the work for the minimisation of the introduction of IAS carried out within the framework of the Barcelona Convention through the SPA/BD Protocol, IMAP, and the updated NIS Action Plan, as well as the work on the control and management of ships' ballast water and biofouling carried out by the IMO, and are committed to take all appropriate actions towards achieving the NIS-related objectives in the region.**

The associated Actions are, as follows:

- ❖ **Action 6:** Ratification of the SPA/BD Protocol;
- ❖ **Action 7:** Initiation of preliminary activities to address the threat of biofouling on ships; and
- ❖ **Action 8:** Establishment and maintenance of a web-based Regional Information System (RIS).

3.3 STRATEGIC PRIORITY 3: Enhance expertise for the management of ballast water and biofouling in the Mediterranean region

There is a clear need to continue efforts made in the region to enhance capacity building, knowledge transfer and training of personnel with specific emphasis on the activities required to support the ratification and implementation of the BWM Convention and the other Actions identified in this Strategy. Such training should be extended to all relevant personnel including those from environmental and maritime administrations as well as port authorities. These initiatives should involve relevant international and regional co-operation mechanisms, non-governmental organisations and agencies and should promote the use of new information and communication technologies.

Although there is potentially support for capacity building initiatives from a wide range of organisations, the IMO has played – and will likely continue to play – a key role in developing capacity related to the management of shipping as a pathway. While the GEF-UNDP-IMO GloBallast Partnerships Programme ended in June 2017, support is still available through the Technical Cooperation Division. Moreover, a project on biofouling – the GEF-UNDP-IMO GloFouling Partnerships Project²⁸ – was initiated in December 2018 and will run until December 2023. Project activities include the identification of appropriate strategies for legal, policy and institutional reform with a view to implementing the Biofouling Guidelines and other relevant codes of conduct or industry standards.

- **The Contracting Parties to the Barcelona Convention stress the need to continue efforts in the region to enhance capacity building, knowledge transfer and training of personnel and**

²⁷ It is noted that, although the workshop also addressed the ratification and implementation of the AFS Convention, this Convention deals primarily with concerns regarding the toxicity of anti-fouling systems and is therefore not included here.

²⁸ More information is available at: <https://www.glofouling.imo.org>.

to involve relevant international and regional co-operation mechanisms, non-governmental organisations, and agencies as appropriate.

The associated Action is, as follows:

- ❖ **Action 9:** Development and implementation of a capacity building programme.

3.4 STRATEGIC PRIORITY 4: Build political will for the implementation of ballast water and biofouling management measures in the Mediterranean

The support of decision-makers as well as the general public and especially stakeholders with an interest in environmental issues is key to obtaining government commitment and funding for issues such as the management of NIS. Stakeholders can also play an important role in identifying new introductions, tracking existing ones through citizen science initiatives, and encouraging the implementation of management measures (for example, ballast water and/or biofouling management on recreational craft). Activities to raise knowledge and awareness on the subject are therefore important to the implementation of this Strategy.

- **The Contracting Parties to the Barcelona Convention agree to promote, individually or through regional co-operation, efforts to raise awareness amongst decision-makers and the general public of the impacts of and need to effectively manage NIS in the Mediterranean.**

The associated Action is, as follows:

- ❖ **Action 10:** Enhancement of awareness of NIS amongst decision-makers and the general public.

3.5 STRATEGIC PRIORITY 5: Keep this Strategy under review and assess progress of implementation on a regular basis

This Strategy should be subject to periodic review to take into account emerging issues, outcomes of research and development (R&D) activities and experience gained from its operation and implementation. Particular attention should be given to the anticipated amendments to the BWM Convention, including those already adopted but yet to come into force, and those that might arise through the EBP.

Progress in terms of implementation of this Strategy should be assessed at Meetings of the Focal Points of REMPEC and Meetings of the SPA/BD Focal Points, as appropriate.

- **The Contracting Parties to the Barcelona Convention call for the establishment of a mechanism to review and evaluate the ongoing relevance of this Strategy, and to assess progress in the implementation thereof.**

The associated Action is, as follows:

- ❖ **Action 11:** Completion of regular reviews of this Strategy.

3.6 STRATEGIC PRIORITY 6: Identify and secure adequate resources to implement the activities under this Strategy

Resources for implementing this Strategy should be identified and secured. Potential sources of funding

include the Mediterranean Trust Fund (MTF), the IMO's Integrated Technical Cooperation Programme (ITCP), regional and international shipping and port industries, bilateral and multilateral donors, and other technical cooperation programmes.

- **The Contracting Parties to the Barcelona Convention agree to work towards ensuring the sustainability and continuity of activities from self-financing sources within the region in the longer term.**

The associated Action is, as follows:

- ❖ **Action 12:** Development and implementation of a resource mobilisation plan to support implementation of this Strategy.

4 ACTION PLAN

The present Action Plan identifies twelve (12) main actions to be taken as well as thirty-nine (39) associated activities to be carried out at the regional, sub-regional or national level in accordance with the Strategic Priorities, and include a work plan and implementation timetable (**Appendix 1**).

4.1 ACTION 1: Ratification of the BWM Convention

As of 21 April 2021, thirteen (13) of the twenty-one (21) Mediterranean coastal States that are Contracting Parties to the Barcelona Convention ratified the BWM Convention. With the entry into force of the BWM Convention in 2017, those countries that have already ratified it should have incorporated it into national law and should be implementing it. At the same time, its effectiveness at the regional level is dependent on all countries of the region implementing the same measures. It is therefore important that:

- Those countries in the region that have not yet ratified the BWM Convention be provided with the support needed to do so;
- Those countries in the region that have ratified the BWM Convention but have not as yet incorporated it into their national law be provided with the support to do so. Countries that ratify the BWM Convention during the period covered by this Strategy should also be provided with such support;
- During this process, countries also need to be made aware of both existing and anticipated amendments to the BWM Convention and the actions required to make these applicable at the national level.

Given that all ships will be required to comply with the D2 standard of the BWM Convention by September 8, 2024, the target date for completion of ratification of the BWM Convention and its incorporation into national law should be August 2024.

The Contracting Parties to the Barcelona Convention agree to:

At the regional level:

- i) Circulate a questionnaire to the Contracting Parties to the Barcelona Convention with a view to confirming the status of ratification of the BWM Convention – and its incorporation into national law – in each country²⁹;
- ii) Draft guidelines for the development of national law to give effect to the BWM Convention once ratified, as well as secondary regulations and technical arrangements for its enforcement;

At the national level (as necessary):

- iii) Establish national policy working groups to lead the process towards the ratification of the BWM Convention, including drafting of the instrument of ratification; and
- iv) Draft national law to give effect to the BWM Convention once ratified, as well as secondary regulations and technical arrangements for its enforcement, and submission through relevant governmental channels for endorsement.

²⁹ This information can then be used to determine the extent of support required to achieve ratification by all Contracting Parties to the Barcelona Convention – including incorporation of relevant provisions into their national law.

4.2 ACTION 2: Harmonisation of BWM measures in the Mediterranean region

As with most international agreements, implementation, and enforcement of the BWM Convention is intended to take place at national level – through national law - with Parties thereto having obligations as flag and/or coastal or port States. Port or coastal States also have the right to intervene on board foreign ships in their waters or ports and may – individually or jointly with other Parties to the BWM Convention – impose more stringent requirements than those in the BWM Convention.

However, as previously noted, Article 13.3 of the BWM Convention specifically encourages regional cooperation of its implementation stating that: “...Parties with common interests to protect the environment, human health, property and resources in a given geographic area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention. Parties shall seek to co-operate with the Parties to regional agreements to develop harmonized procedures.”

Given the international nature of shipping, the fact that an estimated 58% of the commercial maritime traffic in the Mediterranean Sea is internal (REMPEC, 2020), and the semi-enclosed nature of the Mediterranean, harmonisation of BWM measures in the region is especially important. Supplementary information in this regard is provided in Appendix 2.

The relevant Memoranda of Understanding (MoU) on port State Control (PSC) in the Mediterranean region are the Mediterranean MoU on PSC and the Paris MoU on PSC.

The Contracting Parties to the Barcelona Convention agree to:

- i) Establish a regional online BWM Working Group to drive the process towards harmonisation of BWM measures in the region coordinated by REMPEC in cooperation with SPA/RAC;
- ii) Organise a regional workshop on PSC in relation to the BWM Convention, in collaboration with existing PSC bodies (e.g. Mediterranean MoU on PSC, Paris MoU);
- iii) Develop and implement a regionally harmonised, mandatory ballast water reporting system for ships arriving at Mediterranean ports³⁰;
- iv) Establish and maintain a regional communication system to allow exchange of data, experience and tracking of violations for PSC purposes;
- v) Develop and adopt a regional protocol for sampling of ballast water for purposes of PSC;
- vi) Undertake an assessment of the status of BWE in the Mediterranean (including information on designated BWE areas in national waters);
- vii) Develop, adopt, and implement a comprehensive Regional Procedure for the Granting of Exemptions under the BWM Convention;
- viii) Develop a regional action plan for the provision of port reception facilities for sediments (to be informed by a study on shipping traffic).

³⁰ To be preferably done under the auspices of the relevant MoU on PSC, namely the Mediterranean MoU on PSC, in cooperation with the Paris MoU on PSC.

4.3 ACTION 3: Development, adoption, and implementation of a regional protocol for port baseline surveys and biological monitoring in Mediterranean ports

Port Baseline Surveys are a crucial tool in the decision-making process related to BWM. The primary aim of such surveys is to provide inventories of the marine life in and around commercial ports which are frequented by ships carrying ballast water (although they may also be used for managing other vectors or pathways which introduce NIS to port environments). A key objective is to determine the presence, abundance, and distribution of NIS that may have been introduced by shipping, either in ballast water or attached to hulls, as well as by other vectors. They also provide a baseline of biological data against which future changes in the structure and function of marine communities can be measured. The information generated by port surveys is also crucial for risk assessment purposes (see Section 4.4).

Given that shipping traffic moves in and out of ports on a daily basis, the threat of introduction of new NIS is an ongoing one. There is therefore a need for regular surveys and monitoring. IMAP Common Indicator Guidance Factsheets (Biodiversity and Fisheries) propose Monitoring at “hot-spots” and “steppingstone areas” for NIS introductions should involve more intense monitoring effort, e.g. sampling at least once a year at ports and their wider area and once every two years in smaller harbours, marinas, and aquaculture sites.

The assessment of the level of implementation of the 2012 Mediterranean BWM Strategy carried out in 2016 indicated that although some sub-regions had been quite well surveyed and studied, comprehensive inventories of marine species were not available for others. The assessment report also noted that there are several different guidelines or protocols for biological sampling and monitoring of invasive species in the Mediterranean. These should be standardised for use across the region.

The Contracting Parties to the Barcelona Convention agree to:

- i) Circulate a questionnaire to the Contracting Parties to the Barcelona Convention with a view to obtaining up-to-date information on the status of port surveys in the region;
- ii) Identify key ports to be surveyed based on the questionnaire and provide support to the relevant authorities to undertake such surveys to fill the gaps;
- iii) Develop a regional protocol for port surveys, taking into account the *Guidance on Port Biological Baseline Surveys*³¹ that was developed within the framework of the GEF-UNDP-IMO GloBallast Partnerships Programme, the regional guidance provided for standardisation of survey and monitoring approaches through SPA/RAC via the EcAp roadmap and IMAP, as well as the HELCOM-OSPAR Joint Harmonized Procedure for BWMC A-4 Exemptions³² that includes a Port Survey Protocol; and
- iv) Review and adapt the IMAP Guidance Fact Sheet for Common Indicator 6 under EO 2, as well as define related Data Standards (DSs) and Data Dictionaries (DDs) to ensure integration of data in the IMAP Info System³³.

³¹ Awad, A., Haag, F., Anil, A.C., Abdulla, A. 2014. GEF-UNDP-IMO GloBallast Partnerships Programme, IOI, CSIR-NIO and IUCN. *Guidance on Port Biological Baseline Surveys*. GEF-UNDP-IMO GloBallast Partnerships, London, UK. GloBallast Monograph No. 22.

³² Joint Harmonised Procedure for the Contracting Parties of HELCOM and OSPAR on the granting of exemptions under International Convention for the Control and Management of Ships' Ballast Water and Sediments, Regulation A-4.

³³ Available at: <http://www.info-rac.org/en/infomap-system/imap-pilot-platform>.

4.4 ACTION 4: Promotion of the use of risk assessment as a tool to assist in ballast water (and, more generally, IAS) management and decision-making

Risk assessments are a key tool in the application of BWM measures and are used in:

- Identifying high-risk ships so that they can be targeted for PSC purposes (pre-arrival risk assessment which are based largely on the information provided in the reporting forms);
- Issuing exemptions in the context of the BWM Convention.

Three risk assessment methods have been established to support decisions on exemptions under regulation A-4 of the BWM Convention: environmental matching risk assessment, species' biogeographical risk assessment and species-specific risk assessment. The methods may be combined to enhance the quality of the Risk Assessment.

The 2017 Guidelines (G7) describe the risk assessment methods and explain the relationship between risk assessment and the Same Risk Area (SRA) approach. An SRA is an agreed geographical area based on the completion of a risk assessment and which is defined by the extent of connectivity of populations of target species. It is based on the premise that ships operating exclusively within such areas are not considered high risk. The SRA concept is in line with the 2017 Guidelines (G7).

The Contracting Parties to the Barcelona Convention agree to:

- i) Develop and adopt a regional protocol for risk assessment; and
- ii) Undertake a regional risk assessment of key ports in the Mediterranean Sea.

4.5 ACTION 5: Alignment of BWM measures with neighbouring regions

Harmonisation of approaches to BWM across regional seas is essential to help achieve the goals of the BWM Convention. Communication and alignment with regions which are closely connected geographically, politically and/or through trade and travel and their BWM structures will promote consistency between the regimes, and the sharing of information and experience. The regions concerned include the Red Sea and Gulf of Aden³⁴, the Black Sea³⁵, the North-East Atlantic³⁶, the North Sea³⁷, the Baltic Sea³⁸ and the ROPME Sea Area³⁹.

The Contracting Parties to the Barcelona Convention agree to:

- i) Organise a Joint Conference on BWM with neighbouring regions to share experiences and promote further alignment.

³⁴ the Regional Organization for the conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) was established by the Regional Convention for the Conservation of the Red Sea and Gulf of Aden (the "Jeddah Convention").

³⁵ the Commission on the Protection of the Black Sea Against Pollution (the Black Sea Commission or BSC) was established by the Convention on the Protection of the Black Sea Against Pollution (the "Bucharest Convention").

³⁶ the OSPAR Commission was established by the Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention").

³⁷ Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances, 1983 (the "Bonn Agreement").

³⁸ The Baltic Marine Environment Protection Commission (Helsinki Commission or HELCOM) was established by the Convention on the Protection of the Marine Environment of the Baltic Sea Area (the "Helsinki Convention").

³⁹ The Regional Organization for the Protection of the Marine Environment (ROPME) was established by the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution (the "Kuwait Convention").

4.6 ACTION 6: Ratification of the SPA/BD Protocol

Article 13.1 of the SPA/BD Protocol provides for the Contracting Parties thereto to “*take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area where this Protocol applies*”. The SPA/BD Protocol is complemented by the updated NIS Action Plan, the main objective of which is to promote the development of coordinated efforts and management measures throughout the Mediterranean to prevent, minimise, monitor, and control biological invasions and their impacts.

As of 21 April 2021, there are five (5) Contracting Parties to the Barcelona Convention that have not yet ratified the SPA/BD Protocol, and although they ratified the SPA Protocol, the Article 7(e) of which prohibited the introduction of exotic species, securing full ratification of the SPA/BD Protocol will strengthen the legal basis for and hopefully the commitment to implementing measures to prevent and respond to marine and coastal biological invasions in the region. It is noted, however, that the SPA/BD Protocol is broader than NIS. Thus securing ratification under this Strategy will be dependent on whether the barriers to ratification are NIS-related or not.

The Contracting Parties to the Barcelona Convention agree to:

- i) Circulate a questionnaire to those Contracting Parties to the Barcelona Convention that have not yet ratified the SPA/BD Protocol with a view to better understanding the barriers or challenges to such ratification; and
- ii) Organise a workshop aimed at addressing these concerns.

4.7 ACTION 7: Initiation of preliminary activities to address the threat of biofouling on ships

Figure 2 shows that shipping –via both ballast water and biofouling vectors - is the pathway responsible for the majority of alien species introductions. At the same time, Strategic Priority 2 acknowledges that in order to achieve the Operational Objective for NIS, all pathways and associated vectors must be effectively managed. In this context, the scope of this Strategy has been broadened to include preliminary activities on ship-related biofouling.

This reflects developments at the international level where the IMO’s MEPC adopted the Biofouling Guidelines that are currently being reviewed and assessed.

Concern around biofouling also led to the establishment of the GEF-UNDP-IMO GloFouling Partnerships Project in December 2018, which will run until December 2023. In 2021, the Project issued two guidance documents to assist countries in conducting national status assessments and in developing national strategies and action plans to manage biofouling. The Project also developed a number of training courses on biofouling.

Although no Mediterranean countries are direct partners in the GEF-UNDP-IMO GloFouling Partnerships Project, these guidance documents will be available to all countries. Moreover, there is potential for countries to engage with the Project Coordination Unit (PCU) as ‘second-tier’ countries.

The Contracting Parties to the Barcelona Convention agree to:

- i) Organise a regional workshop to initiate biofouling-related activities in the region;
- ii) Undertake National Status Assessments of Biofouling; and

- iii) Develop national strategies and action plans to manage biofouling.

4.8 ACTION 8: Establishment and maintenance of a web-based Regional Information System (RIS)

A wide variety of information is required for the effective management of ballast water from environmental and biological data from the local ports as well as source ports, to information on BWM practices on board arriving ships. Such data can be collected through activities such as reporting by arriving vessels, sampling of ballast water, port surveys and monitoring.

It is crucial that this information is accessible across the region and Annex 4 of the 2012 Mediterranean BWM Strategy made detailed proposals regarding the establishment of an appropriate mechanism for exchanging information through a web based Regional Information System (RIS) that covers all kinds of information to be collected through contributions from Contracting Parties to the Barcelona Convention.

The assessment of the level of implementation of the 2012 Mediterranean BWM Strategy carried out in 2016 concluded that, although the proposed centralised system had not yet been realised, there had been progress in that some of the components had been incorporated into national and sub-regional approaches. Furthermore, SPA/RAC had conducted a feasibility study for a regional mechanism for collecting, compiling, and circulating information on marine alien species in the Mediterranean (MAMIAS). MAMIAS is now in the final stage of development and will be available online in the near future⁴⁰. It will make available essential data to assist BWM and complement the proposed RIS.

The Contracting Parties to the Barcelona Convention agree to:

- i) Undertake a study to:
 - assess the specific information needs relative to various aspects of BWM;
 - identify existing websites, etc., which provide the type of information required (including national and sub-regional web-based or linked systems); and
 - develop a regional information and decision support system or tool, taking note of recent developments and focusing on areas identified to be of common regional priority to assist with a standardised approach to BWM⁴¹.
- ii) Establish and maintain the RIS based on the recommendations of the study.

4.9 ACTION 9: Development and implementation of a capacity building programme

Given that a number of Mediterranean States have not yet ratified the BWM Convention, that in some cases even where they have ratified, it has not been incorporated into national law, and there are relatively few technical initiatives related to BWM, it is clear that there is an ongoing need for capacity building. A Capacity Building programme including training, knowledge transfer and technical cooperation should therefore be developed and implemented to assist in carrying out activities which will assist in implementing this Strategy. This should be available to all relevant personnel including those from environmental and maritime administrations as well as port authorities.

Capacity building activities should cover the following:

⁴⁰ Available at: <http://www.mamias.org>. In the interim, the MAMIAS beta version can be accessed at: <http://dev.mamias.org>.

⁴¹ This should include proposals regarding the body that will be responsible for hosting and maintaining the web-based RIS. The proposals that were made in the 2012 Mediterranean BWM Strategy should serve as a starting point for this study. It is also recommended that the outcome related to supporting information systems both globally and within the region from the IMO/GloBallast Expert Workshop on developing a Risk-based Decision Support System for cost effective Compliance Monitoring and Enforcement (CME) of the BWM Convention (London, United Kingdom, 25-26 April 2016) be considered.

- drafting of instruments of ratification, national ballast water law and regulations;
- communication and awareness raising activities;
- port biota baseline surveys, monitoring and ballast water risk assessment;
- assessment and management of biofouling;
- research and development projects;
- PSC for BWM;
- developing national BWM strategies and action plans; and
- developing self-financing mechanisms.

It should be noted that materials on most of these topics are already in existence.

Training programmes and other capacity-building activities should be included in the regular programme of work of the relevant Regional Activity Centres of MAP. They should be organised at regional and sub-regional level taking into consideration similarities such as the geographical areas concerned (i.e. Eastern and Western Mediterranean countries), the language, the status of ratification etc.). Training should be offered to all relevant personnel including those from environmental and maritime administrations as well as port authorities. In addition, these training activities should be carried out using the “Train the Trainer approach”, where appropriate, and used by countries to replicate these training activities at national level. Moreover, the “hubs of expertise” on port surveys and monitoring identified in the assessment report should be made available to assist in other sub-regions where possible.

The Contracting Parties to the Barcelona Convention agree to:

- i) Undertake a training needs assessment to determine what type of training is most required and where;
- ii) Organise regional training workshops based on the outcomes of the need assessment;
- iii) Replicate regional workshops at national level, as necessary;
- iv) Disseminate protocols and tools for standardisation of technical approaches that could be used to conduct regional and national activities; and
- v) Promote e-learning opportunities.

4.10 ACTION 10: Enhancement of awareness of NIS amongst decision-makers and the general public

The support of decision-makers, as well as the general public and especially stakeholders with an interest in environmental issues, or who engage in activities which may result in the translocation of invasive species (such as recreational boating), is key to obtaining government commitment and funding for issues such as the management of NIS. Stakeholders can also play an important role in identifying new introductions, tracking existing ones through citizen science initiatives, and encouraging the implementation of management measures (for example, biofouling management on recreational craft). Activities to raise knowledge and awareness on the subject are therefore important to the implementation of this Strategy.

Some awareness-raising materials are already available through existing projects but should, where necessary, be translated into local languages. Where possible, collaborative partnerships should be forged between countries, and with non-governmental organisations (NGO) and other public interest groups to aid in organising targeted public awareness campaigns.

The Contracting Parties to the Barcelona Convention agree to:

- i) Organise a high-level seminar on ballast water and biofouling for decision-makers in the region (e.g. at a COP);

- ii) Produce and/or circulate relevant materials including those from IMO projects⁴² as well as translate these into local languages for dissemination at national level;
- iii) Organise national seminars and workshops to raise awareness about the issue among various stakeholders; and
- iv) Develop local case studies for use in awareness campaigns and for leveraging support within the Mediterranean region and its sub-regions⁴³.

4.11 ACTION 11: Completion of regular reviews of this Strategy

The implementation of this Strategy should be coordinated by REMPEC in collaboration with SPA/RAC and should be a standing item on the agenda of the Meetings of the Focal Points of REMPEC and the Meetings of the SPA/BD Focal Points, as appropriate, with a view to evaluating the ongoing relevance of this Strategy and assessing progress in the implementation thereof.

In addition, given the ongoing developments in the field – and particularly amendments to the BWM Convention – there should be mid-term and final reviews of this Strategy. The process to update or revise this Strategy to cater for the amendments to the BWM Convention and, amongst others, clearly cover both ballast water and biofouling – should be initiated in time prior to the end of the implementation period.

The Contracting Parties to the Barcelona Convention agree to:

- i) Review the status of implementation of this Strategy at the Meetings of the Focal Points of REMPEC and the Meetings of the SPA/BD Focal Points, as appropriate;
- ii) Undertake mid-term and final reviews of this Strategy; and
- iii) Update or revise this Strategy to consider any new developments, including amendments to the BWM Convention.

4.12 ACTION 12: Development and implementation of a resource mobilisation plan to support implementation of this Strategy

The successful implementation of this Strategy is dependent on identifying the resources required for carrying out the proposed activities. To this end, the activities should be costed, and a resource mobilisation plan developed to cover these costs. Contributions to the required resources could include both financial resources as well as in-kind contributions such as technical expertise. For example, countries from the region which already have specific expertise on ballast water or biofouling management could support relevant activities by making such expertise available for national, sub-regional or regional training sessions. Potential sources of funding include the MTF, the IMO's ITCP, amongst others.

The Contracting Parties to the Barcelona Convention agree to:

- i) Develop and implement a resource mobilisation plan including an estimation of costs, analysis of funding opportunities and identification of potential sources of technical expertise within the region which could be made available as in-kind contributions.

5 APPENDICES

⁴² The materials developed within the framework of the GEF-UNDP-IMO GloBallast Partnerships Programme are available at: <http://archive.iwlearn.net/globallast.imo.org/index.html>.

⁴³ These can include species-specific awareness and/or management plans.

Appendix 1: Work Plan and Implementation Timetable

Actions	Activities	Year					
		2022	2023	2024	2025	2026	2027
1. Ratification of the BWM Convention	i) Circulate a questionnaire to the Contracting Parties to the Barcelona Convention with a view to confirming the status of ratification of the BWM Convention – and its incorporation into national law – in each country;	✓					
	ii) Draft guidelines for the development of national law to give effect to the BWM Convention once ratified, as well as secondary regulations and technical arrangements for its enforcement;	✓	✓				
	iii) Establish national policy working groups to lead the process towards the ratification of the BWM Convention, including drafting of the instrument of ratification; and	✓	✓	✓			
	iv) Draft national law to give effect to the BWM Convention once ratified, as well as secondary regulations and technical arrangements for its enforcement, and submission through relevant governmental channels for endorsement.	✓	✓	✓			
2. Harmonisation of BWM measures in the Mediterranean region	i) Establish a regional online BWM Working Group to drive the process towards harmonisation of BWM measures in the region coordinated by REMPEC in cooperation with SPA/RAC;	✓	✓	✓	✓	✓	✓
	ii) Organise a regional workshop on PSC in relation to the BWM Convention, in collaboration with existing PSC bodies (e.g. Mediterranean MoU on PSC, Paris MoU);		✓				
	iii) Develop and implement a regionally harmonised, mandatory ballast water reporting system for ships arriving at Mediterranean ports;	✓	✓	✓	✓	✓	✓
	iv) Establish and maintain a regional communication system to allow exchange of data, experience and tracking of violations for PSC purposes;		✓	✓	✓	✓	✓

	v) Develop and adopt a regional protocol for sampling of ballast water for purposes of PSC;	✓	✓				
	vi) Undertake an assessment of the status of BWE in the Mediterranean (including information on designated BWE areas in national waters);	✓	✓				
	vii) Develop, adopt, and implement a comprehensive Regional Procedure for the Granting of Exemptions under the BWM Convention;	✓	✓	✓	✓	✓	✓
	viii) Develop a regional action plan for the provision of port reception facilities for sediments (to be informed by a study on shipping traffic).		✓	✓	✓		
3. Development, adoption, and implementation of a regional protocol for port baseline surveys and biological monitoring in Mediterranean ports	i) Circulate a questionnaire to the Contracting Parties to the Barcelona Convention with a view to obtaining up-to-date information on the status of port surveys in the region;	✓					
	ii) Identify key ports to be surveyed based on the questionnaire and provide support to the relevant authorities to undertake such surveys to fill the gaps;		✓	✓	✓	✓	✓
	iii) Develop a regional protocol for port surveys, taking into account the <i>Guidance on Port Biological Baseline Surveys</i> that was developed within the framework of the GEF-UNDP-IMO GloBallast Partnerships Programme, the regional guidance provided for standardisation of survey and monitoring approaches through SPA/RAC via the EcAp roadmap and IMAP, as well as the HELCOM-OSPAR Joint Harmonized Procedure for BWMC A-4 Exemptions that includes a Port Survey Protocol; and	✓	✓				
	iv) Review and adapt the IMAP Guidance Fact Sheet for Common Indicator 6 under EO 2, as well as define related Data Standards (DSs) and Data Dictionaries (DDs) to ensure integration of data in the IMAP Info System.	✓	✓				
4. Promotion of the use of risk assessment as a tool	i) Develop and adopt a regional protocol for risk assessment; and	✓	✓				

to assist in ballast water (and, more generally, IAS) management and decision-making	ii) Undertake a regional risk assessment of key ports in the Mediterranean Sea.		✓	✓	✓		
5. Alignment of BWM measures with neighbouring regions	i) Organise a Joint Conference on BWM with neighbouring regions to share experiences and promote further alignment.		✓				
6. Ratification of the SPA/BD Protocol	i) Circulate a questionnaire to those Contracting Parties to the Barcelona Convention that have not yet ratified the SPA/BD Protocol with a view to better understanding the barriers or challenges to such ratification; and	✓					
	ii) Organise a workshop aimed at addressing these concerns.		✓				
7. Initiation of preliminary activities to address the threat of biofouling on ships	i) Organise a regional workshop to initiate biofouling-related activities in the region;	✓					
	ii) Undertake National Status Assessments of Biofouling; and		✓	✓	✓		
	iii) Develop national strategies and action plans to manage biofouling.				✓	✓	✓
8. Establishment and maintenance of a web-based Regional Information System (RIS)	i) Undertake a study to: <ul style="list-style-type: none"> ➤ assess the specific information needs relative to various aspects of BWM; ➤ identify existing websites, etc., which provide the type of information required (including national and sub-regional web-based or linked systems); and ➤ develop a regional information and decision support system or tool, taking note of recent developments and focusing on areas identified to be of common regional priority to assist with a standardised approach to BWM. 	✓	✓				
	ii) Establish and maintain the RIS based on the recommendations of the study.		✓	✓	✓	✓	✓
9. Development and implementation of a	i) Undertake a training needs assessment to determine what type of training is most required and where;	✓					

capacity building programme	ii) Organise regional training workshops based on the outcomes of the need assessment;	✓	✓	✓	✓	✓	
	iii) Replicate regional workshops at national level, as necessary;		✓	✓	✓	✓	
	iv) Disseminate protocols and tools for standardisation of technical approaches that could be used to conduct regional and national activities; and	✓	✓	✓	✓	✓	✓
	v) Promote e-learning opportunities.	✓	✓	✓	✓	✓	✓
10. Enhancement of awareness of NIS amongst decision-makers and the general public	i) Organise a high-level seminar on ballast water and biofouling for decision-makers in the region (e.g. at a COP);		✓				
	ii) Produce and/or circulate relevant materials including those from IMO projects as well as translate these into local languages for dissemination at national level;	✓	✓	✓	✓	✓	
	iii) Organise national seminars and workshops to raise awareness about the issue among various stakeholders; and		✓	✓	✓	✓	
	iv) Develop local case studies for use in awareness campaigns and for leveraging support within the Mediterranean region and its sub-regions.		✓	✓	✓	✓	
11. Completion of regular reviews of this Strategy	i) Review the status of implementation of this Strategy at the Meetings of the Focal Points of REMPEC and the Meetings of the SPA/BD Focal Points, as appropriate;		✓		✓		✓
	ii) Undertake mid-term and final reviews of this Strategy; and			✓		✓	
	iii) Update or revise this Strategy to consider any new developments, including amendments to the BWM Convention.					✓	✓
12. Development and implementation of a resource mobilisation plan to support implementation of this Strategy	i) Develop and implement a resource mobilisation plan including an estimation of costs, analysis of funding opportunities and identification of potential sources of technical expertise within the region which could be made available as in-kind contributions.	✓	✓	✓	✓	✓	✓

Appendix 2: Supplementary Information for Regional Harmonisation of BWM Measures

1. INTRODUCTION

As with most international agreements, implementation, and enforcement of the BWM Convention is intended to take place at national level – through national law - with Parties thereto having obligations as flag and/or coastal or port States. Port or coastal States also have the right to intervene on board foreign ships in their waters or ports and may – individually or jointly with other Parties to the BWM Convention – impose more stringent requirements than those in the BWM Convention.

However, Article 13.3 of the BWM Convention specifically encourages regional cooperation of its implementation stating that: “...Parties with common interests to protect the environment, human health, property and resources in a given geographic area, in particular, those Parties bordering enclosed and semi-enclosed seas, shall endeavour, taking into account characteristic regional features, to enhance regional co-operation, including through the conclusion of regional agreements consistent with this Convention. Parties shall seek to co-operate with the Parties to regional agreements to develop harmonized procedures.”

Given the international nature of shipping, the fact that an estimated 58% of the commercial maritime traffic in the Mediterranean Sea is internal (REMPEC, 2020), and the semi-enclosed nature of the Mediterranean, harmonisation of BWM measures in the region is especially important.

There is already a strong basis for regional cooperation on BWM measures. Article 13.1 of the SPA/BD Protocol provides for the Contracting Parties thereto to “take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area where this Protocol applies”. The SPA/BD Protocol is complemented by the updated NIS Action Plan as well as i) *Guidelines for Controlling the Vectors of Introduction into the Mediterranean of Non-indigenous Species and Invasive Marine Species*⁴⁴; and ii) *Guide for Risk Analysis Assessing the Impacts of the Introduction of Non-indigenous Species*⁴⁵.

While the updated NIS Action Plan deals with alien and invasive species in a more generic way, the *Guidelines for Controlling the Vectors of Introduction into the Mediterranean of Non-indigenous Species and Invasive Marine Species* specifically recommended that the following ballast water-related issues be addressed at regional level:

- Designation of Ballast Water Exchange (BWE) areas;
- Exemptions (for intra-Mediterranean voyages); and
- Establishment of an early warning system to inform the designation of no-uptake areas.

In addition, it is recommended here that there is regional harmonisation of activities which are necessarily implemented at national level, including:

- PSC measures;
- Additional measures; and
- Reporting and data collection – which should be consolidated into a regional “clearing house mechanism” or regional information centre so that it can be available for decision-support purposes.

⁴⁴ UNEP/MAP-RAC/SPA. 2008. *Guidelines for Controlling the Vectors of Introduction into the Mediterranean of Non-indigenous Species and Invasive Marine Species*. Ed. RAC/SPA, Tunis. 18 pp.

⁴⁵ UNEP/MAP-RAC/SPA. 2008. *Guide for Risk Analysis assessing the Impacts of the Introduction of Non-indigenous Species*. Ed. RAC/SPA, Tunis. 30 pp.

2. OBLIGATIONS OF PARTIES TO THE BWM CONVENTION

In accordance with Article 2 of the BWM Convention, Parties thereto undertake to give full and complete effect to the provisions of the BWM Convention and the Annex in order to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. Parties to the BWM Convention also have the right to take, individually or jointly with other Parties thereto, and subject to certain conditions, more stringent measures for this purpose. More specific obligations of Parties to the BWM Convention can be separated into their flag State obligations (where appropriate), and their port or coastal State obligations.

The primary obligation of flag States is to ensure that vessels flying their flag are in compliance with the BWM Convention. This includes:

- i) Surveying ships and issuing BWM certificates;
- ii) The approval of BWMPs and Ballast Water Record Books (BWRBs);
- iii) Taking action when a violation by a ship flying its flag is reported;
- iv) Training their officers on the implementation and enforcement of the BWM Convention; and
- v) Evaluating the performance of any equipment installed to achieve compliance with the BWM Convention noting that liability lies with the flag State.

The primary obligation of coastal or port States is to enforce the BWM Convention with a view to protecting their coastal waters. This includes:

- i) Carrying out PSC inspections to ensure visiting ships are compliant with the BWM Convention;
- ii) Providing reception facilities for sediments (in those ports and terminals where ballast tanks are cleaned or repaired) (Article 5);
- iii) Taking action when a violation by a ship in a port or within their jurisdiction is detected (warning, detention, etc.); and
- iv) States are also required to notify IMO and other Parties to the BWM Convention of their national requirements and procedures for BWM including the location of reception facilities and any requirements for ships unable to comply with.

Port or coastal States also have the right to impose, individually or jointly with other Parties the BWM Convention, and subject to certain conditions, additional, more stringent requirements (regulation C-1 thereof) in their waters provided that the IMO and other Parties thereto are notified.

In order to give effect to the provisions of the BWM Convention in their waters and on ships flying their flag, Parties thereto must enact national law. National law should therefore include *inter alia* provisions for:

- flag State obligations such as survey and certification;
- port State Inspections;
- reporting by vessels arriving in ports of the Party to the BWM Convention;
- designation of BWE, discharge and/or uptake areas;
- exceptions and exemptions;
- ballast water sampling;
- designation of sensitive areas; and
- procedures or alternative disposal methods for ballast water unsuitable for discharge.

National law must also provide for offences and penalties.

3. PORT STATE CONTROL MEASURES

Under the BWM Convention, ships (as per Article 3 thereof) are required (amongst others):

- To discharge ballast water in compliance with the Annex of the BWM Convention;
- To have an International Ballast Water Management Certificate (IBWMC);
- To have on board and implement an approved BWMP (regulation B-1 thereof) with a detailed description of the management measures to be taken to meet the requirements of the BWM Convention including the ballast water standards (D-1 or D-2); and
- To have on board a BWRB (regulation B-2 thereof) to record information regarding the uptake, management, and discharge of ballast water.

Management measures must be such that ballast water exchanged with natural seawater or discharged into the sea must meet either the D-1 or D2 standards depending on the date of construction of the ship and on the date of renewal of the ship's IOPPC (for existing ships⁴⁶). However, it is noted that, in terms of the 2019 amendment to regulation B-3 of the BWM Convention, all ships will be required to meet the D-2 standard by 8 September 2024 unless they have been granted an exemption in terms of regulation A-4 of the BWM Convention (see **Figure A** below).

Provisions at the national level should cover inspections to determine compliance with these requirements as well as for sanctions and penalties in the case of non-compliance.

National provisions for PSC inspections should be in line with the *Guidelines for port State control under the BWM Convention* (resolution MEPC.252(67)). They should comprise a 4-stage inspection:

1. Stage 1 – focusses on determining whether the ship has the appropriate documentation (as described above);
2. Stage 2 – looks at operation indicators related to the BWM system;
3. Stage 3 – involves ballast water sampling and an indicative analysis to determine compliance with the D-2 standard; and
4. Stage 4 – ballast water sampling with a detailed analysis to verify compliance with the D-2 standard.

Where sampling is undertaken, it should be consistent with the *Guidelines for ballast water sampling (G2)* (resolution MEPC.173(58)).

Non-compliance situations (Violations) can be divided into two types:

1. Non-compliance resulting in potential risks which could be:
 - a situation outside the control of the ship, for example where severe weather conditions have prevented a ship from managing its ballast water as required by the Port State, or
 - deliberate non-compliance with the Port State's BWM requirements.
2. Non-compliance NOT resulting in potential risks such as:
 - Incomplete record keeping by a ship with a strong record of compliance.

Each situation of non-compliance should be treated on its merits with all factors being taken into account before any enforcement action is taken. Penalties and sanctions could be applied with different levels ranging from none in cases of situations outside the control of the ship, to very high in cases of deliberate non-compliance such as deliberate discharge of untreated / un-exchanged ballast water with full knowledge of the Port state BWM requirements.

⁴⁶ Existing ships are those constructed prior to the date of entry into force of the BWM Convention (8 September 2017).

Enforcement measures should be applied in case it is established that a ship is non-compliant, i.e., the ship is in violation of the BWM requirements of the BWM Convention and/or any other requirements of the port State, such as ballast water emergency measures, BWE zones or additional measures (given that such requirements have been communicated to the ship before arrival by the Port State).

In the event that samples are found not to meet the D1 or D2 standards of the BWM Convention during PSC, either through “clear grounds” identified in PSC, or through indicative analysis or full scale/indicative sampling, the ship may be required to stop the discharge of ballast water in a port. If this is the case, then the ship would have to fix the problem before continuing to discharge ballast water.

Regional harmonisation: The approach to PSC measures should be harmonised across the region. It is recommended that the penalties and sanctions regime set up for the BWM Convention is aligned with any existing penalties and sanctions applied to shipping for MARPOL related violations.

4. BALLAST WATER EXCHANGE

In general terms, there are two main approaches to the management of ballast water so that it can be discharged into the ocean namely i) BWE in the open ocean (D-1 standard); and ii) BWM to meet the D-2 standard. Ballast water may also be discharged to sea in emergency situations (exceptions) or to port reception facilities should they be available.

BWE was included in the BWM Convention as an interim measure to allow existing ships to continue operating until such time as it was possible to meet the D-2 standard. This was due to the fact that BWE does not produce ballast water which meets the D-2 standard (which is the preferred objective) and, while it may reduce the risk, introductions of alien species can still occur. It may also compromise the safety of the ship. BWE is therefore in the process of being phased out and will no longer be accepted under the BWM Convention from 2024 (see **Figure A** below).

As long as BWE does take place, it is provided for under regulation B-4 of the BWM Convention which requires ships to conduct BWE at least 200 nautical miles from the nearest land in water at least 200 meters in depth. Where this is not possible then at least 50 nautical miles from shore in water at least 200 meters in depth. In areas where neither of these parameters can be met – generally enclosed or semi-enclosed seas – the port State/s concerned may designate BWE areas.

Regulation B-4 of the BWM Convention also provides that i) ships may be exempted from the requirement to undertake BWE where the safety of the ship is threatened; ii) the recording of reasons for non-compliance in the BWRB; and iii) that ships should not normally be required to deviate from their voyage planned route or unduly delay their arrival for the purpose of meeting these requirements.

The 2017 Guidelines (G6) are aimed at providing shipowners and operators with general guidance on the development of ship specific procedures for conducting BWE.

Annex 2 of the 2012 Mediterranean BWM Strategy set out “*Harmonized voluntary arrangements for ballast water management in the Mediterranean region*”⁴⁷. Although, with the entry into force of the BWM Convention, they are now obsolete, those which are pertinent to BWE are summarised below as a possible basis for arrangements for regulation of BWE in the interim period until 2024 when BWE is phased out.

⁴⁷ These were communicated to the IMO by REMPEC following the Tenth Meeting of the Focal Points of REMPEC (Malta, 3-5 May 2011) and then circulated by the IMO (BWM.2/Circ.35) on 15 August 2011.

Proposed arrangements for regulation of BWE in the Mediterranean

Ships entering the waters of Mediterranean Sea area from the Atlantic Ocean (Straits of Gibraltar), or from the Indian Ocean through the Red Sea (Suez Canal) or leaving the waters of the Mediterranean Sea area to the Atlantic Ocean (Strait of Gibraltar) or to the Indian Ocean through the Red Sea (Suez Canal), should:

- (a) undertake BWE before entering the Mediterranean Sea area, or after leaving the Mediterranean Sea area, as applicable, according to the standard set out in the D-1 standard of the BWM Convention, and at least 200 nautical miles from the nearest land and in waters at least 200 meters in depth⁴⁸; and
- (b) in situations where this is not possible, either due to deviating the ship from its intended voyage or delaying the ship, or for safety reasons, such exchange should be undertaken before entering the Mediterranean Sea area, or after leaving the Mediterranean Sea area, as applicable, according to the standard set out in the D-1 standard of the BWM Convention, as far from the nearest land as possible, and in all cases in waters at least 50 nautical miles from the nearest land and in waters of at least 200 meters depth⁴⁹.

Ships should, when engaged in traffic between:

- ports located within the Mediterranean Sea area; or
 - a port located in the Black Sea⁵⁰ area and a port located in the Red Sea⁵¹ area; or
 - a port located in the Black Sea and a port located in the Mediterranean Sea area; or
 - a port located in the Red Sea area and a port located in the Mediterranean Sea area.
- (a) undertake BWE as far from the nearest land as possible, and in all cases in waters at least 50 nautical miles from the nearest land and in waters of at least 200 meters depth. The areas, one of which being unfit for BWE due its size, where such requirements are met in the Mediterranean Sea area, appear in the map provided in **Figure B** below;
 - (b) in situation where this is not possible either due to deviating the ship from its intended voyage or delaying the ship, or for safety reasons, BWE should be undertaken in areas designated by the port State for that purpose⁵²;

and, if a port State decides to designate BWE areas,

- (c) such areas shall be assessed in accordance with the *Guidelines on designation of areas for ballast water exchange* (G14) (resolution MEPC.151(55)) (the “Guidelines (G14)”), and in consultation with adjacent States and all interested States.

As per regulation B-4 of the BWM Convention, if the safety or stability of the ship is threatened by a BWE operation, this operation should not be undertaken. The reasons should be entered in the BWRB and a Report should be submitted to the maritime authorities of the Port of destination.

It should be noted that should the Contracting Parties to the Barcelona Convention intend to designate areas for BWE under regulation B-4.2 of the BWM Convention, this intention must be communicated to the Organization (IMO) prior to the implementation of the designated exchange area for ballast water.

⁴⁸ These geographical parameters are those set by regulation B-4.1.1 of the BWM Convention.

⁴⁹ These geographical parameters are those set by regulation B-4.1.2 of the BWM Convention.

⁵⁰ *Black Sea area* means the Black Sea proper with the boundary between the Mediterranean and the Black Sea constituted by the parallel 41°;

⁵¹ *Red Sea area* means the red sea proper including the Gulfs of Suez and Aqaba bounded at the south by the rhumb line between Ras si Ane (12°28'.5 N, 043°19'.6 E) and Husn Murad (12°40'.4 N, 043°30'.2 E).

⁵² Regulation B-4.2 of the BWM Convention.

5. MEETING THE D-2 STANDARD

By 2024, ships will only be able to discharge ballast water which meets the D-2 standard unless they have been granted an exemption.

To meet the D-2 standard, ballast water must contain:

- fewer than 10 viable organisms per cubic metre that are greater than or equal to 50 micrometres in minimum dimension;
- fewer than 10 viable organisms per millilitre that are less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension; and
- indicator microbes must not exceed the specified concentrations.

The indicator microbes, as a human health standard, include, but are not limited to:

- Toxicogenic vibrio cholerae (O1 and O139) with less than 1 colony-forming unit (cfu) per 100 millilitres or less than 1 cfu per 1 gram (wet weight) zooplankton samples;
- *Escherichia coli* – less than 250 cfu per 100 millilitres; and
- Intestinal enterococci – less than 100 cfu per 100 millilitres.

Adherence to these standards can be checked by sampling during PSC inspections as described above.

In practice, in order to meet the D-2 standard, the majority of ships are likely to choose to install ballast water management systems (BWMS) on board that include some form of treatment.

6. EXEMPTIONS

Regulation A-4 of the BWM Convention allows Parties thereto to grant exemptions to the requirement for ships to conduct BWM (as per Regulation B-3 thereof) or to comply with any Additional Measures (as per Regulation C-1 thereof). Such exemptions may, however, only be granted to ships on voyages between specified ports or locations or to a ship operating exclusively between specified ports or locations.

The exemptions must also:

- only be effective for a period of 5 years or less;
- only be granted to ships that do not mix ballast water or sediments other than from the ports or locations specified; and
- be based on the 2017 Guidelines (G7).

The 2017 Guidelines (G7) describe the risk assessment methods and explain the relationship between risk assessment and the Same Risk Area (SRA) approach. An SRA is an agreed geographical area based on the completion of a risk assessment and which is defined by the extent of connectivity of populations of target species. It is based on the premise that ships operating exclusively within such areas are not considered high risk. The SRA concept is in line with the 2017 Guidelines (G7).

The entry into force of the D-2 standard for all ships in 2024 is likely to increase the demand for exemptions. The process of granting exemptions is comprehensive and time-consuming and includes a risk assessment – which, in turn, requires a substantial amount of data. It is therefore recommended that a regionally harmonised procedure for exemptions to ships operating in the Mediterranean be developed. This could use, as a starting point, the HELCOM-OSPAR Joint Harmonized Procedure for

BWMC A-4 Exemptions initially adopted in 2013 and amended in 2015 and 2020⁵³. This procedure includes the following:

- Port Survey Protocol;
- Target Species;
- Data Storage;
- Risk Assessment;
- Decision Support Tool and; and
- Administrative Procedures.

7. BALLAST WATER SEDIMENTS

Sediments which accumulate in ballast tanks harbour a variety of species which could become invasive should they be discharged into new geographical areas. Of particular concern are dinoflagellates, many of which cause Harmful Algal Blooms. Disposal of these sediments therefore has potentially regional implications and needs to be carefully managed. It is therefore recommended that a plan for managing sediment disposal be developed.

Article 5 of the BWM Convention provides that Parties thereto should ensure that adequate facilities are provided for the reception of sediments collected during the cleaning or repairing operations of ballast tanks. A first step in the development of a plan for the management of sediments disposal should therefore be to gather information on existing sediment reception facilities in the region.

The *Guidelines for sediment reception facilities (G1)* (resolution MEPC.152(55)) (the “Guidelines (G1)”) are aimed at providing guidance for the provision of facilities for the reception of sediments that are provided in accordance with Article 5 of the BWM Convention. The guidance is also intended to encourage a worldwide uniform interface between such facilities and the ships without prescribing dedicated shoreside reception plants.

In the interim, in the absence of such facilities, as proposed in the 2012 Mediterranean BWM Strategy, sediments should be discharged beyond 200 nautical miles from the nearest land of the coastline when the ship is sailing in the Mediterranean Sea area.

8. VESSEL REPORTING AND DATA COLLECTION

Effective management of the potential impacts of ballast water discharges is dependent to a large extent on the availability of reliable data and information to support decision-making processes, in particular risk assessments. Data can be collected through a variety of activities including mandatory reporting by vessels on arrival at ports, sampling of ballast water, port surveys and monitoring.

Mandatory reporting: ports in the Mediterranean should implement a mandatory reporting requirement for arriving ships. This can be used to gather data from the ship such as the port of origin of ballast water, BWE records, any ballast water treatment regime, volume of treated or untreated water to be discharged, where and when the discharge is likely to take place, etc. This can assist with:

- Assessing the risk of harmful aquatic organisms being introduced into an area through the ballast water discharges of a ship;
- Identifying potentially toxic phytoplankton or other organisms that could be dangerous to public health (e.g. fish-shell toxins) and that could be imported into the region through ballast water; and
- Building the information base required for the granting of exemptions and development of additional measures.

⁵³ And/or any updates thereof.

While reporting at ports is to national port authorities, there should be a common reporting form and the information should be consolidated at the regional level.

Sampling of ballast water: where sampling of ballast water has been conducted as part of the PSC Inspection, the information obtained can be added to a centralised database of relevant information. Sampling could also be undertaken for research purposes but would have to be done with the consent of the vessel/s concerned.

Port biological baseline surveys: these are scientific surveys of ports with an emphasis on obtaining a detailed insight into the ports' biology. At best, all port habitats should be sampled, including organisms from the water column and bottom living organisms in soft sediment and also the fouling community on hard substrates. When carrying out such a study species should be recorded on both natural and modified habitat, such as coastal defence structures, docks, harbour walls, jetties, shipwrecks, bridge abutments etc. Discharges into the port – for example, cooling water from power plants - should also be recorded as they may provide opportunities for introduced species to become established. The initial detailed baseline survey should be repeated approximately every five years.

A regional protocol for port surveys should be developed. A *Guidance on Port Biological Baseline Surveys*⁵⁴ was developed with the framework of the GEF-UNDP-IMO GloBallast Partnerships Programme. Moreover, the HELCOM-OSPAR Joint Harmonized Procedure for BWMC A-4 Exemptions includes a Port Survey Protocol.

Monitoring: There should also be ongoing monitoring programmes, especially in high-risk areas such as ports, aimed at early detection of newly introduced species with a view to preventing full-scale incursions.

All of the information generated by the above activities should be made available at the regional level through a centralised information exchange/clearing house mechanism.

9. REPORTING OBLIGATIONS UNDER THE BWM CONVENTION

There are several mandatory reporting requirements under the BWM Convention and Parties thereto are required to provide information to IMO on a number of items as outlined below. The required information is provided to the IMO through the Global Integrated Shipping Information System (GISIS), except for the last item described below, which must be done through submission of information documents to the IMO's MEPC:

- **Exemptions granted to ships under regulation A-4 of the BWM Convention.** Parties to the BWM Convention, in waters under their jurisdiction, may grant exemptions to any requirements to apply regulations B-3 or C-1 thereof, under certain conditions and taking into account the 2017 Guidelines (G7) (resolution MEPC.289(71)). Such exemptions are only effective after communication to the Organization (IMO) and shall be recorded in the ship's record book of ballast water. In accordance with regulation A-4.1 of the BWM Convention, the conditions for exemptions include geographical and temporal limitations and these shall be specified in the information provided (e.g. voyage or voyages between specified ports or locations or operations exclusively between specified ports or locations; effective period which can be no more than five years subject to intermediate review; etc.). Each Party to the BWM Convention must also establish a point or points of contact for receipt of applications and relevant contact details should be submitted to the Organization (IMO).

⁵⁴ Awad, A., Haag, F., Anil, A.C., Abdulla, A. 2014. GEF-UNDP-IMO GloBallast Partnerships Programme, IOI, CSIR-NIO and IUCN. Guidance on Port Biological Baseline Surveys. GEF-UNDP-IMO GloBallast Partnerships, London, UK. GloBallast Monograph No. 22.

- **BWE areas designated under regulation B-4.2 of the BWM Convention.** Ships conducting BWE should do so in accordance with the provisions of regulation B-4.1 of the BWM Convention relating to water depth and distance from land. However, where this is not possible (which is the case in the Mediterranean Sea) the port State may designate areas, in consultation with adjacent or other States, as appropriate, where a ship may conduct BWE, taking into account the Guidelines (G14) (resolution MEPC.151(55)). A Party or Parties to the BWM Convention intending to designate areas for BWE under regulation B-4.2 thereof must communicate this intention to the Organization (IMO) prior to the implementation of the designated exchange area for ballast water. Such communication must include:
 - the precise geographical coordinates, depth limit and/or distance from the nearest land that defines the designated BWE area;
 - other information that may be relevant to facilitate ships' identification of the designated BWE area, for example navigation aids; and
 - details of the characteristics of the designated BWE area that may be relevant to assist ships to plan their voyage, including: use of area by other traffic, current and tidal flow, wind and swell conditions, seasonal events (cyclones, typhoons, ice, etc.).

- **Additional measures under regulation C-1 of the BWM Convention.** If necessary to prevent, reduce, or eliminate the transfer of invasive aquatic species through ships' ballast water and sediments, Parties to the BWM Convention may, consistent with international law, require ships to meet specified standards or requirements beyond those of the BWM Convention, taking into account the *Guidelines for additional measures regarding ballast water management including emergency situations (G13)* (resolution MEPC.161(56)). Parties to the BWM Convention shall communicate their intention to establish additional measure(s) to the Organization (IMO) at least 6 months prior to the projected date of implementation of the measure(s), except in emergency or epidemic situations. In these latter cases, the additional measures should be communicated to the Organization (IMO) as soon as possible (to the extent required by customary international law as reflected in UNCLOS, as appropriate, Parties to the BWM Convention may also have to obtain the approval of the Organization (IMO)). Such communication shall include:
 - the precise co-ordinates where additional measure(s) is/are applicable;
 - the need and reasoning for the application of the additional measure(s), including, whenever possible, benefits;
 - a description of the additional measure(s); and
 - any arrangements that may be provided to facilitate ships' compliance with the additional measure(s).

- **Warnings concerning ballast water uptake** in certain areas and related flag State measures under regulation C-2 of the BWM Convention. Parties to the BWM Convention shall endeavour to notify mariners and the Organization (IMO) of areas under their jurisdiction where ships should not uptake ballast water due to known conditions (e.g. areas known to contain outbreaks, infestations, or populations (e.g. toxic algal blooms) which are likely to be of relevance to ballast water uptake or discharge; near sewage outfalls; or where tidal flushing is poor or specific times during which a tidal stream is known to be more turbid). The notice to the Organization (IMO) and any potentially affected coastal States shall include the precise coordinates of the area or areas and, where possible, the location of any alternative area or areas for the uptake of ballast water. The notice shall include advice to ships requiring to uptake ballast water in the area, describing arrangements made for alternative supplies. The Party to the BWM Convention shall also notify mariners, the Organization (IMO) and any potentially affected coastal States when a given warning is no longer applicable.

- **Availability of reception facilities for ballast water and sediments and alleged inadequacies** related to sediment reception facilities in accordance with Article 5 and Article 14 of the BWM Convention. In accordance with Article 5.1 of the BWM Convention, Parties thereto undertake to

ensure that, in designated ports and terminals where cleaning or repair of ballast tanks occurs, adequate facilities are provided for the reception of sediments, taking into account the Guidelines (G1) (resolution [MEPC.152\(55\)](#)). In accordance with Article 14.1(b) of the BWM Convention, Parties thereto shall report to the Organization (IMO) the availability and location of any reception facilities for the environmentally safe disposal of ballast water and sediments. In addition, in accordance with Article 5.2 of the BWM Convention, Parties thereto shall notify the Organization (IMO) of all cases where any facilities provided as above are alleged to be inadequate.

- **Responsibilities and conditions of the authority delegated to nominated surveyors** or recognised organisations in accordance with regulation E-1 of the BWM Convention. In accordance with regulation E-1.5 of the BWM Convention, the Administration shall notify the Organization (IMO) of the specific responsibilities and conditions of the authority delegated to the nominated surveyors or recognised organisations for conducting surveys under the BWM Convention.
- **Information on BWMS** approved under regulation D-3 of the BWM Convention. In accordance with paragraph 7.2 of the annex to the BWMS Code (resolution [MEPC.300\(72\)](#)), Parties to the BWM Convention, when approving a BWMS used to comply with regulation D-2 thereof, shall submit to the Organization (IMO) the type approval report. The required information is listed under the aforementioned paragraph of the BWMS Code and is not repeated here due to its extent; a summary of the required information reporting on type approved BWMS (as outlined in resolution [MEPC.228\(65\)](#)) includes:
 - approval date;
 - name of the Administration;
 - name of the BWMS;
 - a copy of the Type Approval Certificate and any appendices which includes details on all imposed limiting conditions on the operation of the BWMS;
 - an annex to the Type Approval Certificate which contains the test results of each land-based and shipboard test run;
 - the protocol according to which testing was undertaken;
 - a description of the Active Substance(s); and
 - the identification of the specific IMO's MEPC report and paragraph number granting final approval.

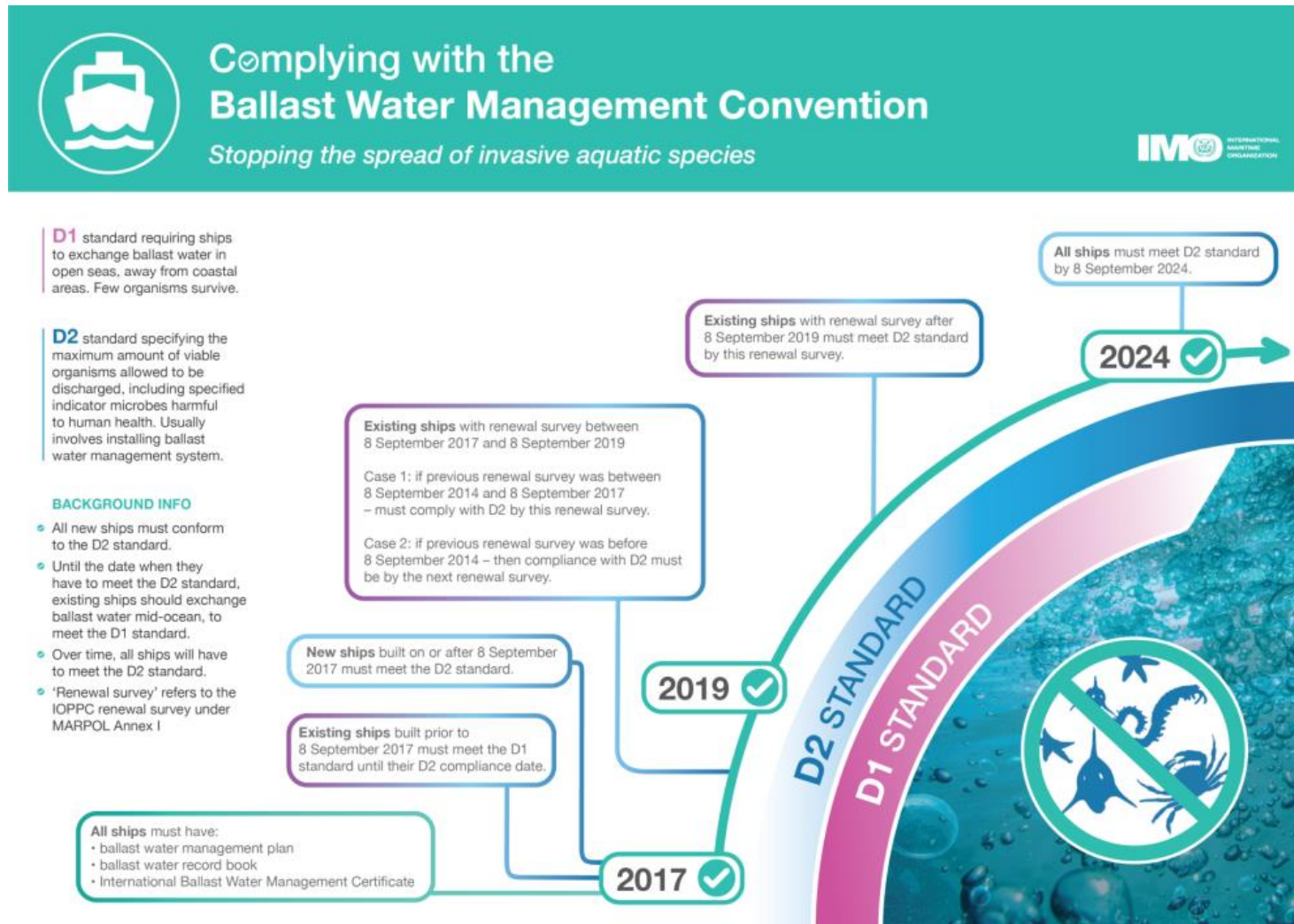


Figure A: Schematic showing transition from D-1 to D-2 standards for BWM (Source: IMO)

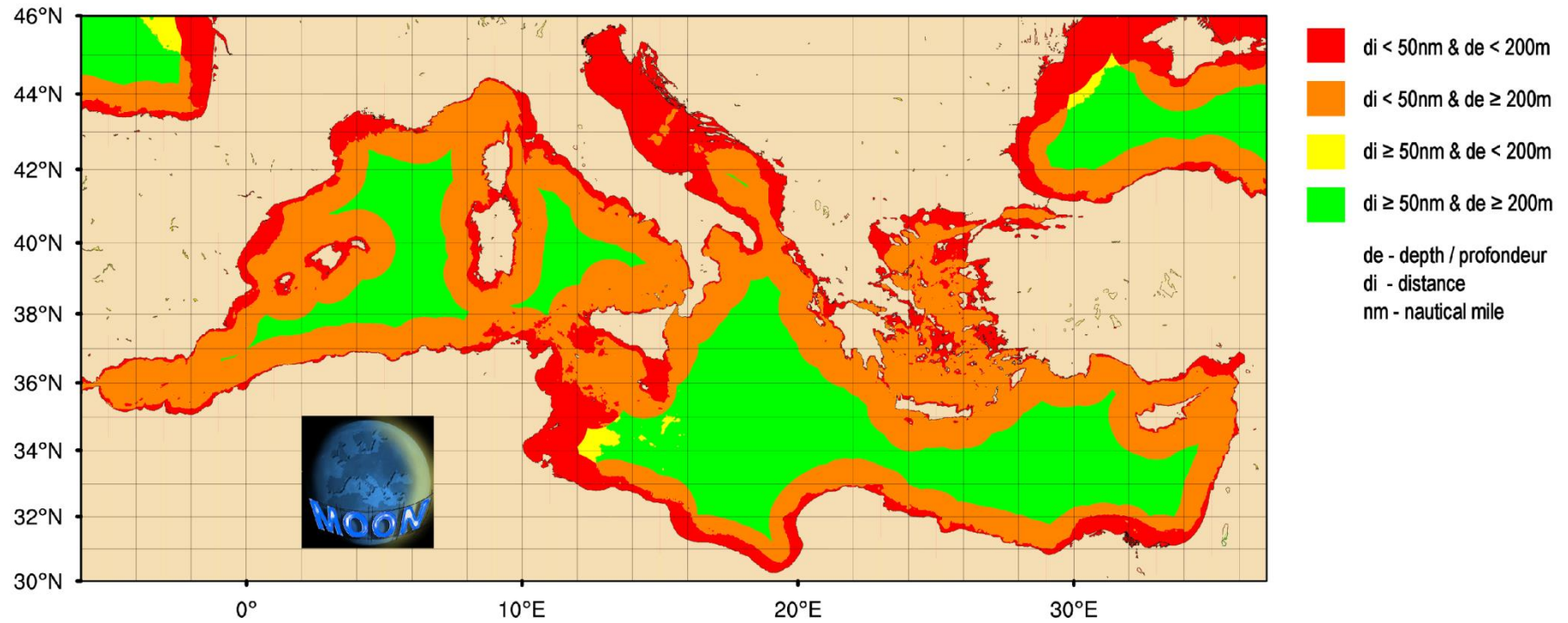


Figure B: Areas in the Mediterranean Sea meeting the requirements set out in regulation B-4.1.2 of the BWM Convention (at least 50 nautical miles from the nearest land in waters of at least 200 meters depth)

Draft Decision 25/18

Set of Regional Measures to Support the Development of Green and Circular Businesses and to Strengthen the Demand for more Sustainable Products

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting,

Recalling the outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”,

Recalling also General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”,

Recalling further the Environment Assembly resolutions of 15 March 2019, UNEP/EA.4/Res.1, entitled “Innovative pathways to achieve sustainable consumption and production” and UNEP/EA.4/Res.4, entitled “Addressing environmental challenges through sustainable business practices”,

Having regard to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, in particular article 5 thereof on general obligations and Article 9 thereof on scientific and technical cooperation, to the Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal, in particular Article 5 thereof on general obligations, and to the Protocol on Integrated Coastal Zone Management in the Mediterranean, in particular Article 9 thereof on economic activities,

Recalling Decisions IG.22/2 and IG.22/5, on the Mediterranean Strategy for Sustainable Development 2016–2025, and the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean respectively, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016),

Recalling also Decision IG.24/13 on the *Development of a Set of Regional Measures to Support the Development of Green and Circular Businesses and to Strengthen the Demand for more Sustainable Products*, adopted by the Contracting Parties at their 21st Meeting (COP21) (Naples, Italy, 2-5 December 2019),

Bearing in mind that in view of building back better, Sustainable Consumption and Production (SCP) should be placed at the core of the post-COVID recovery and that the Mediterranean Action Plan (MAP)-Barcelona Convention system response to COVID-19 includes the need to catalyse actions towards the promotion of sustainable consumption and production and circular economy, green jobs, marine renewable energy, sustainable tourism, nature-based solutions and transition to sustainable blue economy,

Recalling the mandate of the Sustainable Consumption and Production/Regional Activity Centre (SCP/RAC) as laid down in Decision IG.19/5 on the Mandates of the Components of MAP, adopted by the Contracting Parties at their 16th Meeting (COP16) (Marrakesh, Morocco, 3-5 November 2009), and its relevance to the implementation of this Decision,

Acknowledging also the need to continue working in order to shift from traditional linear business models to innovative green and circular business models, and that in order to achieve this shift, a proper enabling policy environment should be in place together with strengthened business support organisations and appropriated financial instruments at the regional and national level,

Noting with appreciation work undertaken in that direction under the Green Businesses Programme which has contributed to the creation of green companies and national partnerships with Business Support Organisations in the southern Mediterranean countries,

Having considered the report of the meeting of the Focal Points of the Regional Activity Centre for Sustainable Consumption and Production, (Teleconference, 1-3 June 2021),

1. *Adopt* the set of regional measures to support the development of green and circular businesses and to strengthen the demand for more sustainable products hereinafter referred to as “the Regional Measures”, set out in Annex I to this Decision;

2. *Call upon* Contracting Parties to strengthen the support to and promote green and circular businesses, in line with of the Regional Measures, with support from the Secretariat (SCP/RAC) in coordination with relevant regional and national stakeholders;

3. *Approve* the brief and comprehensive definitions of sustainable businesses (including green and circular businesses), set out in Annex II to this Decision;

4. *Invite* Contracting Parties to provide information on a biannual basis on the implementation of the Regional Measures at national level.

Annex I

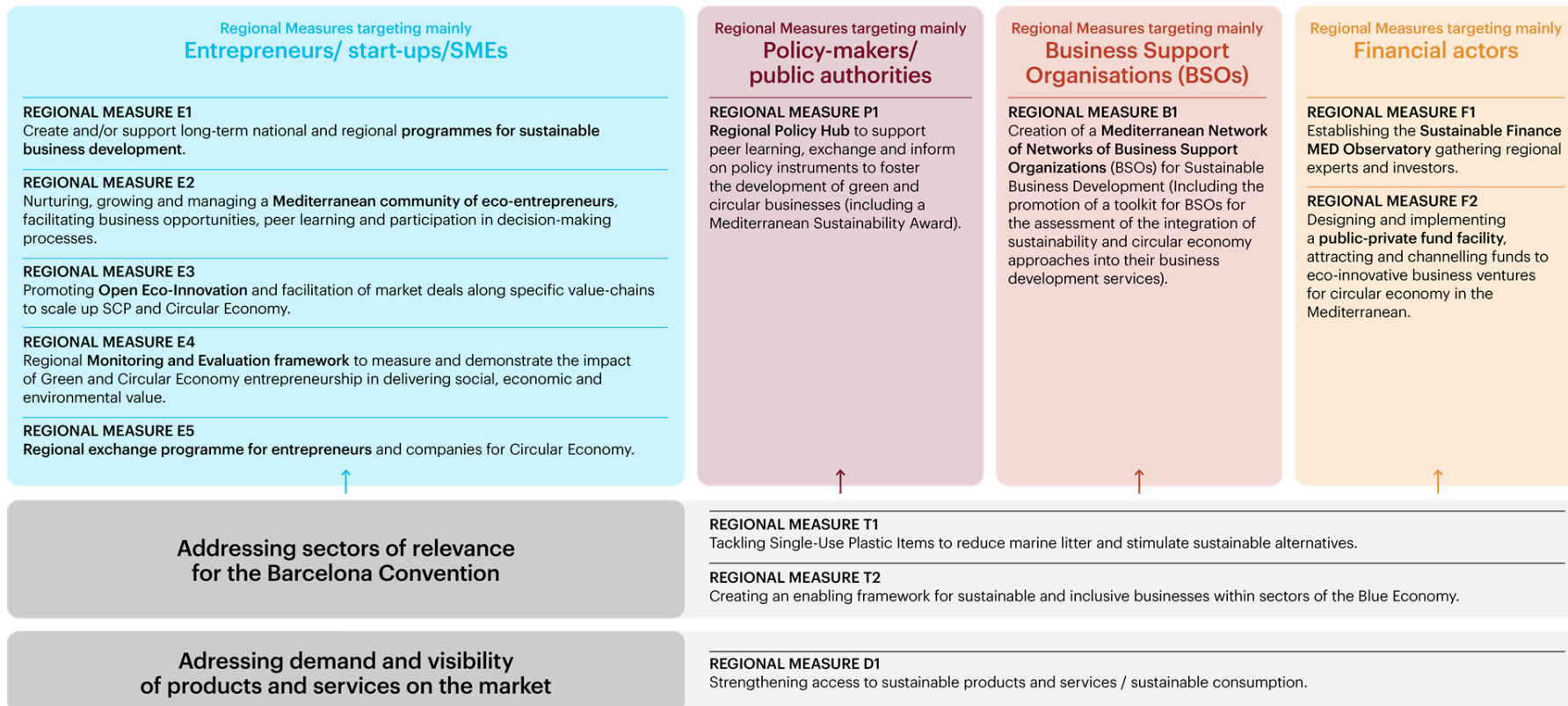
**SET OF REGIONAL MEASURES TO SUPPORT THE DEVELOPMENT OF GREEN AND
CIRCULAR BUSINESSES AND TO STRENGTHEN THE DEMAND FOR MORE SUSTAINABLE
PRODUCTS**

**SET OF REGIONAL MEASURES TO SUPPORT THE DEVELOPMENT OF
GREEN AND CIRCULAR BUSINESSES AND TO STRENGTHEN THE DEMAND
FOR MORE SUSTAINABLE PRODUCTS**

1. Structure of the Set of Regional Measures

1. The proposed regional measures will target directly green and circular businesses, including **entrepreneurs, start-ups and SMEs**, but measures will also aim at strengthening the ecosystem of stakeholders that will provide an enabling framework for the creation, growth and survival of those businesses. In particular, **Policy-makers** will have to create the right conditions for those businesses and develop a regulatory framework for circular economy, **Business Support Organisations** will have to boost their service offers targeting green and circular entrepreneurs and finally **financial actors** will have to increase their financial support towards green and circular start-ups and businesses during their different stages of development, from ideation towards sustainability.

2. The table next page shows how the 12 proposed regional measures could be articulated, they have been organised around the main target groups that will benefit or contribute to their implementation. Finally, 3 measures have a more transversal nature, as focusing on specific sectors of high relevance for the marine and coastal environment and therefore for the Barcelona Convention and its protocols, as well as on the demand side. A special attention will be given to those transversal measures in order to identify how they can be specifically addressed each of the different “vertical blocks” of measures.



2. Regional measures targeting mainly entrepreneurs, start-ups and SMEs

REGIONAL MEASURE E1: Create and/or support long- term national and regional programmes for sustainable business development.

3. The transition from a linear “take-make-waste” economic model towards a circular economy model entails the emergence of innovative enterprises, based on sustainable business models, which can materialize the required transformative and structural changes to achieve SCP and sustainable development. Insufficient support services for green business development are one of the major threats for the rise of such circular start-ups. National governments should therefore support the creation of innovative sustainable businesses and help the green entrepreneurs and businesses to overcome the huge challenges and structural obstacles they have to face to develop their circular companies. As highlighted in the Sub-Regional Baseline Assessments, green entrepreneurship programmes are existing but often in the form of pilot initiatives, mainly in the framework of international cooperation, but there are no permanent programmes to promote sustainable business development in the region offering continuity and long-term prospects.

4. Capacity building and knowledge and skills transfer are key aspects to support entrepreneurs and companies to develop their sustainable business projects. Supporting programmes for sustainable business development should be made extensive in the Mediterranean countries, targeting entrepreneurs at different levels of business development (ideation, early-stage and growth) and with a focus on youth and women. Delivered by public, private and/or non-profit organisations, the programmes should help entrepreneurs in adopting eco-innovation, life cycle thinking, life-cycle cost analysis and system- thinking perspectives into business development, offering for example methodologies and tools for sustainable business model and business plan development. In line with digitalisation trends, which have been intensified by the COVID-19 pandemic, support services should also be digitalised, offering online tools for sustainable business development and facilitating interaction between the different stakeholders within the ecosystem (entrepreneurs, business support organizations, mentors, financial actors, etc.). Finally, support programmes should adopt a regional approach, in order to enhance exchange of experiences and spread the most innovative and successful approaches.

Regional measure E1 would support the following Policy Recommendations:

Create or support incubation and acceleration programs (Capacity-building and knowledge dissemination)

Provide targeted information, skills, networking and training on circular entrepreneurship to youth and women (Capacity-building and knowledge dissemination)

Promote the development of training and capacity programs targeting refugees and immigrants (Capacity-building and knowledge dissemination)

REGIONAL MEASURE E2: Nurturing, growing and managing a Mediterranean community of eco-entrepreneurs, facilitating business opportunities, peer learning and participation in decision-making processes.

5. Raising visibility of sustainable products and services requires an effective strategy to prove their impact on environmental and social challenges together with an effort to organise the sector with a bottom-up and participatory perspective, including the development of effective internal and external communication tools.

6. The Switchers Community is a pioneer initiative developed by UNEP/MAP through SCP/RAC gathering more than 400 eco-innovative entrepreneurs and Civil Society Organisations (CSOs).

7. Members of The Switchers Community have access to like-minded change-makers and are supported to establish cross-border contacts, looking for business and peer learning opportunities.
8. Promoting the engagement of a regional community of eco-innovators and their integration in the governance processes at all levels will greatly leverage the upholding of principles and practices of sustainable development at policy and public awareness level. Encouraging and supporting this regional community requires raising visibility of its members which are key players in the emerging green and circular economy.
9. To operationalise such strategies, public and private stakeholders need to facilitate exchanges and participation of green entrepreneurs, fostering their presence at national and regional events and fairs. Developing awareness-raising campaigns and platforms to foster marketing opportunities for sustainable products and services is also key to increase the economic viability of green entrepreneurs.
10. Sector-related and geographic scopes need to be considered, via benchmarking and tailored analysis of circular business initiatives, designing ad-hoc strategies needs-based and context-oriented.
11. National authorities and multilateral mechanisms can play an important role in catalysing the community's supporting and monitoring of the Barcelona Convention's acquis and facilitating the uptake of important tasks related to awareness, sensitization and social innovation.

Regional measure 4 would support the following Policy Recommendations:

- Stimulate Consumer Demand: Support awareness-raising campaigns on sustainable/circular practices among consumers (Stimulate Consumer Demand) Promote national partnerships aimed at supporting green and circular business development (General policy recommendations)
- Develop a national Circular Economy Strategy (General policy recommendations)
- Enhance data collection and knowledge production on gender aspects of circular businesses and the demand for sustainable products (R&D and innovation)
- Promote upcycling businesses (Specific sectors or waste streams)
- Promote circular practices in the construction sector (Specific sectors or waste streams)
- Promote sustainable principles and practices in the tourism industry (Specific sectors or waste streams)
- Support circular businesses cases in the bio-based economy (Specific sectors or waste streams)
- Promote regenerative agriculture and agroforestry (Specific sectors or waste streams)

REGIONAL MEASURE E3: Promoting open eco-innovation and facilitation of market deals along specific value-chains to scale up SCP and Circular Economy.

12. To facilitate the creation and easy access to solutions in response to the circular economy challenges faced by the private and public sector entities, hence stimulating demand for green and circular products and services, open eco-innovation processes might be envisaged and triggered along specific value chains.
13. Putting focus on the use and disposal phases of the value chains, with the aim of creating a pull effect on the design, manufacturing and distribution phases, can trigger important collaborative processes catering to the needs of local and national public and private stakeholders.

14. Open Innovation processes can:

- (1) stimulate established companies/municipalities to initiate shifts to circular economy business/city models through eco-innovation and
- (2) create awareness and demand among corporate buyers, retailers, procurers and municipalities for eco-innovative and circular economy solutions.

15. Operationalising open eco-innovation at regional level requires mapping circular economy business opportunities along key value chains, in line with the SCP Regional Action Plan, and establish engagement models, virtually (via the development of a digital collaborative platform) and physically, growing a user-base, acquiring clients and defining challenges to stimulate the innovation process.

Regional measure E3 would support the following Policy Recommendations:

- Launch Circular Challenges (R&D and Innovation)
- Define a national Research & innovation Agenda for a Circular Economy (R&D and Innovation)
- Incentivize programs in the area of sharing/collaborative economy (Regional/city programs)
- Develop sustainable products policies and stimulate the application of circular design (general policy recommendations)

REGIONAL MEASURE E4: Regional Monitoring and Evaluation framework to measure and demonstrate the impact of Green and Circular Economy entrepreneurship in delivering social, economic and environmental value.

16. Evidence-based policy-making requires mainstreaming a robust Monitoring and Evaluation framework within business development support programmes. Demonstrating the impact of Green and Circular Economy to mitigate pressing environmental challenges, related to climate and biodiversity, is seminal to remove market barriers, promote incentives and improve access to sustainable finance.

17. SCP/RAC has been working since 2018 to design a conceptual framework linking business development programme's objectives and SCP impacts, upholding the importance of entrepreneurialism in achieving global targets (SDGs). This initial work should be further addressed through the implementation of a Regional Monitoring, Evaluation, Accountability and Learning System (MEAL) for sustainable business development, to be based on on-going efforts and existing initiatives at the international and European levels. This measure is aiming at providing an accessible methodology to circular start-up and MSMEs to measure their impact and will not address directly national monitoring framework.

18. MEAL Systems could support green start-ups and businesses to collect, analyse and use data to increase their environmental, social and economic performance. Similarly, through MEAL tools, BSOs adopting eco-innovation approaches could assess the impacts of the support services provided to the entrepreneurs. Finally, a regional MEAL framework would nurture further evidence-based policy development for green and circular business development.

Regional measure E4 would support the following Policy Recommendations:

- Create or support incubation and acceleration programs (capacity building & knowledge dissemination)
- Enhance data collection and knowledge production on gender aspects of circular businesses and the demand for sustainable products (R&D and innovation)

REGIONAL MEASURE E5: Regional exchange programme for entrepreneurs and companies for Circular Economy.

19. This regional measure would aim at facilitating the direct connections among entrepreneurs in order to support the market expansion of green businesses and products both in the region and to foreign markets, especially among young people and women who are the most affected in the current panorama due to the financial, environmental and social crisis. This cross-border exchange program will provide new entrepreneurs for green and circular economy with the opportunity to gain experience in the field of work they pursue which is provided by experienced green entrepreneurs and newly created businesses from another Mediterranean country.

20. There is a lack of connection among entrepreneurs and businesses for circular economy in the Mediterranean region. Most new green entrepreneurs, or students with green business ideas, lack of sufficient experience to start a business properly. Likewise, many experienced green entrepreneurs lack of contacts and opportunities to work abroad. The exchange programme will address those challenges. In order to exchange experience and knowledge, new entrepreneurs would stay and work together for a limited time with existing entrepreneurs, which would help the new entrepreneur acquire the necessary skills to manage a small-medium firm. On the other side, existing entrepreneurs will benefit from new ideas and perspectives on the business, get the opportunity to cooperate with foreign partners, and explore new markets and commercial relations.

21. This regional measure could catalyse the expansion of businesses, services and products for green and circular economy, and stimulate the development of innovative solutions impacting the way goods and services are produced and consumed in the Mediterranean. For the implementation of such measure, synergies with well established EU-funded programmes, such as Erasmus + will be considered.

Regional measure E5 would support the following Policy Recommendations:

- Support green and circular businesses with reaching international markets (Stimulate Consumer Demand)
- Provide targeted information, skills, networking and training on circular entrepreneurship to girls and women (Capacity building and knowledge dissemination)

3. Regional measures targeting mainly Policy Makers

REGIONAL MEASURE P1: Regional Policy hub to support peer learning, exchange and inform on policy instruments to foster the development of green and circular businesses.

22. The baseline assessment concluded that in most countries, the concept of circular economy is relatively new. Much still needs to be done to accelerate the transition from a linear to a circular economy and to develop long term strategies with an enabling policy framework. Likewise, the assessment also highlighted that there is an important lack of enforcement of environmental regulations in some countries, thus conducting to inefficiency of current environmental regulatory frameworks.

23. In this context, this regional measure will focus on the development of a regional policy hub that would foster peer-learning, exchange of successful experiences and challenges, provide up-to-date information on relevant initiatives, policy instruments, good practices from the Mediterranean and outside, and deliver technical support to policy-makers.

24. In doing so, the policy hub will integrate a network of national experts and practitioners that will be provided the space for sharing their experience, exchange with peers and will be invited to express their needs in order to adapt the content and activities of the policy hub (on an on-demand basis).

In particular, the Policy Hub activities will support in the development and implementation of national CE strategies, extended Producer Responsibility schemes, Green/circular public procurement practices, regulatory framework for sustainable enterprises (including tax benefits, VAT reductions), support frameworks for the certification of sustainable products and services, awareness raising campaigns on sustainable circular/practices, national knowledge centres or networks, reuse centres, etc.

The peer-to-peer activities to be organised will also look at synergies with on-going mechanisms, like the Twining international partnership or TAIEX, etc.

25. As part of the Policy Hub activities, this Regional Measure will also include a Mediterranean Sustainability Award that would constitute a policy tool to encourage environmental-friendly and social innovation by Mediterranean businesses. As highlighted in the baseline assessment, entrepreneurs and existing companies are insufficiently aware of the possibilities presented by new circular businesses. There is a need to put the light on outstanding change makers, disseminate their stories and further support them in their efforts toward sustainability. Likewise, it is necessary to emphasize on the role of the stakeholders that have an essential role in the development of green and circular businesses, eg. public authorities, BSOs, academia, CSOs and financial actors.

26. The organisation, on a regular basis, of a Mediterranean Sustainability Award would constitute a regional measure to encourage environmental-friendly and social innovation by Mediterranean businesses. The award would;

- (i) recognize outstanding achievements of green and circular economy businesses (and the organizations that support them);
- (ii) inspire other entrepreneurs to adopt eco-and social innovations in their business models, thereby scaling up these approaches in the region;
- (iii) highlight the need to promote an enabling policy environment to foster the growth of green and circular economy businesses.

In addition, the award will provide visibility for the contributions of green and circular economy businesses to the region's sustainable development goals, and raise consumer awareness about sustainable products and services. The award's basic criteria for businesses will include requirement to demonstrate the effective consideration of the 3 pillars of sustainability (economic, environmental and social aspects).

Regional measure P1 would support the following Policy Recommendations:

- Develop a national Circular Economy Strategy and a National Commission to ensure its implementation (General Policy Recommendations)
- Establish and improve Extended Producer Responsibility schemes (General Policy recommendations)
- Make Green Public Procurement (and monitoring) mandatory practice across all government bodies (Public procurement)
- Provide circular procurement training, and support for local authorities (Public Procurement)
- Promote the development of municipal reuse centres (Regional/city programs)
- Stimulate circular cities programs ((Regional/city programs)
- Create a supporting regulatory framework for sustainable enterprises (General policy recommendations)
- Tax benefits for green and circular businesses (General Policy recommendations)
- Establish clear end-of-waste and by-product criteria (General Policy recommendations)
- Support awareness-raising campaign on sustainable/circular practices among consumers (Stimulate Consumer Demand)
- VAT reduction or exemption for second-hand goods and repair services (Stimulate consumer demand)
- Create a national knowledge centre or network specialised in Circular Economy (Capacity-building & knowledge dissemination)
- Foster the development of funding to green and circular businesses (Access to financing and funding)
- Promote the development of alternative models of financing (Access to financing and funding)
- Encourage educational institutions to integrate circular economy modules in their curriculum (capacity building and knowledge dissemination)

4. Regional Measures targeting mainly Business Support Organisations (BSO)**REGIONAL MEASURE B1: Creation of a Mediterranean Network of Networks of Business Support Organisations (BSOs) for Sustainable Business Development.**

27. As pointed out in the Regional Baseline Assessment, in the Mediterranean region Business Support Organisations (BSOs) adopting eco-innovation and life cycle thinking approaches are practically non-existent. The view on innovation is generally limited to technology and environmental, circular and social innovation are only being scarcely adopted by BSOs. Very few examples of green business development centres and incubators can be found in the Mediterranean. Therefore, there is a general absence of knowledge and methodologies for sustainable business development among the supporting structures. On the other hand, the Regional Baseline Assessment also highlight the lack of coordination and collaboration between the different actors of the green entrepreneurship ecosystem around the support services offered to green entrepreneurs. In short, knowledge transfer and collaboration among the BSOs are needed in order to increase circular business development.

28. National Government should encourage networking among BSOs committed with sustainable business development through the establishment of national partnerships to support the creation and development of businesses for green and circular economy. The National Partnerships are non-institutionalised voluntary associations of public, private and non-profit BSOs that cooperate on sustainable and circular

29. business development services. The National Partnerships offer a promising starting point to create a Mediterranean Network of BSOs for circular business development. The goal of the Mediterranean network is to create a space for regional collaboration for sustainable business development. It could also foster the creation of business support organisations with a focus on sustainability at national level. The key potential outcomes of the regional network are the following ones:

- Technical support and transfer of methodologies and tools for sustainable business development are provided to the network. For example, simplified life cycle assessment (LCA) methodologies are required for businesses to be able to assess their long term impacts, but these are usually difficult to access by small companies;
- By facilitating appropriated communication channels, National Partnerships and BSOs from different Mediterranean countries are aware of similar activities and exchange knowledge and experiences at regional level;
- A Mediterranean community of practices for sustainable/circular business development is created;
- BSOs share network connections at regional level;
- National Partnerships from different Mediterranean countries coordinate activities and define an integrated approach;
- National Partnerships from different Mediterranean countries undertake joint fund-raising, activities and projects;
- The BSOs share common resources;
- Open-innovation programs are disseminated and coordinated across countries.

30. This Regional Measure will also include the development of a Toolkit¹⁰ for Business Support Organizations (BSOs) that will allow BSOS to assess the degree of integration of sustainability and circular economy approaches into the business development services they provided to entrepreneurs and companies. There is a need to improve the quality of the services provided to green entrepreneurs as well as encourage traditional BSOs to adopt eco-innovation and life cycle thinking approaches.

The proposed Toolkit will be integrated into the set of tools provided within The Switchers Toolbox and will reinforce the BSOs members of the National Partnerships. The assessment carried out through the Toolkit will be able to be done through a self-diagnosis and/or through peer-reviewing between BSOs members of the Partnerships. This would tackle the lack of BSOs adopting eco-innovation approaches and the need to increase their number and capacities, toolkits and guidelines as well as common quality marks and standards for sustainable business development.

31. The Mediterranean Network of BSOs will contribute to strengthen the enabling environment for sustainable and circular business development.

¹⁰ Following the recommendations of the National Experts, SCP/RAC has discarded the wording “Standard” for the activity described on ex-Regional Measure 10 and integrated in Regional Measure B1. The wording “Standard” was not in line with the content of the measure proposed.

Regional measure B1 would support the following Policy Recommendations:

- Promote national partnerships aimed at supporting green and circular business development (General Policy recommendations)
- Create a national knowledge centre of network specialized in circular economy (Capacity-building and knowledge dissemination)
- Create or support incubation and acceleration programmes (Capacity-building and knowledge dissemination)
- Legally define green and circular economy activities eligible for green financing (Access to financing and funding)
- Create a supporting regulatory framework for sustainable enterprises (General policy Recommendations)

5. Regional Measures targeting mainly Financial Actors**REGIONAL MEASURE F1: Establishing the Sustainable Finance MED Observatory gathering regional experts and investors.**

32. The Regional Sustainable Finance Observatory has the objective to provide knowledge and opportunities to financial institutions and investors and thus strengthening their capacity to invest in circular economy business models in the Mediterranean.

33. With the final aim of attracting more-sustainable finance solutions on the benefit of the social and green economy, the Observatory will conduct annual researches on trending and evolution of the main finance opportunities from blending finance, impact investing actors, ESG (Environment, Social and Governance) investment funds, micro-credit and Venture Philanthropy.

34. The Observatory has the ambition of becoming a network where European Investors and local financiers can work together. Local financiers can provide extremely valuable feedback on the market and business model of Green Entrepreneurs and potentially additional funding as well. Sustainable finance is key to lever long term environmental and social impacts, catalysing the development of new business models and supporting the transition to a Circular Economy.

35. The Observatory will foster exchanges and networking at national and regional level, facilitating the establishment of consultation and exchange mechanisms which will lead to the development of a common and shared agenda on sustainable finance. The Observatory will attract more stakeholders to fine-tune and further develop existing financial markets requirements and existing sustainable financial frameworks.

36. The results shared and awareness raised by the Observatory will play an active role in shaping the future of sustainable finance opportunities in the Region, prepare the business cases for innovative investments and increase information on green and circular businesses solutions.

Regional measure F1 would support the following Policy Recommendations:

- Information on the analysis of trends regarding the progress of green and circular businesses (Access to financing and funding)
- Foster the development of funding to green and circular businesses (Access to financing and funding)

REGIONAL MEASURE F2: Designing and implementing a public-private fund facility, attracting and channeling funds to eco-innovative business ventures for the ecological transition in the Mediterranean.

37. Access to finance represents one of the key barriers for Green Entrepreneurs in the region to grow and scale their business ventures and related eco-innovation potential. Green Start-ups need financing for different purposes, depending on their field of activity, business model and maturity. Their most common needs relate to financing working capital, purchasing equipment or building capital reserves to finance their growth.

38. Matching financing needs with the available financing instruments is a challenge in Mediterranean countries. The risk and return expectations of investors and investees do not often align. Moreover, there is a lack of patient capital or flexible finance that fits the needs of Green Entrepreneurs. In certain cases, Green Entrepreneurs who do find finance, do so under conditions that they cannot easily accept.

39. A public-private fund facility to support Green and Circular Economy entrepreneurship, in an inclusive manner, is needed to ensure a mix of financing tools and blended finance, engaging investors who can effectively match eco-entrepreneurs' funding needs. In particular, there is a clear need of support and capacity for the start-up and SMEs, having difficulties to access to traditional financing mechanisms.

40. The establishment of an ad-hoc fund facility will have to rely on solid metrics and a robust measurement framework to ensure impacts are effectively achieved and to secure the return on the investment, enhancing the fund sustainability.

41. The Mediterranean Green Impact Investing Network is a pioneer initiative developed under UNEP/MAP and led by SCP/RAC through which a Fund nurtured through different funding sources provides and facilitates direct funding and business support services to existing and future green, circular and social entrepreneurs in the Mediterranean Region.

42. Likewise, besides providing funding, the Fund provides technical assistance to its beneficiaries. Technical assistance is a key tool for fund managers and investors in emerging countries. In such markets, entrepreneurs and the businesses that they manage - no matter their size, maturity and sector - are constrained by deficits in business training and operational expertise. Such gaps often translate into missed opportunities and can prevent businesses from getting vital access to finance. Likewise, monitoring and evaluation mechanisms will be established to follow-up the beneficiaries of the fund. The MEAL system will support beneficiaries to monitor their impacts and be accountable during both the due diligence and investment process.

43. Establishing a dedicated regional fund facility, including a tailored financial infrastructure impact oriented, is key to develop the next generation of Entrepreneurs and businesses for Circular Economy in the Mediterranean, removing obstacles and harnessing important policy paradigm shifts across the region.

Regional measure F2 would support the following Policy Recommendations:

- Foster the development of funding to green and circular businesses (Access to financing and funding)
- Promote the development of alternative models of financing (Access to financing and funding)
- Commitment and capacity-building in the financial sector (Access to financing and funding)

6. Transversal regional measures targeting economic sectors having a particular impact on the marine and coastal environment

REGIONAL MEASURE T1: Tackling Single-Use Plastic Items to reduce marine litter and stimulate sustainable alternatives.

44. The Mediterranean is the sea with the world's highest plastic density and most of marine litter is originated from land-based sources and made of plastic items. Tackling plastic pollution at source, through prevention approaches, is a regional priority and urgent decisions should be taken by Mediterranean governments to tackle single-use plastic products most often found polluting the Mediterranean.

45. The adoption of such measures by national public authorities implies important changes in the productive sector, and associated sectors, and should be accompanied by the identification and development of suitable sustainable alternatives that could be put on the market by green and circular businesses. The identification of those sound alternatives to single-use plastics products needs to take into account the full life cycle implications of those alternatives within specific national contexts.

46. "The Business Case for tackling Plastic Packaging" report recently published by SCP/RAC already features a number of relevant approaches to food and beverage plastic packaging prevention, that should be further supported in the region ([available here](#)).

47. Given the priority plastics and marine litter deserve in this region, this regional measure will focus on:

- supporting and coordinating countries in their efforts to develop a legislative framework to tackle single use plastics products,
- Supporting the eco-design of sound alternatives,
- supporting the marketing of sustainable alternative and innovative businesses providing alternatives to single-use plastic products, or allowing for their prevention and reduction,
- Addressing the demand side to shift to sustainable consumption patterns,

48. Fishing-for-litter related businesses, even if not providing direct alternatives to SUPs Products, will be also considered in order to reduce the current amount of Marine Litter in the Mediterranean Sea and to raise awareness on marine litter.

49. The Regional Measure will also have a particular look at the alternatives for the single-use plastic products related to the tourism sector, as tourism activities mainly take place in the coastal area and contribute significantly to the generation of Marine Litter. Tackling effectively this issue also involves the generation of solutions from green and circular businesses. Greater attention will be put on identifying solutions adapted to local contexts, and in particular to Islands, given their sensitivity to marine litter.

50. This Regional Measure will support the implementation of the Barcelona Convention Regional Plan on Marine Litter Management and the associated series of guidelines produced by SCP/RAC would constitute a guidance for policy support (on phasing-out plastic bag, on addressing plastic pollution through public procurement and on tackling single-use plastic products (under elaboration). In addition, at regional level businesses are already joining forces to tackle this issue, such as the BeMed Business Club, and therefore the regional measure would maximise synergies with such initiatives.

Regional measure T1 would support the following Policy Recommendations:

- Introduce a ban on certain single-use plastic products contributing to Marine Litter (Specific Sectors or Waste Streams)
- Promote sustainable principles and practices in the tourism (Specific Sectors or WasteStreams)
- Provide circular procurement training and support for local authorities (Public Procurement)
- Support awareness-raising campaigns on sustainable/circular practices among consumers (Stimulate Consumer Demand)
- Establish and improve Extended Producer Responsibility Schemes (General Policy recommendations)

REGIONAL MEASURE T2: Creating an enabling framework for sustainable and inclusive businesses within sectors of the Blue Economy.

51. This Regional Measure will focus on the creation of an enabling environment within sectors of activity that are marine-based or marine-related in view of increasing the development of green and circular business of the Blue Economy. Those sectors are of high relevance for the Barcelona Convention and its Protocols as they are directly linked with the marine and coastal environment.

The Regional Measure will support a sustainable Blue Economy that allows society to obtain value from the oceans and coastal regions, whilst respecting the long-term capacity of the oceans to regenerate and endure such activities through the implementation of sustainable practices. This implies that human activities must be managed in a way that ensures the health of the oceans and where economic productivity is safeguarded, so that the potential they offer can be realised and sustained over time.

In order to reach a sustainable Blue Economy, it is therefore necessary to promote sustainable production and consumption patterns (*management of human activities*) and circular economy principles (sustained over the time).

52. Regarding the economic activity covered, the Blue Economy established sectors include:

- Marine living resources (including fisheries and aquaculture),
- Marine non-living resources,
- Marine Renewable energy,
- Port activities,
- Shipbuilding and repair,
- Maritime transport and
- Coastal tourism.

53. The Blue Economy emerging and innovative sectors include:

- Marine renewable energy (i.e. Ocean energy, floating solar energy and offshore hydrogen generation), Blue bioeconomy and biotechnology,
- Marine minerals,
- Desalination,
- Maritime defence, and
- Submarine cables.

54. The Blue Economy sectors represent a significant part of the Mediterranean Economy. In 2017, the Blue Economy generated €60 billion Gross Value Added (GVA) and 1.78 million jobs. The key sector for the region is clearly Coastal tourism (€34 billion GVA and 1.26 million jobs) followed by Maritime transport, Living resources and Port activities (with €7 billion of GVA each). With small variations, this general structure is also observed across the different Mediterranean sub-basins.

55. However, Maritime and land-based activities in the Mediterranean region, along with the progressively more artificialized coastline, are at the origin of a wide spectrum of pressures affecting marine and coastal ecosystems. Current patterns of economic development in the region are characterized by resource-intensive production processes, as well as consumption intensive lifestyles, both of which contribute to resource scarcity, pollution, waste generation and greenhouse gas emissions.

Among the main challenges for the achievement of a true sustainable Blue Economy in the Mediterranean are:

- Sustainable use of natural resources and the conservation of marine biodiversity, linked to food and livelihood provision;
- Food security, focusing on development of sustainable fisheries or exploitation of wild fish stocks, and sustainable and efficient aquaculture industries;
- Climate change and carbon budgets, facilitating the transition towards a low carbon economy and a renewable “blue” energy generation to address the acidification of oceans and pH decrease (CO₂ cycle); and enhance blue carbon cycles or carbon sequestration cycles, linked to the damage of coastal habitats such as mangroves, seagrass meadows or salt marshes;
- Marine and coastal tourism, which have consistently shown growing patterns over the past few years (however may be severely impacted due to the COVID-19 crisis). Increases of greenhouse gas emissions, water demand, sewage, waste generation, loss and degradation of coastal habitat, biodiversity and ecosystem services need to be addressed;
- Pollution and marine debris: a growing human population, the intensification of agriculture and urbanization of coastal areas are at the land-origin of increasing marine pollution, while shipping and marine resource exploitation (hydrocarbon or mining) are sea-based pollution sources.

56. This Regional Measures will contribute to tackle these challenges and to preserve healthy marine and coastal ecosystems in the Mediterranean, while enabling the development of green and circular business opportunities in key socioeconomic activities of the Blue Economy.

57. Challenges and opportunities to further integrate the sustainability pillars within Blue Economic sectors will be analysed, in order to identify the most relevant actions for the further development of green and circular businesses, in particular SMEs within sectors of the Blue Economy. In doing so, the actions will be structured around the key stakeholders’ groups that are structuring this set of regional measures (Entrepreneurs/start-ups/SMEs, policy-makers, BSOs and financial actors). This could lead to the development of a specific training programme for entrepreneurs, the provision of technical support to strengthen the enabling policy framework, the development of specific tools for Business Support Organisations to effectively support Blue Economy Entrepreneurs, the launch of specific open co-innovation challenges and the increase of sustainable finance geared towards those entrepreneurs of the sustainable Blue Economy.

Regional measure T2 would support the following Policy Recommendations:

- Promote sustainable principles and practices in the tourism industry (Specific Sectors or Waste Streams)
- Support circular businesses cases in the bio-based economy (Specific Sectors or Waste Streams)
- Develop cluster infrastructure for SMEs (regional/city programs)
- Launch Circular Challenges (R&D and innovation)
- Funding for research & innovation for the circular economy (R&D and innovation)

7. Regional measure addressing the demand for sustainable products and services and their visibility on the market**REGIONAL MEASURE D1: Strengthening access to sustainable products and services / sustainable consumption.**

58. The regional assessment highlighted that the lack of appropriate market structures and the associated demand for green and circular products and services is one of the main obstacles for the development of green and circular businesses.

59. One of the main reasons is that green and circular businesses have difficulties to compete with “linear” businesses whose prices do not reflect social and environmental externalities. Likewise, most consumers, companies and organisations have little to no awareness about the benefits of a circular economy, or even SCP practices. They are very much price (and brand) driven and focus on lowering costs as much as possible. Consumer's behaviours are locked in unsustainable consumption patterns based on new generated needs, while green public procurement and market infrastructure development are weakly used.

60. Therefore, in order to support the development of green and circular businesses, it is of utmost importance to better manage and increase the demand for sustainable products and services so that those businesses will be economically viable (by having a critical mass of clients) and thus will be able to survive on the market.

61. Increasing awareness raising of consumers on the necessity to shift to sustainable lifestyles and consumption patterns is also essential to increase the share of sustainable products and services on the market.

62. In order to address those needs, policy-makers will have an important role to play. They will have to understand which are the critical environmental hotspots created by unsustainable consumption patterns, so as to define an appropriated policy response. Thus, they will have:

- to design relevant policies and strategies to incentive sustainable consumptions via new market structures,
- to ensure that sustainable businesses are playing with fair conditions on the market, when competing with more traditional products
- to ensure the adequate visibility of products the markets (eco-labelling and standard) and
- to ensure that new form of business models emanating from the implementation of circular economy principles are recognised and can operate in the countries.

63. Finally, Governments will also have a key role to play in increasing significantly sustainable/circular public procurement practices and in taking active part in shaping the role of consumers' preferences and attitudes in the transition towards a Circular Economy. In doing so, Governments could rely on/support Civil Society Organisations working on Education for Sustainable development.

64. At the business level, it will be particularly important to ensure that retailers and firms adopt sustainable sourcing strategies. By increasing their sourcing of sustainable products and implementing circular economy principle within the value chain, retailers and companies can positively influence the market and offer intermediate and final consumers a wider supply of sustainable products and services.

65. Improving demand-side management for sustainable consumption also requires to improve marketing of sustainable products and services, avoiding green washing and favouring the use of appropriated international standards and eco-labels. It will be necessary to also actively engage with buyers or directly with customers (depending on the type of business), as transparency in relations with suppliers and consumers is a key factor in maintaining long-term supplier-buyer relationship.

66. This transversal Regional Measure will address the above mentioned needs through specific actions with policy-makers, along the above described needs.

67. Sustainable business models will also be equipped with novel marketing strategies, based on co-creation, transparency and traceability and, where possible, on the use of appropriate standards and certification schemes. This action should be coupled with the facilitation of market deals to foster sustainable sourcing upstream selected value-chains, improving access for clusters and companies and business opportunities for entrepreneurs.

68. Finally, sustainable lifestyles should be promoted, exploiting the nexus between transition policies and behaviour changes and identifying unsustainable hotspots in consumption patterns at local and national level. Consumption-based accounting systems should be favoured and coupled with mitigation actions to reduce the consumers' footprint, targeting unsustainable consumption domains and providing suitable alternatives.

69. It has to be noted that the COVID-19 Pandemic had a huge impact on the consumption patterns and trends in all Mediterranean countries. Some trends might be just linked to the current sanitary crisis (and associated socio-economic and environmental crisis) but other might stay over the time. Those changes need to be well understood and the disruption of consumption patterns could be seen as an opportunity for moving towards more sustainable consumption patterns, in the spirit of a green recovery.

Regional measure D1 would support the following Policy Recommendations:

- Develop sustainable product policies (General policy recommendations)
- Tax benefits for green and circular businesses (General policy recommendations)
- Information on the analysis of trends regarding the progress on green and circular businesses (Access to financing and funding)
- Support awareness-raising campaigns on sustainable/circular practices among consumers (Stimulate consumer demand)
- VAT reduction or exemption for second-hand goods and repair services (Stimulate consumer demand)
- Support for green and circular businesses with reaching international markets (Stimulate consumer demand)
- Stimulate circular cities programs (Regional/city programs)
- Make green public procurement (and monitoring) mandatory practice across all government bodies (Public procurement)
- Provide circular procurement training and support for local authorities (Public procurement)
- Launch circular challenges (R&D and innovation)

Annex II

Short and Long Definitions of Sustainable Businesses

Brief definition of a Sustainable Business

1. A sustainable business provides commercial solutions which create ecological value and/or safeguard the environment (addressing environmental challenges and/or reducing environmental impacts) and are economically viable and socially empowering.

Comprehensive definition of a Sustainable Business

2. Based on the interdependency between the environment, society and economy, a sustainable business provides innovative viable products and services contributing to green, circular, socially inclusive, carbon-neutral and toxic-free economies by:

- (i) creating ecological value and/or safeguarding biodiversity and natural regeneration cycles (addressing environmental challenges, including climate change and/or reducing environmental impacts), as well as social value (addressing social needs), and
- (ii) by applying eco-innovation, life cycle thinking (including eco-design) and system thinking approaches.

Annex VI

Programme of Work and Budget 2022-2023

[Draft Decision IG.25/19

Programme of Work and Budget for 2022-2023

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols at their 22nd Meeting,

Recalling Articles 18 and 24(2) of the Barcelona Convention and Decision IG.21/15 of COP 18 (Istanbul, Turkey, 3-6 December 2013) on the Financial Rules and Procedures for the funds of the Barcelona Convention;

Recalling Decision IG.25/1 of COP 22 (UNEP/MAP Medium-Term Strategy 2022-2027) adopting the Medium-Term Strategy 2022-2027 (MTS) as the framework for the development and implementation of the Programme of Work of UNEP/MAP;

Welcoming the Progress Report on the activities carried out during the 2020-2021 biennium and the related expenditure report;

Emphasizing the need for stable, adequate and predictable financial resources for MAP and the Mediterranean Trust Fund (MTF);

Noting the rate of collection of assessed contributions including parts of the arrears and the establishment and maintenance of the Working Capital Reserve;

Appreciating the guidance provided to the Secretariat by the Bureau of the Contracting Parties to the Barcelona Convention during the 2020-2021 biennium;

Expressing deep appreciation to the Contracting Parties and other partners that have provided additional financial and other resources for the implementation of the activities of the 2020-2021 biennium, including the Italian Cooperation Agreement, EU EcAp III and Marine Litter Med II, GEF Med Programme, etc. and *welcoming* the financial resources mobilized by the Secretariat including Regional Activity Centers (RACs) for the same purpose;

1. *Request* the Executive Director of UNEP and the Coordinator of MAP to execute the Budget taking into consideration Decision IG.21/15 on the Financial Regulations and Rules and Procedures for the Contracting Parties, in particular the provisions under Annex II, Procedure 2, paragraph 4, which entrusts the responsibility to certify and authorize expenditures to UNEP in conformity with the Programme of Work and Budget Decisions adopted by the Conference of the Parties;

2. *Approve* the 2022-2023 Programme of Work and Budget set out in the Annex to this Decision;

3. *Approve* the budget appropriations, as set out in Table 1. "Overview of income and commitments" of the Annex to this Decision; the income in the amount of EUR 13,296,144, composed of the Mediterranean trust Fund in the amount of EUR 11,413,576, the European Union discretionary contribution in the amount of EUR 1,192,968 and the host country contribution of EUR 689,600 (USD 800,000); the use of the MTF positive cash balance up to the amount of EUR 1,637,561;

4. *Approve* the assessed 2022-2023 ordinary contributions from Parties shown in Table 2 "Expected Ordinary Income" of the Annex to this Decision, which is based on the 2019-2021 scale of assessment adopted by the United Nations General Assembly at its 73rd Session in Resolution A/RES/73/271;

5. *Request* the Executive Director of UNEP, in consultation with the United Nations Environment Assembly, to extend the Mediterranean Trust Fund through 31 December 2023;

6. *Approve* the staffing of the Coordinating Unit including MED POL for 2022-2023 as indicated in Table 4a. “Details of Salaries and Administrative Costs of the Secretariat” in the Annex to this Decision;
7. *Take note* of the staffing of REMPEC for 2022–2023 as indicated in Table 4b, “Details of Salaries and Administrative Costs of REMPEC” in the Annex to this Decision;
8. *Authorize* the Coordinator in line with Decision IG.21/15 on the Financial Rules and Procedures for the Funds of the Barcelona Convention, Procedure 2, paragraph 6, to approve transfers between appropriation lines (outcomes) within the same Component and the respective Midterm Strategy Programmes up to 20 per cent within the criteria: a. funds to be transferred are savings achieved upon committing funds for full delivery of activities planned in the approved Programme of Work, b. the transferred funds are strictly used for achieving the outcomes of the Programme of Work of concerned biennia in line with the outcomes of the 2022-2027 Midterm Strategy; and c. such transfers are reported at the first meeting of the Bureau of the Contracting Parties following occurrence of such transfers;
9. *Request* the Coordinator to seek for the Bureau agreement prior to requesting HQ to approve the transfers exceeding 20 per cent within the same MTS Programme as well as transfers less than 20% among different MTS Programmes;
10. *Urge* the Contracting Parties to strictly adhere to Procedure 4.2 of the Financial Rules and Procedures and pay their contributions to the MTF in the first quarter of each year to allow for the full and effective implementation of the Programme of Work;
11. *Request* the Secretariat to keep up to date information on the status of Contracting Parties’ contributions to the Mediterranean Trust Fund and to continue to post it in a publicly available place on the UNEP/MAP website and report to the Bureau of the Contracting Parties in their periodical meetings on the status of unutilized resources;
12. *Urge* the Contracting Parties to adhere to nomination deadlines of their representatives in meetings of the MAP system and to avoid modifications and cancellation of their travel in order to minimize losses arising from the increase of airfare and cancellation fees and inefficiencies;
13. *Invite* the Contracting Parties to consider increasing their voluntary contributions in cash and/or in kind in support of the implementation of the 2022-2023 Programme of Work;
14. *Urge* the Contracting Parties and other partners including industry to contribute adequate human and financial resources to meet the external funding requirements for priorities still unfunded under the 2022-2023 Programme of Work and Budget and to support the resource mobilization activities of the Secretariat;
15. *Urge* the Government of the Hellenic Republic to undertake all the required steps in order to ensure that fully adequate premises are made available to the Coordinating Unit within the shortest delay and in line with its commitments under the Host Country Agreement, and *request* the Secretariat to report to the Contracting Parties and to the Bureau on the progress made;
16. *Request* the Secretariat, in consultation with the Bureau, to prepare for consideration and approval by COP 23 a result-based Programme of Work and Budget for 2024-2025, explaining the key principles and assumptions on which it is based and taking into account the progress achieved during the implementation of the 2022-2023 Programme of Work, and in full alignment with the MTS;
17. *Also request* the Secretariat to submit a budget for 2024-2025, sufficient to cover

the implementation of the mandate deriving from the 2022-2027 Medium-Term Strategy and the required capacity and operational costs of the entire Secretariat including MAP Components, considering also the need for adequate MTF allocation required to effectively execute their mandates and operations.

Annex

Programme of Work and Budget 2022-2023

Table 1. Overview of Income and Commitments

All amounts in €

	Approved Budget 2020-2021			Proposed Budget 2022-2023 ⁽¹⁾		
	exchange rate		0.862	exchange rate		0.862
	€	€	€	€	€	€
Part A (Core Funding)	2020	2021	Total 2020-2021	2022	2023	Total 2022-2023
A. Income						
<i>Expected Ordinary Income</i>						
MTF Ordinary Contributions	5,706,788	5,706,788	11,413,576	5,706,788	5,706,788	11,413,576
EU Discretionary Contribution	596,484	596,484	1,192,968	596,484	596,484	1,192,968
Greek Host Government Contribution ⁽²⁾	344,800	344,800	689,600	344,800	344,800	689,600
TOTAL of Expected Ordinary Income	6,648,072	6,648,072	13,296,144	6,648,072	6,648,072	13,296,144
B. Unutilized MTF Balance	1,437,337	1,508,504	2,945,841	427,313	1,210,248	1,637,561
Total Available Funds	8,085,409	8,156,576	16,241,985	7,075,385	7,858,320	14,933,705
C. Commitments	2020	2021	Total 2020-2021	2022	2023	Total 2022-2023
Activities	2,343,867	2,514,085	4,857,952	2,098,000	2,171,000	4,269,000
Posts and Other Administrative Costs ⁽³⁾	4,743,379	4,786,726	9,530,105	4,506,006	4,605,869	9,111,875
Programme Support Costs	828,000	855,764	1,683,764	765,179	787,651	1,552,830
TOTAL Regular Commitments	7,915,246	8,156,575	16,071,821	7,369,185	7,564,520	14,933,705
<i>Provision for Working Capital Reserve (incl. PSC)⁽⁴⁾</i>	170,163		170,163			0
Grand Total	8,085,409	8,156,575	16,241,984	7,369,185	7,564,520	14,933,705

Part B (External Funding)

	Total 2020-2021	Total 2022-2023
UNEP/MAP Project Funding	4,639,500	6,836,494
Resources mobilized by Components	8,668,871	9,799,762
Resources to be mobilized	7,720,500	8,196,000
TOTAL	21,028,871	24,832,256

Part C (RAC's Hosting Countries' Contributions)⁽⁵⁾

Country (Center)	2020	2021	Total 2020-2021 ⁽⁶⁾	2022	2023	Total 2022-2023 ⁽⁶⁾
Croatia (PAP/RAC)	159,666	159,666	319,332	159,666	159,666	319,332
France (BP/RAC)	377,785	377,785	755,570			0
Italy (INFO/RAC)			0			0
Malta (REMPEC)			0			0
Spain (SCP/RAC)	650,000	650,000	1,300,000	655,519.5	655,519.5	1,311,039
Tunisia (SPA/RAC)			0	90,000	90,000	180,000
TOTAL of Host Country Contributions (in cash/kind)	1,187,451	1,187,451	2,374,902	905,185.5	905,185.5	1,810,371

(1): Budget based on Contributions and utilization of MTF Balance with no increase to the Assessed Ordinary Contributions.

(2): The equivalent of USD 400,000 in EUR using the budget rate of 0.862 for 2022-2023 and 0.862 for 2020-2021 based on the average rate calculated for the periods 01/2020-06/2021 and 01/2018-06/2019, respectively).

(3): Proposed figure includes the Greek Host Country Contribution, while Table 3 excludes the same. Computer programmes/systems costs including Umoja costs has been charged to CAL fund.

(4): The reduction in the WCR for 2022-2023 is included in the MTF Balance to be utilized.

(5): The national contributions towards MAP's Regional Activities Centers (RACs) from the respective Host Country.

(6): The figures will be updated following additional information to be received by the respective RAC's Host Countries.

Table 2. Expected Ordinary Income

Assessed Ordinary Contributions apportioned to the Parties of the Barcelona Convention for the 2022–2023 biennium (EUR)¹

Contracting Parties	0% Increase in A.O.C.*			0% Increase in A.O.C.*		
	Approved Assessed Ordinary Contributions for 2020 (in €)	Approved Assessed Ordinary Contributions for 2021 (in €)	Approved Assessed Ordinary Contributions for 2020-2021 (in €)	Proposed Assessed Ordinary Contributions for 2022 (in €)	Proposed Assessed Ordinary Contributions for 2023 (in €)	Proposed Assessed Ordinary Contributions for 2022-2023 (in €)
Albania	3,467	3,467	6,933	3,467	3,467	6,933
Algeria	59,801	59,801	119,603	59,801	59,801	119,603
Bosnia and Herzegovina	5,200	5,200	10,400	5,200	5,200	10,400
Croatia	33,367	33,367	66,735	33,367	33,367	66,735
Cyprus	15,600	15,600	31,201	15,600	15,600	31,201
EU	142,670	142,670	285,339	142,670	142,670	285,339
Egypt	80,602	80,602	161,203	80,602	80,602	161,203
France	1,918,407	1,918,407	3,836,815	1,918,407	1,918,407	3,836,815
Greece	158,603	158,603	317,207	158,603	158,603	317,207
Israel	212,338	212,338	424,676	212,338	212,338	424,676
Italy	1,433,064	1,433,064	2,866,128	1,433,064	1,433,064	2,866,128
Lebanon	20,367	20,367	40,734	20,367	20,367	40,734
Libya (State of Libya)	13,000	13,000	26,001	13,000	13,000	26,001
Malta	7,367	7,367	14,734	7,367	7,367	14,734
Monaco	4,767	4,767	9,534	4,767	4,767	9,534
Montenegro	1,733	1,733	3,467	1,733	1,733	3,467
Morocco	23,834	23,834	47,668	23,834	23,834	47,668
Slovenia	32,934	32,934	65,868	32,934	32,934	65,868
Spain	929,953	929,953	1,859,906	929,953	929,953	1,859,906
Syrian Arab Republic	4,767	4,767	9,534	4,767	4,767	9,534
Tunisia	10,834	10,834	21,667	10,834	10,834	21,667
Turkey	594,113	594,113	1,188,225	594,113	594,113	1,188,225
TOTAL Assessed Ordinary Contributions (MTF)	5,706,788	5,706,788	11,413,576	5,706,788	5,706,788	11,413,576

ADDITIONAL CONTRIBUTIONS

	Expected Contribution for 2020 (in €)	Expected Contribution for 2021 (in €)	Expected Contribution for 2020-2021 (in €)	Expected Contribution for 2022 (in €)	Expected Contribution for 2023 (in €)	Expected Contribution for 2022-2023 (in €)
EC Discretionary Contribution	596,484	596,484	1,192,968	596,484	596,484	1,192,968
Host Country Contribution (Greece) ⁽²⁾	344,800	344,800	689,600	344,800	344,800	689,600

(1): The proposed Assessed Ordinary Contributions for 2022-2023 are aligned with the current UN assessed rates (2019-2021).

(2): The equivalent of USD 400,000 in EUR applying the budget rate (0.862 for 2020-2021 and 0.862 for 2022-2023).

*A.O.C.=Assessed Ordinary Contribution(s)

Table 3. Summary of Activities and Administrative Costs by Component (MTF/EC Discretionary Contribution)

(in €)	Approved Budget 2020-2021 (in €)			Proposed Budget 2022-2023 (in €): Budget based on Contributions and utilization of MTF Balance with no increase to the Assessed Ordinary Contributions				
	2020	2021	Total	2020-2021	2022	2023	Total	2022-2023
	CU							
TOTAL ACTIVITIES	347,602	767,861	1,115,463		338,000	719,000		1,057,000
POSTS AND OPERATIONAL COSTS	1,526,211	1,551,060	3,077,271		1,540,917	1,563,117		3,104,034
TOTAL	1,873,813	2,318,921	4,192,734		1,878,917	2,282,117		4,161,034
MEDPOL								
TOTAL ACTIVITIES	477,000	525,014	1,002,014		380,000	275,000		655,000
POSTS AND OPERATIONAL COSTS	604,152	613,938	1,218,090		631,036	697,794		1,328,830
TOTAL	1,081,152	1,138,952	2,220,104		1,011,036	972,794		1,983,830
REMPEC								
TOTAL ACTIVITIES	407,085	166,000	573,085		335,000	212,000		547,000
ADMINISTRATIVE SUPPORT	611,402	620,114	1,231,516		630,803	641,707		1,272,510
TOTAL	1,018,487	786,114	1,804,601		965,803	853,707		1,819,510
PB/RAC								
TOTAL ACTIVITIES	257,800	207,800	465,600		238,000	187,000		425,000
ADMINISTRATIVE SUPPORT	532,700	532,700	1,065,400		461,754	461,754		923,508
TOTAL	790,500	740,500	1,531,000		699,754	648,754		1,348,508
PAP/RAC								
TOTAL ACTIVITIES	195,896	229,000	424,896		209,000	214,000		423,000
ADMINISTRATIVE SUPPORT	488,317	488,317	976,634		447,083	447,083		894,166
TOTAL	684,213	717,317	1,401,530		656,083	661,083		1,317,166
SPA/RAC								
TOTAL ACTIVITIES	346,922	356,000	702,922		304,000	246,000		550,000
ADMINISTRATIVE SUPPORT	371,547	371,547	743,094		353,478	353,478		706,956
TOTAL	718,469	727,547	1,446,016		657,478	599,478		1,256,956
INFO/RAC								
TOTAL ACTIVITIES	177,856	127,554	305,410		119,000	198,000		317,000
ADMINISTRATIVE SUPPORT	124,250	124,250	248,500		40,035	40,035		80,070
TOTAL	302,106	251,804	553,910		159,035	238,035		397,070
SCP/RAC								
TOTAL ACTIVITIES	133,706	134,856	268,562		175,000	120,000		295,000
ADMINISTRATIVE SUPPORT	140,000	140,000	280,000		56,100	56,100		112,200
TOTAL	273,706	274,856	548,562		231,100	176,100		407,200
SUBTOTAL	6,742,446	6,956,011	13,698,457		6,259,206	6,432,068		12,691,274
PSC*	828,000	855,764	1,683,764		765,179	787,651		1,552,830
GRAND TOTAL	7,570,446	7,811,775	15,382,221		7,024,385	7,219,719		14,244,104
<i>TOTAL ACTIVITIES</i>	<i>2,343,867</i>	<i>2,514,085</i>	<i>4,857,952</i>		<i>2,098,000</i>	<i>2,171,000</i>		<i>4,269,000</i>
<i>TOTAL POSTS AND OPERATIONAL COSTS & ADMIN SUPPORT</i>	<i>4,398,579</i>	<i>4,441,926</i>	<i>8,840,505</i>		<i>4,161,206</i>	<i>4,261,069</i>		<i>8,422,274</i>
<i>DIRECT COSTS</i>	<i>6,742,446</i>	<i>6,956,011</i>	<i>13,698,457</i>		<i>6,259,206</i>	<i>6,432,069</i>		<i>12,691,274</i>
<i>PSC</i>	<i>828,000</i>	<i>855,764</i>	<i>1,683,764</i>		<i>765,179</i>	<i>787,651</i>		<i>1,552,830</i>
<i>GRAND TOTAL</i>	<i>7,570,446</i>	<i>7,811,775</i>	<i>15,382,221</i>		<i>7,024,385</i>	<i>7,219,720</i>		<i>14,244,104</i>

*PSC calculation 13% and 4.5% prorated to the respective income.

Table 4a. Details of Salaries and Administrative Costs (Secretariat)

Secretariat	Approved Budget (in €)			Proposed Budget (in €)		
	2020	2021	Total 2020-2021	2022	2023	Total 2022-2023
	MTF	MTF	MTF	MTF	MTF	MTF
Professional Staff³						
Coordinator – D.1	234,273	238,958	473,231	241,348	243,761	485,109
Deputy Coordinator – P.5	211,413	215,641	427,054	217,797	219,975	437,772
Programme Officer (Governance) – P.4	181,780	185,415	367,195	187,269	189,142	376,411
Programme Officer (MEDPOL) – P.5 <i>budget for 2023</i>					219,976	219,976
Programme Officer (MEDPOL) – P.4 <i>budget for 2022⁴</i>	181,780	185,415	367,195	187,269	0	187,269
Programme Officer (MEDPOL Monitoring & Assessment Officer) – P.3	153,755	156,830	310,585	158,398	159,982	318,380
Programme Officer (Socio-economic Activities/Sust, Development) – P.3	153,755	156,830	310,585	158,398	159,982	318,380
Programme Officer (MEDPOL Pollution) – P.3	153,755	156,830	310,585	158,398	159,982	318,380
Legal Officer – P.3	153,755	156,830	310,585	158,398	159,982	318,380
Programme Officer QSR Expert – P.3 / Marine Scientist Officer – P.4	153,755	156,830	310,585	158,398	159,982	318,380
Information and Communication Officer – P.3	153,755	156,830	310,585	158,398	159,982	318,380
Admin/Fund Management Officer - P.4 ¹	0	0	0	0	0	0
Administration Officer - P.2 ¹	0	0	0	0	0	0
Programme Officer (Marine Litter Programme Management Officer) – P.2/P.3 ⁴	0	0	0	0	0	0
Programme Officer (Offshore Programme Officer) P.2/P.3 ⁴	0	0	0	0	0	0
Total Professional Staff	1,731,776	1,766,409	3,498,185	1,784,071	1,832,746	3,616,817
General Service Staff³						
Meetings and Procurement Assistant – G.6 ¹	0	0	0	0	0	0
Payments and Travel Assistant – G.5 ¹	0	0	0	0	0	0
Budget Assistant – G.6 ¹	0	0	0	0	0	0
Administrative Assistant – G.6 ¹	0	0	0	0	0	0
Information Assistant- G.5	54,000	54,000	108,000	56,970	60,103	117,073
Programme Assistant – G.5	54,000	54,000	108,000	56,970	60,103	117,073
Programme Assistant – G.5	54,000	54,000	108,000	56,970	60,103	117,073
Programme Assistant (MEDPOL) – G.5	54,000	54,000	108,000	56,970	60,103	117,073
Programme Assistant (MEDPOL/CU) – G.4 <i>Budget for 6 months in 2022 & 12 months in 2023</i>				25,000	52,750	77,750
Administrative Clerk – G.4/G.5 ¹	0	0	0	0	0	0
IT Assistant – G.5 ⁵	0	0	0	0	0	0
Total General Service Staff	216,000	216,000	432,000	252,880	293,162	546,042
TOTAL POSTS	1,947,776	1,982,409	3,930,185	2,036,951	2,125,908	4,162,859
Other Administrative Costs						
Travel on Official Business	120,000	120,000	240,000	80,000	80,000	160,000
Other Office costs ²	62,590	62,590	125,180	55,000	55,000	110,000
Total Other Administrative Costs	182,590	182,590	365,180	135,000	135,000	270,000
TOTAL POSTS AND OTHER ADMINISTRATIVE COSTS	2,130,366	2,164,999	4,295,365	2,171,951	2,260,908	4,432,859

(1) Post is covered by the Programme Support Costs.

(2) Allocation for MAP staff training, ICT services and MAP Office contingency plan development. Pending approval by the Contracting Parties and the Headquarters, the amount of 60,000 EUR may be used to support the administrative costs for the secondment of an expert by the Government of France to the Secretariat.

(3) 1% annual increase for P-Staff salaries costs and 5.5% annual increase for G-Staff salaries costs in 2022 and 2023. Should there be any cost overruns, these will be covered by the Working Capital Reserve in line with the recommendation and guidance by the UNEP HQs.

(4) Post to be funded by external resources or secondment. For the MEDPOL Programme Officer P.4 for 2023.

(5) Post to be funded by external resources if mobilized.

Table 4b. Details of Salaries and Administrative Costs (REMPEC)

REMPEC	Approved Budget 2020-2021 (in €)			Proposed Budget 2022-2023 (in €)		
	2020	2021	Total 2020-2021	2022	2023	Total 2022-2023
	MTF	MTF	MTF	MTF	MTF	MTF
Professional Staff⁽³⁾						
Head of Office P.4	170,066	173,467	343,533	175,202	176,954	352,156
Programme Officer (Prevention) P.3	129,977	132,577	262,554	133,903	135,242	269,145
Programme Officer (OPRC) P.3	135,546	138,257	273,803	139,640	141,036	280,676
Associate Professional Officer (APO) ⁽¹⁾	0	0	0	0	0	0
Total Professional Staff	435,589	444,301	879,890	448,745	453,232	901,977
General Service Staff⁽³⁾						
Administrative/Financial Assistant - G7 ⁽²⁾	25,773	25,773	51,546	29,716	29,716	59,432
Assistant to the Director - G.7	37,408	37,408	74,816	43,131	43,131	86,262
Secretary - G.5	27,004	27,004	54,008	31,136	31,136	62,272
Total General Service Staff	90,185	90,185	180,370	103,983	103,983	207,966
TOTAL POSTS	525,774	534,486	1,060,260	552,728	557,215	1,109,943
Other Administrative Costs						
Travel on Official Business	35,000	35,000	70,000	25,000	25,000	50,000
Office costs	50,628	50,628	101,256	53,075	59,492	112,567
Total Other Administrative Costs	85,628	85,628	171,256	78,075	84,492	162,567
TOTAL POST AND OTHER ADMINISTRATIVE COSTS	611,402	620,114	1,231,516	630,803	641,707	1,272,510

(1) This post will be covered by the relevant International Maritime Organization Member State in the framework of the IMO Associate Professional Officer (APO) programme.

(2) This post is partially covered by IMO contribution (Euro 13,000 per annum) paid from IMO's share of Project Support Costs.

(3) 1% annual increase for P-Staff salaries costs in 2022 and 2023. 15.3% biennial increase for G-Staff salaries costs for the biennium 2022-2023 in line with the last salary survey.

	g) Synergies between the amended Regional Plan on Marine Litter Management in the Mediterranean and the IMO Action Plan/Strategy to address marine plastic litter from ships, as well as other relevant plans or initiatives, maintained and strengthened.											
1.1.2. Capitalize pilot actions addressing marine litter within Marine Protected Areas and Mediterranean Islands (in-house expertise, consultancy, pilot)	a) Capitalization strategy around pilot actions implemented in one MPA. b) 1 transfer strategy on pilot actions to tackle ML in Islands implemented. c) Results and lessons learned from pilot actions to prevent/reduce Marine Litter mainstreamed into national and regional policies.	SCP/RAC	SPA/RAC	Plastic Busters implementing partners, Implementing Partners of initiatives financed by BeMed	COP 18 Decision IG.21/7- Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on updated Regional Plan on Marine Litter management	14,1	0 €	0 €	0 €	92,400 €	0 €	BeMed + InterregMed
1.1.3. Implement and scale up a robust policy framework to reduce and prevent plastic use (in-house expertise, consultancy, cooperation agreements, regional meetings/webinars)	a) National cooperation agreements between public and private stakeholders to prevent plastic pollution and reduce plastic waste in 2 countries; guidance provided. b) Legal and technical support provided to public authorities to strengthen policy framework to reduce plastic use, addressing in particular Single Use Plastic Products. c) Sharing existing solutions and good practices to prevent plastic use and pollution by applying eco-innovation, life cycle thinking (including eco-design). d) 3 webinars on solutions to prevent plastic pollution. e) 20 Food services located in coastal areas supported to implement measures to reduce food and beverage packaging ending-up as Marine Litter.	SCP/RAC	MED POL, CU	TBD	COP 18 Decision IG.21/7- Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on updated Regional Plan on Marine Litter management Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	12.4; 12.5; 14.1	40,000 €	10,000 €	50,000 €	76,400 €	480,000 €	DG ENV (ML MED II) + DG NEAR (WES) External resources expected from the Bilateral Agreement with Italy
1.1.4. Enhance stakeholders' capacity, in particular public authorities, to prevent plastic and microplastic pollution (in house expertise, consultancy, national and regional trainings)	a) 1 regional training on microplastics organized. b) 3 national trainings on EPR/SUPs/solutions to prevent ML organized.	SCP/RAC	MEDPOL, PAP/RAC	TBD	COP 18 Decision IG.21/7- Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable	12.4 ;12.5; 14.1	10,000 €	5,000 €	15,000 €	19,800 €	0 €	DG NEAR (WES) + DG ENV (ML MED II)

<p>1.2.3. Promote sustainable Desalination Sector in the Mediterranean (in-house expertise, consultancy, publication, regional meeting)</p>	<p>a) State of play of Desalination in the Mediterranean made available through maps or publication.</p>	Plan Bleu	MED POL	MedProgramme, AFD, UNIDO	<p>COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment</p>	6.3; 12.4; 14.1	10,000 €	5,000 €	15,000 €	0 €	20,000 €	
	<p>b) Recommendations elaborated in a decision support tool to assist sustainable investment decision-making & dissemination of the tool through participation in events.</p>											
<p>1.2.4. Enhance the implementation of MED POL reporting tools developed to assess pollution loads from land-based sources and activities (in-house expertise, consultancy, regional meeting)</p>	<p>c) Regional standards on desalination technologies.</p>	MED POL	Plan Bleu				10,000 €	0 €	10,000 €	21,000 €	0 €	
	<p>d) Best practices to minimize environmental impact of desalination compiled and shared.</p>											
<p>1.2.4. Enhance the implementation of MED POL reporting tools developed to assess pollution loads from land-based sources and activities (in-house expertise, consultancy, regional meeting)</p>	<p>a) PRTR/NBB Guidelines implemented and data reported including diffuse sources.</p>	MED POL	CU	EEA, UNECE, OECD, EPPA	LBS Protocol and SAP MED and updated NAPs	9.4; 12.4; 14.1	30,000 €	20,000 €	50,000 €	0 €	0 €	
	<p>b) Pollution trends assessed at national and sub-regional/regional levels.</p>											
	<p>c) Best practices shared at regional level to exchange knowledge on reporting (PRTR, NBB, NAP/H2020 indicators).</p>											
<p>1.2.5. Undertake national and regional action to enhance the implementation of the Dumping Protocol(in-house expertise, consultancy, regional meeting)</p>	<p>a) Best practices shared to support the implementation of Dumping Protocol Guidelines adopted by COP 21 (Artificial reefs).</p>	MED POL	CU	LC/LP, IMO, IMPEL	<p>COP 21 Decision IG.24/12 - Updated Guidelines Regulating the Placement of Artificial Reefs at Sea</p>	12.4; 14.1	30,000 €	0 €	30,000 €		30,000 €	
	<p>b) Guidelines on dumping of uncontaminated inert materials updated in synergy with the IMO London Protocol.</p>											
<p>1.2.6. Undertake pilot actions to prevent, eliminate and dispose in an environmentally sound manner obsolete chemicals. (in-house expertise, consultancy, national trainings/capacity building activities, field visits, regional meeting)</p>	<p>a) +50 mercury audit inventories in public hospitals; Substitution of mercury containing devices implemented in public +50 hospitals in 2 countries.</p>	SCP/RAC	CU	Unido, SwitchMED II, MedProgramme	<p>COP 16 Decision IG.19/8 (POP) COP 17 Decision IG.20/8.1 (mercury) COP 17 Decision IG.20/8.2 (POP) COP 17 Decision IG.20/8.3 (POP) Decision IG.22/9 - Guidelines on Best Environmental Practices (BEP) for the Environmental Sound Management (ESM) of Mercury Contaminated Sites</p>	12.4; 14.1	0 €	0 €	0 €	435,000 €	0 €	MedProgramme Child Project 1.1
	<p>b) Review on POPs-free alternatives available on the market.</p>		MEDPOL									
	<p>c) Training activities to engage the private sectors in using alternatives to toxic chemicals organized in 3 countries.</p>											

	<p>d) 500 tons of PCBs in Algeria and Lebanon collected and disposed; PCBs inventory in Algeria, Morocco, Tunisia, Albania, Bosnia and Herzegovina, and Montenegro) updated.</p> <p>e) EMP for mercury stocks in Algeria, B&H, Morocco and Tunisia; 50 tons of Mercury in Algeria, B&H, Morocco and Tunisia collected and disposed.</p> <p>f) Best practices for management of obsolete/in stock chemicals (focus on PCBs, POPs, mercury), including on compliance and enforcement shared.</p> <p>g) Capacity building provided to relevant national authorities with a focus on inspectorate bodies.</p>	MED POL	CU, SCP/RAC	MedProgramme, Stockholm Convention, Minamata Convention, UNEP Chemicals	Possible COP 22 Decision on Regional Measures for Green and Circular Businesses		0 €	0 €	0 €	2,166,000 €	0 €	MedProgramme Child Project 1.1
<p>1.2.7. Strengthen and implement national frameworks to regulate/ban the use of POPS/toxic chemicals</p> <p>(in-house expertise, consultancy)</p>	<p>a) Support provided to 3 countries to regulate/ban the use of POPS/toxic chemicals.</p> <p>b) Mechanisms developed to accompany companies in phasing out certain chemicals.</p>	SCP/RAC	MED POL	MedProgramme	<p>COP 16 Decision IG.19/8</p> <p>COP 17 Decision IG.20/8.2</p> <p>COP 17 Decision IG.20/8.3</p> <p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean</p> <p>Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>	12.4; 14.1	0 €	0 €	0 €	42,000 €	0 €	MedProgramme
<p>1.2.8. Increase access to information on chemicals in products</p> <p>(in-house expertise, consultancy, national trainings, public webinars, awareness raising)</p>	<p>a) Facility, hub, awareness campaigns to increase knowledge on chemicals in products in cooperation with companies and citizens associations.</p> <p>b) Master module on toxic chemicals in plastics prepared and delivered in 3 countries.</p> <p>c) Interactive web platform to raise awareness on chemicals in plastic products prepared.</p> <p>d) 3 public webinars on strategies to prevent chemicals in products organized.</p>	SCP/RAC	MEDPOL	SwitchMED II, UNIDO, MehMED Network, University of Girona	<p>COP 16 Decision IG.19/8</p> <p>COP 17 Decision IG.20/8.2</p> <p>COP 17 Decision IG.20/8.3</p> <p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean</p>	12,4	10,000 €	10,000 €	20,000 €	40,000 €	0 €	<p>BRS Secretariat (only for Master module)</p> <p>BRS Secretariat (only for 2 Webinars)</p>

<p>1.2.9. Improve follow-up of pollution events and enhance level of enforcement and the prosecution of discharge offenders. (in-house expertise, regional meeting, technical country support)</p>	<p>a) Fifth Meeting of MENELAS organized and recommendations implemented through technical support provided to CPs, which so request. b) Modalities of possible creation and operation of a regional "Blue Fund", including in terms of governance and financing, prepared. c) Co-ordinated aerial surveillance operations for illicit ship pollution discharges promoted and supported.</p>	<p>REMPEC</p>	<p>CU</p>	<p>IMO, INTERPOL, CBSS (ENPRO), OSPAR (NSN), Bonn Agreement, Cedre, UPGM</p>	<p>Decision IG.21/9 - Establishment of a Mediterranean Network of Law Enforcement Officials relating to MARPOL within the framework of the Barcelona Convention Possible COP 22 Decision on Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships (2022-2031) and its Action</p>	<p>12.4; 14.1</p>	<p>49,000 €</p>	<p>0 €</p>	<p>49,000 €</p>	<p>0 €</p>	<p>0 €</p>
<p>1.2.10. Strengthen the capacity of individual coastal states to respond efficiently to marine pollution incidents(in-house expertise, consultancy, national workshops, sub-regional workshops, training, exercises and meetings, sub-regional Cooperation Agreements)</p>	<p>a) Up to six (6) national workshops organized on the assessment of management capabilities and national systems to respond to marine oil pollution organized in Central and Eastern Mediterranean coastal States. b) Up to six (6) national workshops organized on the implementation of the improvement plan of the national system to respond to marine oil pollution. c) coordinated spill response exercises and trainings implemented and supported to strengthen the capacities at the National and Sub-regional levels to respond to HNS and oil spills and to improve the quality and interoperability of response capacities. d) Sub-regional workshops and meetings organized to assist in the administration, update, development and the implementation of Sub-regional contingency plans. e) Cooperation and synergies between Sub-regional Agreements operationalized and enhanced. f) Mediterranean Assistance Unit (MAU) maintained and, where appropriate, expanded; and MAU special revolving fund balance maintained. g) Condensates – Chemical Intervention Guide developed</p>	<p>REMPEC</p>	<p>CU</p>	<p>IMO, WestMoPoCo Project Partners, IPIECA, ARPEL, CEFIC IMO, WestMoPoCo Project Partners, IPIECA, RAMOGE, IOPC, ITOPF, Cedre, IPIECA, Sea Alarm, MONGOOS</p>	<p>COP 20 Decision IG.23/11: Mediterranean Guide on Cooperation and Mutual Assistance in Responding to Marine Pollution Incidents Possible COP 22 Decision on Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships (2022-2031) and its Action</p>	<p>12.4; 14.1</p>	<p>60,000 €</p>	<p>34,000 €</p>	<p>94,000 €</p>	<p>0 €</p>	<p>90,000 €</p>
<p>Outcome 1.3. Systemic approaches for Circular Economy, eco-innovation as well as Sustainable Consumption and Production incorporated into key sectors of activity which are main sources of pollution</p>							<p>90,000 €</p>	<p>60,000 €</p>	<p>150,000 €</p>	<p>3,053,400 €</p>	<p>155,000 €</p>

<p>1.3.1. Promote SCP/Circular economy approaches in key sectors of LBS Protocol (in-house expertise, consultancy)</p>	<p>a) Circular economy approach for biowaste implemented in one country.</p>	<p>SCP/RAC</p>	<p>MED POL</p>	<p>SwitcMed</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean</p>	<p>12.4; 12.5</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	
<p>1.3.2. Create, manage and promote exchanges among national Partnerships of Business Support Organizations for sustainable/circular Business development (in-house expertise, consultancy, national partnerships, Collaboration Agreements)</p>	<p>a) 8 National Partnerships established in the Southern Mediterranean Countries. b) 80 Business Support Organizations engaged in the Partnerships.</p>	<p>SCP/RAC</p>		<p>SwitcMed partners, BSOs, Business organizations, local partners, CSOs</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>	<p>8.3; 8.4; 12.4; 12.5</p>	<p>10,000 €</p>	<p>10,000 €</p>	<p>20,000 €</p>	<p>670,000 €</p>	<p>0 €</p>	<p>DG NEAR (SwitchMed II)</p>
	<p>c) A Regional Standard for Sustainable Business Development Organizations developed and implemented.</p>											<p>ENI CBC Med (GIMED)</p>
	<p>d) Collaboration agreement signed between National Partnerships of 2 Mediterranean countries.</p>			<p>SwitcMed partners, BSOs, Business organizations, local partners, CSOs</p>								
<p>1.3.3. Strengthen platforms, eco-innovative tools and methodologies for circular business development(in-house expertise, consultancy, platform, training)</p>	<p>a) Business Support Organizations, entrepreneurs and circular businesses provided with an online platform offering a full set of eco-innovative methodologies and tools for organizations, trainers and entrepreneurs and including a long-term business support programme for green entrepreneurs at ideation and early stages.</p>	<p>SCP/RAC</p>		<p>SwitcMed partners, BSOs, Business organizations, local partners, CSOs</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>	<p>8.3; 8.4; 12.4; 12.5</p>	<p>35,000 €</p>	<p>15,000 €</p>	<p>50,000 €</p>	<p>1,850,000 €</p>	<p>0 €</p>	<p>DG NEAR (SwitchMed II)</p>
	<p>b) 40 Business Support Organizations are registered into the Platform.</p>											<p>DG NEAR (SwitchMed II)</p>
	<p>c) 50 Trainers and Mentors are registered into the Platform.</p>											<p>DG NEAR (SwitchMed II)</p>
	<p>d) 1,000 entrepreneurs/companies registered into the Platform.</p>											<p>DG NEAR (SwitchMed II)</p>
<p>e) One additional tool (sector-oriented/growth stage or scale) developed and available in the Platform.</p>	<p>DG NEAR (SwitchMed II)</p>											
<p>f) 200 Green Entrepreneurs supported to develop their sustainable business model by applying eco-innovation, life cycle thinking (including eco-design) (at least 40% are women).</p>	<p>DG NEAR (SwitchMed II)</p>											

	g) 20 Green Entrepreneurs supported to develop their sustainable business plan and incubated to launch their green start-up (at least 40% are women).											DG NEAR (SwitchMed II)
1.3.4. Develop, launch and manage an Open Innovation Platform and facilitation of market deals along specific value-chains (in-house expertise, consultancy)	a) 1 Open Innovation Platform developed	SCP/RAC		UNCTAD	COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	8.3; 8.4; 12.4; 12.5	0 €	0 €	0 €	279,000 €	0 €	DG NEAR (SwitchMed II)
	b) 3 Value-chain assessment (Textile, Tourism, Food) to map circular business opportunities											DG NEAR (SwitchMedII)
	c) 4 market deals achieved via mission-oriented challenges											DG NEAR (SwitchMed II)
1.3.5. Expand the "Switchers Community" (in-house expertise, consultancy)	a) 1 "Switchers Community" platform gathering 500+ Mediterranean eco-innovative entrepreneurs and CSOs.	SCP/RAC			COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	8.3; 8.4; 12.4; 12.5	30,000 €	30,000 €	60,000 €	114,000 €	35,000 €	DG NEAR (SwitchMed II)
	b) 1 Switchers Products platform showcasing, promoting and marketing sustainable product and services.											
	c) Second edition of the "Switchers Connect" designed and implemented.											
1.3.6. Launch a Sustainable Finance MED Observatory with a close link to relevant existing initiatives (e.g., European hub of Sustainable Finance) (in-house expertise, consultancy, regional WG)	a) 1 Regional Working Group established. b) 1 Sustainable Finance Roadmap drafted and disseminated to relevant policymakers in the Region.	SCP/RAC	Plan Bleu	FEBEA – Fédération Européenne des banques Ethiques et Alternatives	COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean	8.3; 8.4; 12.4; 12.5	5,000 €	5,000 €	10,000 €	50,400 €	60,000 €	ENI CBC MED (GIMED)
1.3.7. Design and implement a public-private fund facility, attracting and channeling funds to eco-innovative business ventures in the Mediterranean (in-house expertise, consultancy, regional)	a) 1 Baseline assessment and legal/governance analysis conducted.	SCP/RAC		FEBEA – Fédération Européenne des banques Ethiques et Alternatives	COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean Possible COP 22 Decision on Regional Measures for Green and Circular Businesses		10,000 €	0 €	10,000 €	90,000 €	60,000 €	
	b) 1 Partnership Agreement signed with financial institution(s) to implement the fund facility.											

event, Partnership Agreement)	c) 8 Green Entrepreneurs meet Investors Events organized.											DG NEAR (SwitchMed II)
	d) Volume of funding mobilized through financial deals.			Switchers Support National Partnership in 8 MED Countries								DG NEAR (SwitchMed II)
Outcome 1.4. One Health approach developed and implemented, linking human and ecosystems health with pollution reduction and prevention, taking into account lessons learnt from the COVID-19 pandemic							0 €	32,000 €	32,000 €	0 €	130,000 €	
1.4.1. Develop and implement a one-health approach for the Mediterranean, in partnership with WHO and FAO (2022/2023) (in-house expertise, consultancy, regional conference)	a) Comparative assessment of impact of environmental factors on health in the Mediterranean region conducted through literature review. b) A Med-wide conference on One-Health approach for the Mediterranean; Conference report published and disseminated.	Plan Bleu	All MAP Components	WHO, FAO, UNEP, UNESCO, One Health High-Level Expert Council	LBS Protocol, SAP MED, MSSD	14,1	0 €	0 €	0 €	0 €	100,000 €	
1.4.2. Implement the agreed Med SOx ECA Road Map (Decision IG.24/8), and explore the possible designation of the Mediterranean Sea, as a whole, as an Emission Control Area for nitrogen oxides (in-house expertise, consultancy, national workshops, regional meeting)	a) Technical support and capacity building provided to CPs, which so request, to ratify and effectively implement MARPOL Annex VI.	REMPEC	CU, MED POL, PB/RAC	IMO, EMSA, Med MoU, Paris MoU	COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 22 Decision IG.24/8 - Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides Pursuant to MARPOL Annex VI, within the Framework of the Barcelona Convention	12.4; 14.1	0 €	32,000 €	32,000 €	0 €	30,000 €	for additional non external funding see activity 3.2.3 in CLimate Change Programme
	b) Joint and coordinated proposal for the designation of the proposed Med SOx ECA submitted to the IMO, and discussions at MEPC facilitated, as appropriate.			IMO								
	c) Mediterranean Action Plan (MAP) nitrogen oxides (NOx) Emission Control Area (ECA)(s) Technical Committee of Experts established.			IMO								
	d) Terms of Reference for a specific Technical and Feasibility Study to assess the relevant existing studies and gather further knowledge on the possible designation of the Mediterranean Sea, as a whole, as an Emission Control Area for nitrogen oxides, developed and validated by the NOx ECA(s) Technical Committee of Experts.			IMO, HELCOM, OSPAR, Bonn Agreement								

TOTAL

<u>464,000 €</u>	<u>206,000 €</u>	<u>670,000 €</u>	<u>7,444,994 €</u>	<u>965,000 €</u>
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	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	
MTS Programme 1						
CU	0 €	0 €	0 €	1,237,004 €	0 €	
MED POL	195,000 €	50,000 €	245,000 €	2,448,990 €	80,000 €	
REMPEC	109,000 €	66,000 €	175,000 €	0 €	130,000 €	
Plan Bleu	10,000 €	5,000 €	15,000 €	0 €	120,000 €	
SPA/RAC	0 €	0 €	0 €	0 €	0 €	
PAP/RAC	0 €	0 €	0 €	0 €	0 €	
INFO/RAC	0 €	0 €	0 €	0 €	0 €	
SCP/RAC	150,000 €	85,000 €	235,000 €	3,759,000 €	635,000 €	
TOTAL	<u>464,000 €</u>	<u>206,000 €</u>	<u>670,000 €</u>	<u>7,444,994 €</u>	<u>965,000 €</u>	

Outcomes	464,000 €	206,000 €	670,000 €	7,444,994 €	965,000 €	
Outputs	464,000 €	206,000 €	670,000 €	7,444,994 €	965,000 €	

MTS Programme 2. Towards Healthy Mediterranean Ecosystems and Enhanced Biodiversity												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 2.1. Ecosystem resilience improved through restoration of those with best regeneration potential							17,000 €	10,000 €	27,000 €	79,374 €	0 €	
2.1.1. Promote the implementation of the UN Decade on Ecosystem Restoration in the Mediterranean: Identify innovative actions, capitalize and promote replication (In-house expertise, consultancy, pilot projects, regional workshop, side-events)	a) Priority actions to contribute to the implementation of the UN decade on Ecosystem Restoration identified including through mitigation of fisheries interaction, underwater noise, and marine litter.	SPA/RAC, CU	ALL MAP Components	FAO-GFCM, ACCOBAMS, CBD, IUCN MedPAN, RAP associated Partners	COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 21 Decision IG.24/7 - Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAP BIO, the Strategy on Monk Seal, and the Action Plans concerning Marine Turtles, Cartilaginous Fishes and Marine Vegetation; Classification of Benthic Marine Habitat Types for the Mediterranean Region, and Reference List of Marine and Coastal Habitat Types in the Mediterranean Possible COP 22 Decision on Post 2020 SAP BIO	14.2; 14.a, 15.5	4,000 €	6,000 €	10,000 €	20,000 €	0 €	QUIETSEA EU funded project / MAVA Depredation project
	b) Integration and streamlining of ecosystems restoration in MAP regional measures /action plans/strategies.											
	c) Sharing of best practices, measures and lessons learnt for biodiversity restoration, ensuring carbon sink optimization and buffering resilience to climate extremes.	SPA/RAC	Plan Bleu	MedECC, UNFCCC, IUCN			6,000 €	4,000 €	10,000 €	0 €	0 €	external funds to be identified
	d) Proceedings document with compilation on best practices and measures taking place in Mediterranean ecosystems or applicable to them edited and disseminated.											
	e) Best practices and lessons learnt disseminated through publication on wetland / peatland restoration (6 action sites); social media and dedicated events, including one side-event during COP23, as well as advocacy paper prepared and disseminated.	Plan Bleu	SPA/RAC, PAP/RAC	30 partners led by University College Dublin (UCD); MBPC			7,000 €	0 €	7,000 €	59,374 €	0 €	pending acceptance of H2020 proposal - work to extend from end 2021 to end 2026) + Interreg Med MBPC project
f) Policy paper issued on transformative challenges for the conservation, restoration and wise use of biodiversity in the Mediterranean for consideration by MAP bodies.						MBPC Interreg Med project partners						
Outcome 2.2. Comprehensive, coherent Mediterranean network of well-managed MPAs and OECMs in place, expanded, effective and sustainable							45,000 €	35,000 €	80,000 €	400,000 €	500,000 €	

<p>2.2.1. Enhance the designation and connectivity of different area-based conservation measures, including in ABNJ (in-house expertise, consultancy)</p>	<p>a) Existing MPAs/SPAMI and other OECM (PSSA, EBSA, FRA, etc.) in the Mediterranean mapped (MAPAMED). b) Objectives and complementarities among different area-based conservation measures assessed.</p> <p>c) Recommendations developed for new designations and measures to enhance connectivity and effectiveness, including in ABNJ.</p> <p>d) Guidelines on OECM identification in the Mediterranean marine and coastal environment elaborated.</p>	<p>SPA/RAC, CU</p>	<p>REMPEC, PAP/RAC, Plan Bleu</p>	<p>FAO-GFCM, ACCOBAMS, IOC-UNESCO, IUCN, AGEM, MedPAN</p>	<p>COP 15 Decision IG.17/12 Procedure for the revision of the areas included in the Specially Protected Areas of Mediterranean Interest (SPAMI) List COP 16 Decision IG.19/13 - Regarding a regional working programme for the coastal and marine protected areas in the Mediterranean including the High Sea" COP 19 Decision IG.22/13 - Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean COP 20 Decision IG.23/9 -: Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance COP 21 Decision IG.24/6 - Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance Possible COP 22 Decision on Post 2020 SAP BIO</p>	<p>14.2; 14.5</p>	<p>10,000 €</p>	<p>10,000 €</p>	<p>20,000 €</p>	<p>0 €</p>	<p>500,000 €</p>	<p>Expected from the Bilateral Cooperation with Italy</p>
<p>2.2.2. Design and implement national measures to boost marine protected areas (MPAs) in the region (in-house expertise, consultancy, national trainings/workshops, financial support to countries)</p>	<p>a) Post-2020 national strategies/priorities for MPAs (at least for two CPs: the (i) Egyptian Mediterranean and (ii) Libyan coasts). b) National and institutional capacities strengthened through (i) training courses on improving Mediterranean MPA management and sustainability including strengthened financial mechanisms as well as (ii) national legislation development for MPA (Libya). c) Contracting Parties implement their national strategies and priorities for MPAs. d) 6 management plans elaborated for the Rachgoun Island future MPA (Algeria), Tyre Coast Nature Reserve/SPAMI (Lebanon), Gulf of Sirte future MPA (Libya), Al Hoceima NP (Morocco), Kuriat MCPA (Tunisia), Foça SPEA (Turkey), and e) 3 business plans elaborated for the Rachgoun Island future MPA (Algeria), Tyre Coast Nature Reserve/SPAMI (Lebanon), and Gulf of Sirte future MPA (Libya).</p>	<p>SPA/RAC, Respective Contracting Parties</p>	<p>CU and other Components as relevant</p>	<p>Relevant national authorities, relevant regional partners, AGEM</p>	<p>COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 19 Decision IG.22/13 - Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean Possible COP 22 Decision on Post 2020 SAP BIO</p>	<p>14.2; 14.5</p>	<p>20,000 €</p>	<p>10,000 €</p>	<p>30,000 €</p>	<p>300,000 €</p>	<p>0 €</p>	<p>2.2.1.(a) (i) EXT: EU-funded IMAP-MPA project 2.2.1.(a) (ii) EXT: GEF-funded MedProgramme Child project 3.1 2.2.1.(b) EXT: GEF-funded MedProgramme Child project 3.1; EXT: Unsecured: EC-ENI CBC MED ENSERES project: under review 2.2.1.(f) (i) EXT: MAVA-funded NTZ/MPA project + EU-funded IMAP-MPA Project 2.2.1.(f) (ii) EXT: EU-funded IMAP-MPA project</p>

<p>2.2.3. Ensure effective SPAMI management and evaluation</p> <p>(in-house expertise, consultancy, field trips, exchange visits, coordination national/local trainings, MoUs with CSOs)</p>	<p>(a) SPAMI management status kept under review: SPAMI ordinary periodic reviews undertaken (2022: Karaburun Sazan National Marine Park (Albania); 2023: Banc des Kabyles Marine Reserve (Algeria), Habibas Islands (Algeria), Calanques National Park (France), and Portofino Marine Protected Area (Italy)).</p> <p>b) SPAMI Twinning Programmes developed and implemented for at least 6 SPAMIs (management issues diagnosed and addressed, habitats conservation, fishing impacts, joint monitoring programmes implemented, medium-term on-the-job training, peer-to-peer support and mentoring, exchange visits, small grants programme benefiting to local CSOs/local small enterprises.</p> <p>c) Local stakeholders and civil society involved in SPAMI/MPA management.</p> <p>d) SPAMI Collaborative Platform maintained, including support the intervention of other MAP Components in SPAMIs (Marine Litter management, SCP action, ICZM, MSP, sustainable tourism, etc.).</p>	<p>SPA/RAC</p>	<p>CU and other Components as relevant</p>	<p>SPAMI managers, SPA/BD Focal Points, CSOs and private sector, CBD, GFCM, IUCN, WWF, MedPAN,</p>	<p>COP 15 Decision IG.17/12 Procedure for the revision of the areas included in the Specially Protected Areas of Mediterranean Interest (SPAMI) List COP 16 Decision IG.19/13 - Regarding a regional working programme for the coastal and marine protected areas in the Mediterranean including the High Sea" COP 19 Decision IG.22/13 - Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean COP 20 Decision IG.23/9 - Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance COP 21 Decision IG.24/6 - Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance Possible COP 22 Decision on Post 2020 SAP BIO</p>	<p>14.2; 14.5</p>	<p>15,000 €</p>	<p>15,000 €</p>	<p>30,000 €</p>	<p>100,000 €</p>	<p>0 €</p>	<p>2.2.2.(b) EXT (EC, ENI CBC MED, ENSERES project: under review) 2.2.2.(c) EXT (EC, ENI CBC MED, ENSERES project: under review) 2.2.2.(d) NTZ/MPA Project</p>
<p>Outcome 2.3. Mediterranean endangered and threatened species and key habitats in favourable status of conservation</p>							<p>80,000 €</p>	<p>50,000 €</p>	<p>130,000 €</p>	<p>350,000 €</p>	<p>455,000 €</p>	
<p>2.3.1. Implement regional and national actions to boost the implementation of the Action Plans on marine key habitats</p> <p>(in-house expertise, consultancy, national consultations, pilot actions, national/regional events, and symposia)</p>	<p>a) Symposia on marine key habitats organized and Proceedings disseminated (7th Mediterranean Symposium on marine vegetation, 4th Mediterranean Symposium on the Conservation of the Coralligenous and other calcareous bio-concretions and 3rd Mediterranean symposium on the dark habitats): Scientific updates shared, Roundtables and Panels held to take stock of newest knowledge and address emergent issues of the marine key habitats.</p> <p>b) First Mediterranean distribution maps of Posidonia meadows and coralligenous assemblages elaborated as provided for in the Regional Action Plans concerning threatened species and key habitats, and as input for Med QSR 2023 : inventory and collection of existing distribution data of Posidonia meadows and coralligenous assemblage elaborated; distribution maps inventoried, collected and aggregated, national consultations organized, data layers uploaded and made available in the Mediterranean Biodiversity Platform (MBP).</p>	<p>SPA/RAC</p>	<p>CU and other Components as relevant</p>	<p>RAP associates and Partners, GFCM</p>	<p>COP 21 Decision IG,24/7 - Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAP BIO, the Strategy on Monk Seal, and the Action Plans concerning Marine Turtles, Cartilaginous Fishes and Marine Vegetation; Classification of Benthic Marine Habitat Types for the Mediterranean Region, and Reference List of Marine and Coastal Habitat Types in the Mediterranean COP 15 Decision IG,17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment</p> <p>COP 19 Decision IG,22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and</p>	<p>14.2; 14.5</p>	<p>40,000 €</p>	<p>25,000 €</p>	<p>65,000 €</p>	<p>60,000 €</p>	<p>0 €</p>	<p>MAVA NTZ/MPA for 2022</p>
												<p>MAVA NTZ/MPA for 2022</p>

	<p>c) A multidisciplinary group of experts established to elaborate the List of Reference of Pelagic Habitat Types in the Mediterranean Sea.</p> <p>d) Knowledge about semi-dark populations (e.g., location, specific richness, functioning, typology) improved through national and regional data and scientific work on marine caves habitats inventory and mapping in south Mediterranean (at least for a pilot site in one country).</p> <p>e) Restoration measures taken related to conservation of <i>Pinna nobilis</i> in the Mediterranean to respond to their mass mortality.</p> <p>f) Knowledge, and monitoring strengthened at national/regional levels</p> <p>g) Marine habitats and marine protected area within Coastal Area Management Programme (CAMP) for Bosnia and Herzegovina (BH)</p>		<p>CU and other Components as relevant</p> <p>CU and other Components as relevant</p> <p>CU, PAP/RAC and other Components as relevant</p>	<p>RAP associates and Partners, CPs, relevant national/regional research/scientific actors</p> <p>Oceana, IUCN, GFCM</p> <p>RAP associates and Partners, relevant national/regional research/scientific actors</p>	<p>Related Assessment Criteria</p> <p>Possible COP 22 Decision on Post 2020 SAP BIO</p> <p>Possible COP 22 Decisions on Strategies and Action Plans for the conservation of species and habitats under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean</p>							<p>external funds to be identified</p> <p>external funds to be identified</p> <p>external funds to be identified</p>
<p>2.3.2. Effectively implement the updated regional Strategy and Action Plans for the conservation of threatened and endangered species</p> <p>(in-house expertise, consultancy, awareness raising)</p>	<p>a) Status of implementation of the Action plan on seabirds listed in Annex 2 to SPA/BD protocol assessed and Action Plan updated</p> <p>b) Status of Mid-term evaluation of the Monk seal regional strategy implementation in the Mediterranean assessed.</p> <p>c) Knowledge enhanced and awareness actions on monk seal in the Mediterranean implemented.</p> <p>d) Priority actions supported for the full and effective implementation of the updated regional Action Plans for the conservation of threatened and endangered species (Cartilaginous fishes AP, Turtles AP, Bird AP).</p> <p>e) Most vulnerable species impacted by bycatch and most impacting fishing gears identified based on bycatch data collection programmes allowing identification and proposal of mitigation measures.</p> <p>f) National stranding networks set up and/or reinforced.</p>	<p>SPA/RAC</p>	<p>CU and other Components as relevant</p>	<p>National experts and organizations, NGOs, SPA/BD Focal Points, Action Plans Partners; BirdLife Europe and Central Asia, GFCM, ACCOBAMS, IUCN Med, MEDASSET, WWF, Medpan, DEKAMER, ARCHELON, Foça SPEA Managers</p>	<p>COP Decisions on Species Action Plans (Monk Seal Action Plan; Action Plan for the Conservation of Mediterranean Marine Turtles; Action Plan for the Conservation of Cetaceans in the Mediterranean Sea; Action Plan for the Conservation of Bird Species inventoried in the annex II of the SPA Protocol; Action Plan on Cartilaginous Fishes in the Mediterranean Sea; Action Plan on Introduction of Species and Invasive Species in the Mediterranean Sea; Action Plan on Coralligenous & other Calcareous Bio-concretions in the Mediterranean)</p> <p>COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment</p> <p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria</p>	<p>14.2; 14.4; 14.5</p>	<p>10,000 €</p>	<p>15,000 €</p>	<p>25,000 €</p>	<p>181,000 €</p>	<p>300,000 €</p>	<p>b) (ii) MONK SEAL ALLIANCE project (under negotiation)</p> <p>c) external funds to identify</p> <p>d) MAVA MedBycatch project - funds available up to october 2022; external funds to identify</p> <p>e) MAVA MedBycatch project, MAVA Marine turtles project - funds available up to october 2022</p>

	<p>g) Communication and policy/advocacy material elaborated to support Contracting Parties to:</p> <ul style="list-style-type: none"> - foster bycatch issue and its mitigation solutions - raise awareness on fisheries and other human activities interaction with Mediterranean endangered and threatened species and key habitats (bycatch, depredation, marine litter, underwater noise, stranding, habitat loss, etc.) - Promote conservation status and actions based on key knowledge collected on vulnerable species (marine mammals, seabirds, sea turtles and elasmobranchs). 				<p>Possible COP 22 Decision on Post 2020 SAP BIO</p> <p>Possible COP 22 Decisions on Strategies and Action Plans for the conservation of species and habitats under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean</p>						<p>f) MAVA MedBycatch project, Mava species project - fund available up to May 2022</p>	<p>g) NTZ/MPA project</p>			
<p>2.3.3. Implement conservation measures and share best practices related to threatened and endangered species listed in Annex II to SPA/BD Protocol (in-house expertise, consultancy, regional, sub-regional and national trainings, workshops and regional other events)</p>	<p>a) Best practices shared through: - Vulnerable species bycatch mitigation measures trials- Regional gathering events related to key knowledge sharing on vulnerable species (marine mammals, seabirds, sea turtles and elasmobranchs) and their interactions with fisheries including within GFCM FishForum-training and capacity building programmes.</p>	<p>SPA/RAC</p>	<p>CU and other Components as relevant</p>	<p>National experts and organizations, NGOs, SPA/BD Focal Points, Action Plans Partners; BirdLife Europe and Central Asia, GFCM, ACCOBAMS, IUCN Med, MEDASSET, WWF, Medpan, DEKAMER, ARCHELON, Foça SPEA Managers</p>	<p>COP 20 Decision IG.23/10: Amendments to Annex II to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean Possible COP 22 Decision on Post 2020 SAP BIO</p>	<p>14.2; 14.4; 14.5</p>	<p>30,000 €</p>	<p>10,000 €</p>	<p>40,000 €</p>	<p>109,000 €</p>	<p>155,000 €</p>	<p>a) MAVA MedBycatch Project - funds available up to october 2022; external funds to identify; Mava Species project - fund available up to May 2022</p>	<p>b - MAVA MedBycatch Project - funds available up to october 2022; External funds to be identified</p>	<p>c) MAVA MedBycatch Project - funds available up to october 2022; funds to identify</p>	<p>d) e) and f) MAVA MedBycatch Project - funds available up to october 2022; external fund needed</p>
<p>b) Collection, analysis and uploading of Bycatch data into the GFCM online Mediterranean bycatch database portal by one Contracting Party within the MedBycatch project in line with the vulnerable species and habitat Regional Action Plans and IMAP.</p>	<p>c) National Capacity building trainings organized at subregional and or national levels on the:</p> <ul style="list-style-type: none"> - identification of vulnerable species, their interactions with fisheries and bycatch mitigation tools and technics including bycatch data collection - monitoring of vulnerable species in line with the IMAP and Regional Action Plans. 	<p>d) Sharing of best practices and lesson learnt at regional and/or national levels to disseminate project results on threatened species such as:</p> <ul style="list-style-type: none"> - MedBycatch project - Species (highly mobile species) project results. <p>e) Biannual cetacean conference for the south Mediterranean countries co-organized.</p> <p>f) The Symposium on Med chondrichyans Fishes co-organised.</p>													

Outcome 2.4. Non-indigenous species introductions minimized and introduction pathways under control						88,000 €	15,000 €	103,000 €	0 €	50,000 €
<p>2.4.1. Update and implement the regional action plan on Non-Indigenous species (NIS) and species introductions, as well as targeted measures of the Mediterranean Strategy on Ships' Ballast Water Management and Action Plan</p> <p>(in-house expertise, consultancy, regional meetings and events, national capacities building)</p>	<p>a) Regional Action Plan on non-indigenous species and species introduction implementation assessed and updated in line with IMAP, Post 2020 SAP BIO and related Global Processes,</p>	SPA/RAC	CU, REMPEC and other Components as relevant	RAP associates and Partners, CPs	<p>COP 15 Decision IG,17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 17 Decision IG,20/11 - Regional strategy addressing ship's ballast water management and invasive species COP 19 Decision IG,22/12 - Updated Action Plans Concerning "Cetaceans", "Coralligenous and Other Calcareous Bioconcretions", and "Species Introductions and Invasive Species"; Mandate for update of the "Action Plan on Marine and Coastal Birds" and revision of the "Reference List of Marine and Coastal Habitat Types in the Mediterranean"</p>	14,2				
	<p>b) Guidelines for controlling the vectors of introduction into the Mediterranean of NIS and invasive marine species and Guide for risk analysis assessing the impacts of the introduction of NIS updated taking into account the Mediterranean BWM.</p>		CU, REMPEC	RAP associates and Partners, CPs						
<p>c) 2nd Mediterranean Symposium on the Non-Indigenous Species organized: Scientific updates shared, Roundtables and Panels held to take stock of newest knowledge and address emergent issues related to NIS.</p>	CU, REMPEC and other Components as relevant		RAP associates and Partners, CPs, GFCM							
<p>d) At least one Sub-regional Action Plan on non-indigenous species and species introduction developed.</p>	CU, REMPEC and other Components as relevant		GFCM, CPs							
<p>e) Implementation of targeted NAPs measures on NIS supported in coordination with IMAP implementation in at least 4 Contracting Parties.</p> <p>f) Data contained in MAMIAS updated as appropriate.</p>	CU and other Components as relevant, CPs		RAP associates and Partners, relevant national/regional Mediterranean scientific actors							
<p>g) Share best practices and lessons learnt among Contracting Parties through regional meeting;</p> <p>h) measures to control and manage ships' ballast water and biofouling to minimize the transfer of invasive aquatic species implemented; assistance provided and resources mobilization strategy developed</p> <p>i) Targeted technical support provided to CPs for the ratification and implementation of the Ballast Water Management Convention as well as for the implementation of the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species.</p>	REMPEC, SPA/RAC	CU, SPA/RAC	IMO, GEF, UNDP, EBRD	<p>Possible COP 22 Decision on Ballast Water Management Strategy for the Mediterranean Sea (2022-2027)</p>		58,000 €	0 €	58,000 €	0 €	50,000 €
TOTAL						230,000 €	110,000 €	340,000 €	829,374 €	1,005,000 €

MTS Programme 2	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	
CU	0 €	0 €	0 €	0 €	0 €	
MED POL	0 €	0 €	0 €	0 €	0 €	
REMPEC	58,000 €	0 €	58,000 €	0 €	50,000 €	
Plan Bleu	7,000 €	0 €	7,000 €	59,374 €	0 €	
SPA/RAC	165,000 €	110,000 €	275,000 €	770,000 €	955,000 €	
PAP/RAC	0 €	0 €	0 €	0 €	0 €	
INFO/RAC	0 €	0 €	0 €	0 €	0 €	
SCP/RAC	0 €	0 €	0 €	0 €	0 €	
<i>TOTAL</i>	<i>230,000 €</i>	<i>110,000 €</i>	<i>340,000 €</i>	<i>829,374 €</i>	<i>1,005,000 €</i>	-

Outcomes	230,000 €	110,000 €	340,000 €	829,374 €	1,005,000 €	
Outputs	230,000 €	110,000 €	340,000 €	829,374 €	1,005,000 €	

MTS Programme 3. Towards a Climate Resilient Mediterranean												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 3.1. Legal, policy and institutional framework strengthened at the regional and national level to efficiently address climate change related challenges (flooding, erosion, land degradation, pollution, disasters etc.)							0 €	35,000 €	35,000 €	266,000 €	0 €	
3.1.1. Mainstream adaptation to climate change into local ICZM plans (in-house expertise, consultancy, national consultation)	a) A gender-sensitive climate risk assessment prepared for the two ICZM Plans (in Morocco and Montenegro), based on a stakeholder-led process, providing a platform for building coastal resilience to climate change in a sustainable and inclusive manner and using Climagine approach as a participatory foresight approach, b) Recommendations for adaptation measures prepared in consultation with relevant stakeholders in Morocco (Tanger-Tetouan- Al Hoceima) and Montenegro (Kotor Bay), c) Reports developed on the main legal, policy and institutional barriers and opportunities for implementing adaptation solutions,	PAP/RAC, Respective Contracting Parties	CU, Plan Bleu	Participating CPs and their relevant authorities and institutions, GWP-Med	COP 19 Decision IG,22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas COP 21 Decision IG,24/5 - Common Regional Framework for Integrated Coastal Zone Management	13.1; 13.2; 14.2	0 €	35,000 €	35,000 €	266,000 €	0 €	GEF MedProgramme SCCF Project (GEF ID 9670) (325,000 USD)
Outcome 3.2. Nature-based, technical solutions promoting prevention or reduction of the impact of climate change on coastal and marine ecosystems and increase resilience to climatic variability and change							30,000 €	10,000 €	40,000 €	0 €	4,390,000 €	
3.2.1. Mainstream nature-based solutions into regional policies implementation, including for adaptation and mitigation to climate change, disaster risk reduction and sustainable development/ green economy. (in-house expertise, consultancy, regional meeting)	a) Best practices on nature-based solutions for climate change adaptation, disaster risk reduction and sustainable development/green economy identified, assessed and related guideline document for their application shared. b) Mediterranean Nature-based solutions Action Plan with measures developed, including decision-making guide for use and funding of Nature-based Solutions by local authorities. c) Assessment of socio-economic impacts of the practical implementation of NbS (thematic publications in different contexts, for example "in Mediterranean cities" or "in coastal lowland populations").	Plan Bleu, CU	MED POL, SPA/RAC, Plan Bleu, PAP/RAC, SCP/RAC	MedECC, IUCN, CBD, UNFCCC, Life Artisan	COP 19 Decision IG.22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas Possible COP 22 Decision on Post 2020 SAP BIO	13.1; 13.2; 14.2	30,000 €	10,000 €	40,000 €	0 €	40,000 €	

<p>3.2.2. Implement sustainable management policies and practices in priority coastal aquifers</p> <p>(in-house expertise, consultancy, national consultations, national trainings, awareness raising)</p>	<p>a) Preparation of five coastal aquifer management plans and their submission to national authorities for approval and adoption (Buna-Bojana transboundary coastal aquifer [Albania and Montenegro]; North West coastal aquifer [Egypt]; Damour coastal aquifer [Lebanon]; Rhiss-Nekkor coastal aquifer [Morocco]; Ras Jebel coastal aquifer [Tunisia]).</p> <p>b) Design and pilot testing of five multi-purpose aquifer monitoring networks and protocols (one in each of the five priority coastal aquifers in Child Project 2.1 of the MedProgramme), including training of experts at relevant institutions on the use of monitoring equipment.</p> <p>c) Development of a GIS-driven information management system to promote the effective use of raw data gathered from the monitoring networks for the five priority coastal aquifers in Child Project 2.1 of the MedProgramme.</p> <p>d) Five national dialogues to identify solutions to foster the conjunctive management of surface water and groundwater in Albania/Montenegro, Egypt, Lebanon, Morocco and Tunisia.</p> <p>e) Implementation of awareness raising campaign with the central theme of Women in Coastal Management</p> <p>f) Identification of knowledge gaps and gender roles, through gender-sensitive stakeholder engagement and women's groups. Gender included in the socio-economic surveys and assessments and collection of sex-disaggregated data</p>	<p>CU</p>	<p>PAP/RAC</p>	<p>MedProgramme, UNESCO International Hydrological Programme</p>	<p>COP 19 Decision IG.22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas</p> <p>COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management</p>	<p>6.6; 13.1; 13.2; 13.3; 14.2</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	
<p>3.2.3. Mobilize and implement innovative solutions to reduce GHG emissions from ships in selected ports, including energy efficiency and decarbonization</p> <p>(in-house expertise, consultancy, national and regional workshops/capacity building, regional and international partnerships, pilot project)</p>	<p>a) Institutional capacity of countries for implementation and enforcement of IMO' energy efficiency measures for ships, in line with the IMO Initial GHG Strategy, improved and elevated, in particular through the development and implementation of National Action Plans (NAPs).</p> <p>b) Capacity Building activities on low carbon shipping and clean ports implemented.</p> <p>c) International and regional partnerships for technology innovation and cooperation towards energy efficient and clean shipping and ports promoted via the creation of public-private, North-South and industry-shipping-port-hinterland transport alliances at regional levels. A set of workshops and studies implemented and future technology demonstrations in pioneer countries, including dock electrification, prepared.</p>	<p>REMPEC</p>	<p>CU, SCP/RAC, Plan Bleu</p>	<p>IMO, UNDP, EMSA, UfM, WestMed Initiative, EUSAIR, MTCC Africa</p>	<p>COP 19 Decision IG,22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas</p> <p>Possible COP 22 Decision on Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships (2022-2031) and its Action</p>	<p>13,1; 13,2</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>4,350,000 €</p>	
<p>Outcome 3.3. Better understanding and knowledge of climate change and its impacts on environment and development</p>							<p>10,000 €</p>	<p>15,000 €</p>	<p>25,000 €</p>	<p>164,265 €</p>	<p>50,000 €</p>	

3.3.1. Develop and provide policy recommendations to address thematic impacts of climate change (in-house expertise, consultancy, voluntary contributions from MedECC scientists, author meetings, side-events)	a) MedECC Report on adaptation in coastal zones, based on literature review, issued (2022)	Plan Bleu	PAP/RAC, SCP/RAC	MedECC, UfM	COP 19 Decision IG,22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas COP 21 Decision IG,24/4 - Assessment Studies	13,3	10,000 €	15,000 €	25,000 €	164,265 €	50,000 €	
	b) MedECC Report on CC and water - energy- food - ecosystems management at watershed level, based on literature review, issued (2022)											
	c) MedECC Report on environment, conflicts and migration, based on literature review, issued (2023)											
Outcome 3.4. Mitigation of Climate Change progressed through Circular Economy, increased resource efficiency and carbon neutrality business strategies							0 €	0 €	0 €	100,000 €	45,000 €	
3.4.1. Analyze and quantify environmental and climate implications of Circular Economy transition to serve for business development, policy and technology scenario-making (in-house expertise, consultancy)	a) An Impact Monitoring Tool developed to assess and calculate positive impact of Sustainable and Circular business models to mitigate the effects of climate change	SCP/RAC		Universidad Aunoma de Barcelona The University of Sheffield	COP 19 Decision IG,22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	13,3	0 €	0 €	0 €	100,000 €	45,000 €	DG NEAR (SwitchMed II)
	b) 1 Decision Support System developed to assess and promote circularity of specific productive units											H2020 (Just2CE)
TOTAL							40,000 €	60,000 €	100,000 €	530,265 €	4,485,000 €	

	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	
MTS Programme 3						
CU	0 €	0 €	0 €	0 €	0 €	
MED POL	0 €	0 €	0 €	0 €	0 €	
REMPEC	0 €	0 €	0 €	0 €	4,350,000 €	
Plan Bleu	40,000 €	25,000 €	65,000 €	164,265 €	90,000 €	
SPA/RAC	0 €	0 €	0 €	0 €	0 €	
PAP/RAC	0 €	35,000 €	35,000 €	266,000 €	0 €	
INFO/RAC	0 €	0 €	0 €	0 €	0 €	
SCP/RAC	0 €	0 €	0 €	100,000 €	45,000 €	
TOTAL	40,000 €	60,000 €	100,000 €	530,265 €	4,485,000 €	

Outcomes	40,000 €	60,000 €	100,000 €	530,265 €	4,485,000 €	
Outputs	40,000 €	60,000 €	100,000 €	530,265 €	4,485,000 €	

MTS Programme 4. Towards the sustainable use of coastal and marine resources including circular and blue economy												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 4.1. Sustainability of coastal and marine resources achieved through the synergetic implementation of planning and management approaches, including the adequate consideration of Land-Sea Interactions (LSI)							150,000 €	100,000 €	250,000 €	755,000 €	0 €	
4.1.1. Apply the water-energy-food-ecosystems nexus approach to natural resources management challenges in the Mediterranean (in-house expertise, consultancy, roundtables, regional dialogues, national consultations, national trainings, pilots)	a) Baseline established for the water-energy- food-ecosystems nexus in Albania, Algeria, Bosnia and Herzegovina, Egypt, Lebanon, Libya, Montenegro, Morocco and Tunisia.	CU	PAP/RAC, Plan Bleu	MedProgramme, GWP-Med	COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD)	6.5; 14.2	0 €	0 €	0 €	0 €	0 €	
	b) Roundtables to promote regional multi-stakeholder dialogues to advance understanding of the water-energy-food-ecosystems nexus and facilitate cross-fertilization among different stakeholders.											
	c) Capacity building targeting policy, managerial and technical aspects for policy makers, managers at public administrations, civil society, members of parliaments and media etc.											
	d) Water-energy-food-ecosystems nexus assessments and strategies/action plans developed for three countries (Albania, Lebanon and Morocco) through multi-stakeholder consultations at national and local level.											
	e) Preparation of two project proposals for priority interventions involving the water-energy-food-ecosystems approach in the Mediterranean region (most likely in Albania, Lebanon and Morocco).											
4.1.2. Prepare National ICZM strategies (in-house expertise, consultancy, national consultation)	a) National Strategy for Egypt updated and submitted for adoption by relevant national authority.	PAP/RAC	CU, Plan Bleu, SPA/RAC	Participating CPs, GWP-Med, UNESCO O-IHP	COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the	14.2; 6.5; 6.6; 8.9; 11.4	0 €	0 €	0 €	170,000 €	0 €	MedProgramme

	b) National Strategy for Lebanon prepared and submitted for adoption by relevant national authority				Mediterranean marine and coastal environment COP 20 Decision IG.23/7 - Implementation of the Integrated Coastal Zone Management Protocol: (...) Conceptual Framework for Marine Spatial Planning COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management							
	c) Climagine approach applied as a participatory foresight approach supporting the preparation of National ICZM strategies		PB/RAC									
4.1.3. Implement CAMP Projects (in-house expertise, consultancy, national and sub-regional meetings and trainings)	a) CAMP BH finalised	PAP/RAC	All MAP Components	Participating CPs, IOC-UNESCO	COP 20 Decision IG.23/7 - Implementation of the Integrated Coastal Zone Management Protocol: (...) Conceptual Framework for Marine Spatial Planning COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management	14.2; 6.5; 6.6; 8.9; 11.4	150,000 €	100,000 €	250,000 €	400,000 €	0 €	20,000 EUR from MTF is aimed to support the conclusion of the CAMP BiH implemented in the biennium 2020-2021. External resources from Bilateral Agreement with Italy.
	b) Transboundary CAMP Otranto between Albania and Italy implemented											
	c) Transboundary CAMP between Cyprus and Israel implemented											
4.1.4. Prepare ICZM or coastal plans (in-house expertise, consultancy, national workshops)	a) ICZM plan for Tanger-Tetouan-Al Hoceima (Morocco) finalized	PAP/RAC	Plan Bleu	Participating CPs and their relevant authorities and institutions, GWP-Med, UNESCO-IHP	COP 15 Decision IG.17/6: Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 20 Decision IG.23/7 - Implementation of the Integrated Coastal Zone Management Protocol: (...) Conceptual Framework for Marine Spatial Planning COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management	14.2; 6.5; 6.6; 8.9; 11.4	0 €	0 €	0 €	185,000 €	0 €	MedProgramme
	b) Analytical phase of ICZM plan of Kotor Bay (Montenegro) finalized											
	c) Analytical phase of IMP plan in Damour (Lebanon) finalized											
	d) Management plan for the Buna Delta protected wetland (Albania) updated and governance mechanism strengthened											
Outcome 4.2. Sustainable Blue and Green Economy tools and approaches in the context of Sustainable Development and MSSD implementation							50,000 €	20,000 €	70,000 €	1,569,054 €	370,000 €	

<p>4.2.1. Promote the use of alternative, marine renewable energy resources in the Mediterranean</p> <p>(in-house expertise, consultancy, regional meeting)</p>	<p>a) State of play of marine renewable energy sector in the Mediterranean region developed.</p>	<p>CU, Plan Bleu</p>	<p>MED POL, REMPEC, PAP/RAC</p>	<p>IRENA</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) COP 20 Decision IG.23/4: Implementation and monitoring of the Mediterranean Strategy for Sustainable Development 2016-2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean</p>	<p>14.2</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>100,000 €</p>	<p>Expected from the Bilateral Cooperation with Italy</p>
<p>b) Environmental benefits and potential risks from different types of marine renewable energies assessed, taking into consideration socioeconomic elements and disseminated.</p>												
<p>4.2.2. Support Contracting Parties' engagement into concrete actions to better balance economic development and environmental protection in the coastal tourism sector</p> <p>(in-house expertise, consultancy, regional workshop)</p>	<p>a) State of play of the coastal tourism and ecotourism in the Mediterranean prepared.</p>	<p>Plan Bleu</p>	<p>CU, MED POL, SCP/RAC, PAP/RAC</p>	<p>Interreg</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD)</p>	<p>8.9; 12.4; 14.2</p>	<p>10,000 €</p>	<p>0 €</p>	<p>10,000 €</p>	<p>19,680 €</p>	<p>25,000 €</p>	<p>External resources (Bilateral Cooperation with Italy and Interreg Sustainable Tourism project)</p>
<p>b) Best practices on sustainable tourism identified and shared.</p>												
<p>c) Capitalization of good practices promoted and concrete actions undertaken to enable Contracting Parties' engagement into more sustainable tourism.</p>												
<p>4.2.3. Promote sustainable entrepreneurship in the Blue Economy Sector including through the integration of circular economy principles</p> <p>(in-house expertise, consultancy, national partnerships, business engagement, trainings)</p>	<p>a) Sustainability of port businesses activities and the circular economy transition between ports and coastal cities promoted.</p>	<p>SCP/RAC</p>	<p>Plan Bleu, REMPEC</p>	<p>Support National Partnerships in 8 MED Countries</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>	<p>8.3; 8.4; 8.9; 12.1; 12.2; 12.4; 12.5</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>700,000 €</p>	<p>0 €</p>	<p>DG NEAR (SwitchMed II)</p>
<p>b) National Partnerships for Circular Businesses including activities related with Blue Economy established.</p>	<p>DG NEAR (SwitchMed II)</p>											
<p>c) At least 80 entrepreneurs from Blue economy sectors have developed and tested their Business Models.</p>	<p>DG NEAR (SwitchMed II)</p>											
<p>d) At least 8 start-ups for Circular Economy in Blue Economy sectors incubated and supported.</p>	<p>DG NEAR (SwitchMed II)</p>											

<p>4.2.4. Boost targeted actions for a sustainable and inclusive Blue economy transition at regional and national levels</p> <p>(in-house expertise, consultancy, national consultation, webinars, side events, expert meetings, Med Forum)</p>	<p>a) State of play on integration of Circular Economy principles into key Blue Economy Sectors (i.e., fisheries, aquaculture, maritime transport, offshore etc.).</p> <p>b) Overall recommendations on how to further integrate Circular Economy principles into selected Blue Economy sectors prepared after consultation with Contracting Parties.</p> <p>c) Findings of recommendations disseminated and discussed.</p> <p>d) Pilot analysis in selected countries for integrated analysis at country level for key selected sectors.</p>	<p>SCP/RAC</p>	<p>INFO/RAC, Plan Bleu and other concerned MAP components</p>	<p>Contracting Parties of the BC to be fully involved in the preparation process of the set of recommendations</p>	<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD)</p>	<p>8.3; 8.4; 8.9; 12.1; 12.2; 12.4; 12.5</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>174,000 €</p>	<p>0 €</p>	<p>DG NEAR (SwitchMed II)</p>	
	<p>e) Med Forum on Blue Economy organized; Findings from sectoral projects and studies on Blue Economy by MAP RACs disseminated.</p>	<p>Plan Bleu</p>	<p>SCP/RAC</p>	<p>Interreg Blue Growth</p>	<p>Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>		<p>25,000 €</p>	<p>5,000 €</p>	<p>30,000 €</p>	<p>39,374 €</p>	<p>45,000 €</p>	<p>for (e) and (f) Secured funding from the InterredMed Blue Growth</p>	
	<p>f) Innovative approaches in aquaculture development identified and promoted in implementation of the Roadmap for Sustainable Aquaculture.</p>		<p>MED POL</p>	<p>AFD, WestMed, CIHEAM</p>									
	<p>g) Benefits and potential of digitalization in the Blue economy sector assessed : state of play, and identification of sectors for which use of digital innovation has highest potential for development.</p>		<p>INFO/RAC</p>	<p>Interreg Sustainable Tourism</p>									
<p>4.2.5. Support the development of National policies and pilot actions on SCP and circular economy at national level(in-house expertise, consultancy, national trainings/workshops, experts' network, business engagement)</p>	<p>a) Circular economy within key sectors of the Blue Economy streamlined (at least one of them fishing or aquaculture sectors in 2 Contracting Parties).</p>	<p>SCP/RAC</p>	<p>CU and other MAP component as relevant</p>		<p>COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) Possible COP 22 Decision on Regional Measures for Green and Circular Businesses</p>	<p>8.3; 8.4; 8.9; 12.1; 12.2; 12.4; 12.5</p>	<p>15,000 €</p>	<p>15,000 €</p>	<p>30,000 €</p>	<p>636,000 €</p>	<p>150,000 €</p>		
<p>b) Development of SCP and CE policies (e.g., Green public procurement, circular product policies, eco-labelling, etc.). To this aim support will be provided to 3 Contracting Parties.</p>													
<p>c) Training on circular business models organized at regional level.</p>												<p>DG NEAR (WES)</p>	
<p>d) Policy hub on the support to the development of circular businesses regularly updated and moderated.</p>	<p>CU and other MAP component as relevant</p>											<p>DG NEAR (SwitchMed II)</p>	

	e) 1 network of national experts moderated and kept active.												
	f) 2 peer to peer activities on circular economy and SCP (including EPR and sustainable consumption policies) organized.												
	g) 1 capitalization strategy on initiatives to support sustainable businesses developed and implemented.		CU and other MAP component as relevant										
4.2.6. Promote implementation of circular economy principles in key sectors (in-house expertise, consultancy, regional workshops)	a) Workshop organized and publication issued, focused on water and wastewater sectors to address key water-related challenges	Plan Bleu, MED POL	SCP/RAC		COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	6.5; 12.2	0 €	0 €	0 €	0 €	50,000 €		
Outcome 4.3. Innovative environmental management and economic instruments implemented for the protection and efficient use of coastal and marine resources								15,000 €	10,000 €	25,000 €	70,000 €	40,000 €	
4.3.1. Support environmentally friendly local businesses (in-house expertise, consultancy, national consultation)	a) Financial support provided for greening of local business (e.g., agriculture, tourism, fishery) in Buna Delta protected wetland (Albania), based on the management plan prepared in the 1st phase of the project.	PAP/RAC	SCP/RAC	WWF North Africa; IUCN; APAL and relevant local authorities in Tunisia; NAPA and relevant local authorities in Albania	COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management Possible COP 22 Decision on Regional Measures for Green and Circular Businesses	6.6; 8.9; 14.2	0 €	0 €	0 €	70,000 €	0 €	MAVA	
	b) Proposals made for innovative business models in the Ghar El Melh wetland in Tunisia and submitted for adoption and implementation by the competent governance mechanism.												

<p>4.3.2. Support the effective use by CPs of economic instruments and other tools for nature conservation and sustainable development in order to diversify the policy mix in the Mediterranean (in-house expertise, consultancy, regional workshop, publication)</p>	<p>a) Cross-sectoral consultations and exchanges organized on environmental economic instruments in the Mediterranean, sharing good practices across sectors (climate, water, biodiversity, pollution, fisheries); report on best practices issued, and complemented by invited expert).</p>	<p>Plan Bleu</p>	<p>SPA/RAC, MedPoI, SCP/RAC</p>	<p>OECD</p>	<p>COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD)</p>	<p>SDG cross-cutting, in particular SDGs 8,9, 11, 12, 14</p>	<p>15,000 €</p>	<p>10,000 €</p>	<p>25,000 €</p>	<p>0 €</p>	<p>40,000 €</p>	
<p>b) Publication on the applicability of conservative easement tools under different Mediterranean legal frameworks issued, based on literature review.</p>												
<p>c) Regional report on environmentally harmful subsidies, in collaboration with OECD.</p>												
<p>Outcome 4.4. Measures defined within the Mediterranean Offshore Action Plan applied at regional level and by each Contracting Party within their jurisdiction to ensure the safety of offshore activities and reduce their potential impact on the marine environment and its ecosystem</p>							<p>95,000 €</p>	<p>55,000 €</p>	<p>150,000 €</p>	<p>0 €</p>	<p>0 €</p>	
<p>4.4.1. Implement key targeted measures of the Offshore Action Plan. (in-house expertise, consultancy, online trainings, regional meeting (OFOG))</p>	<p>a) Common criteria, rules and procedures for the removal of installations and the related financial aspects reviewed by the Barcelona Convention Offshore Oil and Gas Group (OFOG) finalized.</p>	<p>REMPEC</p>	<p>CU</p>	<p>IOGP</p>	<p>COP 19 Decision IG.22/3 - Mediterranean Offshore Action Plan in the framework of the Protocol for the Protection of the Mediterranean Sea against Pollution resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil</p>	<p>9.4; 14.2</p>	<p>95,000 €</p>	<p>55,000 €</p>	<p>150,000 €</p>			<p>There is a strong need to support the implementation of activities related to the Offshore Protocol, considering the growing of this sector in the Mediterranean.</p>
<p>b) Online trainings organized on subjects from Appendix 2 of Mediterranean Action Plan defined by 2021 OFOG Meeting organized.</p>	<p>COP 21 Decision IG.24/9 - Mediterranean Offshore Guidelines and Standards: (a) Common Standards and Guidance on the Disposal of Oil and Oily Mixtures and the Use and Disposal of Drilling Fluids and Cuttings; (b) Common Standards and Guidelines for Special Restrictions or Conditions for Specially Protected Areas (SPA) within the Framework of the Mediterranean</p>											
<p>c) Meeting of the Barcelona Convention Offshore Oil and Gas Group (OFOG) organized and held; Offshore Protocol implementation and Annexes to the Offshore Protocol kept under review; sharing of best practices and latest relevant developments.</p>												

					Offshore Action Plan						
					Possible COP 22 Decision on Offshore Annexes and EIA Guidelines						
TOTAL							<u>310,000 €</u>	<u>185,000 €</u>	<u>495,000 €</u>	<u>2,394,054 €</u>	<u>410,000 €</u>

	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	
MTS Programme 4						
CU	0 €	0 €	0 €	0 €	100,000 €	
MED POL	0 €	0 €	0 €	0 €	0 €	
REMPEC	95,000 €	55,000 €	150,000 €	0 €	0 €	
Plan Bleu	50,000 €	15,000 €	65,000 €	59,054 €	160,000 €	
SPA/RAC	0 €	0 €	0 €	0 €	0 €	
PAP/RAC	150,000 €	100,000 €	250,000 €	825,000 €	0 €	
INFO/RAC	0 €	0 €	0 €	0 €	0 €	
SCP/RAC	15,000 €	15,000 €	30,000 €	1,510,000 €	150,000 €	
TOTAL	<u>310,000 €</u>	<u>185,000 €</u>	<u>495,000 €</u>	<u>2,394,054 €</u>	<u>410,000 €</u>	

Outcomes	310,000 €	185,000 €	495,000 €	2,394,054 €	410,000 €	
Outputs	310,000 €	185,000 €	495,000 €	2,394,054 €	410,000 €	

MTS Programme 5: Governance (Foundational Programme)												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 5.1. Effective Implementation and Enforcement by the Contracting Parties of the Barcelona Convention, its Protocols, MAP Policies, including Ecosystem Approach related COP decisions, the MSSD and Programmes of Measures achieved at regional and national levels							52,000 €	25,000 €	77,000 €	139,000 €	75,000 €	
5.1.1. Strengthen Contracting Parties action to comply with legally binding obligations under Barcelona Convention and its Protocols (in-house expertise, consultancy, technical national assistance, regional meeting)	a) Progress on ratification of the Protocols of the Barcelona Convention; Facilitation and/or technical support provided upon request.	CU	MAP Components	Participating CPs and their relevant authorities and institutions	COP 15 Decision IG.17/5 - Governance paper COP 18 Decision IG.21/1 - Compliance Committee including renewal of members, the modification of the rules of procedure and the Programme of Work of the Compliance Committee COP 20 Decision IG.23/1 - Revised reporting format for the implementation of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management	All SDG 14 Targets; 17.14	0 €	0 €	0 €	0 €	0 €	MedProgramme
	b) Impacts of the ratification/implementation of the ICZM Protocol analyzed in three CPs (Egypt, Lebanon, Morocco). c) National legal framework analyzed with regard to the requirements of the ICZM Protocol in two CPs (Algeria and Tunisia).	PAP/RAC, CU					0 €	0 €	0 €	110,000 €	0 €	
	d) Contracting Parties develop national policies, legislation and mechanisms for the implementation and enforcement of the BC Protocols. e) Technical assistance to CPs to develop national policies, regulatory frameworks and which are consistent with the BC and its Protocols is provided.	CU, Compliance Committee	MAP Components (MED POL, PAP/RAC, SPA RAC, REMPEC)	MEAs, UNEP			7,000 €	8,000 €	15,000 €	0 €	0 €	
	f) Status of implementation of the Barcelona Convention and its protocols reviewed, achievements and issues at stake identified. g) Coordinated assistance to address cases of implementation difficulties and or possible noncompliance situations.		All MAP Components	UNEP								
	h) Status of implementation of 2009 MAP Liability and Compensation Guidelines reviewed and best practices shared.		Plan Bleu, SCP/RAC and other MAP Components	MCS D Members, MAP Partners								

<p>5.1.2. Advance the implementation of Ecosystem Approach in the Mediterranean and IMAP in coherence with regional and global developments</p> <p>(in-house expertise, consultancy, EcAp/IMAP regional governance meetings)</p>	<p>a) Implementation of the Ecosystem Approach Roadmap evaluated. Gaps and needs identified for each of the Roadmap's steps against the vision and objectives, taking into account recent developments at global and regional level.</p> <p>b) New/updated Roadmap for the implementation of the ecosystem approach and the achievement of GES beyond 2023 prepared for review of EcAp/IMAP Governance bodies.</p> <p>c) Proposal to further develop IMAP with new features following the experience with QSR 2023 preparation.</p> <p>d) Coordinated implementation of IMAP ensured through IMAP/EcAp Task Force and CORMON and as appropriate online working group meetings.</p>	<p>CU</p>	<p>All MAP Components</p>	<p>UN Ocean Science Decade, EU MSFD, GFCM, ACCOBAMS, IUCN, IAEA, EEA, BRSC, IMO, GEF, UFM, RS of UNEP, UNEP Regional Seas work on indicators, Global Assessments, OSPAR, HELCOM, Black Sea Commission</p>	<p>COP 15 Decision IG.17/6 - Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment COP 17 Decision IG.20/4 - Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria</p>	<p>All SDG 14 Targets; 17.14; to a lesser extent SDGs 6, 12, 13</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>45,000 €</p>	
<p>5.1.3. Ensure Contracting Parties compliance with adopted monitoring and reporting under Barcelona Convention Protocols</p> <p>(in-house expertise, national assistance)</p>	<p>a) Awareness raised and support provided on reporting obligation under the Prevention and Emergency Protocol and related IMO Conventions.</p> <p>b) BCRS, REMPEC Country Profile, MEDGIS-MAR, MENELAS Information System maintained; and updated by all Contracting Parties.</p> <p>c) Common Emergency Communication System for the Mediterranean established and awareness raised on its use</p>	<p>REMPEC</p>	<p>CU, INFO/RAC</p>	<p>IMO</p>	<p>COP 15 Decision IG.17/5 - Governance paper COP 18 Decision IG.21/1 - Compliance Committee including renewal of members, the modification of the rules of procedure and the Programme of Work of the Compliance Committee COP 18 Decision IG.21/9 - Establishment of a Mediterranean Network of Law Enforcement Officials relating to MARPOL within the framework of the Barcelona Convention</p>	<p>All SDG 14 Targets</p>	<p>20,000 €</p>	<p>7,000 €</p>	<p>27,000 €</p>			

<p>5.1.4. Establish a Framework for assessing the implementation of the Barcelona Convention and its Protocols and their contribution to the GES, MSSD and SDGs</p> <p>(in-house expertise, consultancy, literature review, workshops)</p>	<p>a) A conceptual framework established to review linkages between IMAP Ecological Objectives, MSSD indicators and SDGs indicators.</p>	Plan Bleu	CU		<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria</p> <p>COP 20 Decision IG.23/4 - Implementation and monitoring of the Mediterranean Strategy for Sustainable Development 2016–2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean</p>	crosscutting especially on SDGs 2, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17	20,000 €	5,000 €	25,000 €	25,000 €	0 €	GEF MedProgramme 2.1
	<p>b) Definition and initial test of a first set of legal indicators conducted with the view to be considered by Parties to complement the existing set of MAP Barcelona Convention MSSD indicators</p>		CU	Institut Francophonie pour Dévelt Durable, CIDCE, IUCN, MEPIELAN								
<p>5.1.5. Ensure MAP Data Policy-implementation at regional and as appropriate at national levels(in-house expertise, consultancy, national missions and workshops)</p>	<p>a) MAP Data Policy document updated with operational annexes related to different data flows (BCRS, IMAP, NBB etc.).</p>	INFO/RAC	CU	UNEP	<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria</p> <p>COP 21 Decision IG.24/2 - Governance</p> <p>Possible COP 22 Decision on Data Policy</p>	All SDG 14 targets and 17.14	5,000 €	5,000 €	10,000 €	4,000 €	30,000 €	EcAp Med III (4,600 USD)
	<p>b) Capacities of the CPs strengthened to implement MAP data sharing Policy through missions to countries and national workshops.</p>		MAP Components	EEA								
	<p>c) MAP Data Policy principles applied to monitoring data collection from countries (i.e., by topic).</p>		MAP Components	UNEP/EEA								
<p>Outcome 5.2. Systemic strengthening and effective functioning and delivery of MAP decision-making and advisory bodies ensured, and efficiency enhanced with new digital approaches</p>							359,000 €	991,000 €	1,350,000 €	1,926,000 €	183,000 €	
<p>5.2.1. Deliver successfully COP 23 of MAP Barcelona Convention</p> <p>(in-house expertise, Host Country Agreement, conference services, venue, side events, travel arrangements)</p>	<p>a) COP 23 Declaration, Decisions including the PoW 2024-2025 reviewed and adopted, recommendations of the Compliance Committee and the MCSD reviewed.</p>	CU	MED POL, RACs	Host country, CPs, MAP Partners	<p>COP 15 Decision IG.17/5 - Governance paper</p>	All SDG 14 targets; 17.14	0 €	330,000 €	330,000 €	0 €	60,000 €	
	<p>b) Progress achieved during the biennium 2022-2023 reviewed and acknowledged.</p>											
	<p>c) Status of implementation of the Convention and its Protocols reviewed.</p>											
	<p>d) MAP visibility and outreach enhanced.</p>											

<p>5.2.2. Deliver successfully the 20th Meeting of the MCSD (in-house expertise, consultancy, Host Country Agreement, conference services, venue, travel arrangements, regional meetings)</p>	<p>a) 20th Meeting of the MCSD successfully convened; Strengthened Partnerships for Sustainable Development in the Mediterranean. b) MCSD Meeting organized with Partners, Inputs provided to COP 23 to the Contracting Parties. c) 2 meetings of the MCSD Steering Committee, at least 1 of them face-to-face.</p>	<p>CU</p>	<p>Plan Bleu, SCP/RAC and other MAP Components</p>	<p>MCSD Members, MAP Partners</p>	<p>COP 15 Decision IG.17/5 - Governance paper</p>	<p>crosscutting especially on SDGs 2, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17</p>	<p>70,000 €</p>	<p>60,000 €</p>	<p>130,000 €</p>	<p>0 €</p>	<p>30,000 €</p>	
<p>5.2.3. Deliver successfully the main institutional meetings of MAP (Bureau, MAP Focal Point, EcAp Coordination Group and Thematic/Components Focal Points). (in-house expertise, conference services, venue, travel arrangements)</p>	<p>a) The 92nd, 93rd and 94th Meetings of the Bureau as well as a Bureau meeting on the eve of COP 23 successfully held. b) Progress of implementation of the MAP PoW 2022-2023 reviewed on a 6-monthly basis. c) Guidance provided to the Secretariat and the Contracting Parties on specific issues. d) Main directions of the new PoW 2024-2025 defined.</p>	<p>CU</p>	<p>All MAP Components</p>	<p>UNEP, MEA, IMO and all REMPEC's Partners, Host country authorities, MAP Partners, SPA/RAC partner organizations (observers)</p>	<p>COP 15 Decision IG.17/5 - Governance paper COP 16 Decision IG.19/5 - Mandates of the Components of MAP COP 19 Decision IG.22/17 - Reform of the Mediterranean Commission on Sustainable Development (MCSD) and Updated MCSD Constitutive Documents COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 18 Decision IG.21/15 - Financial Regulations and Rules and Procedures for the Contracting Parties, its subsidiary bodies and the Secretariat of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean</p>	<p>All SDG 14 targets , 17.14</p>	<p>67,000 €</p>	<p>33,000 €</p>	<p>100,000 €</p>	<p>0 €</p>	<p>0 €</p>	
<p>e) Meeting of the MAP Focal Points preceded by the MAP Component/Thematic Focal Points and back-to-back with the EcAp Coordination Group Meetings.</p>	<p>CU</p>	<p>0 €</p>					<p>120,000 €</p>	<p>120,000 €</p>				
<p>f) Progress on POW implementation reviewed; EcAp Roadmap Implementation and other related COP decisions implementation reviewed.</p>	<p>MED POL</p>	<p>0 €</p>					<p>50,000 €</p>	<p>50,000 €</p>				
<p>g) Draft decisions to COP 23 reviewed and negotiated, PoW and Budget reviewed, etc.</p>	<p>REMPEC</p>	<p>0 €</p>					<p>63,000 €</p>	<p>63,000 €</p>				
<p>h) Technical products of MAP components reviewed by the Components Focal Points meetings.</p>	<p>SPA/RAC</p>	<p>10,000 €</p>					<p>55,000 €</p>	<p>65,000 €</p>				
<p>i) Integrated sessions organised based on thematic approach.</p>	<p>PAP/RAC</p>	<p>0 €</p>					<p>40,000 €</p>	<p>40,000 €</p>				
<p></p>	<p>Plan Bleu</p>	<p>0 €</p>					<p>40,000 €</p>	<p>40,000 €</p>				
<p></p>	<p>INFO/RAC</p>	<p>0 €</p>					<p>35,000 €</p>	<p>35,000 €</p>				
<p></p>	<p>SCP/RAC</p>	<p>0 €</p>					<p>15,000 €</p>	<p>15,000 €</p>				
<p>5.2.4. Organize Compliance Committee Meetings (in-house expertise, conference services, travel arrangements)</p>	<p>a) 2 Compliance Committee Meetings successfully convened; Non-compliance situations addressed and brought to the attention of COP 23.</p>	<p>CU, Compliance Committee</p>	<p>MEDPOL, RACS</p>	<p>Compliance Committees under relevant MEA</p>	<p>COP 15 Decision IG.17/5 - Governance paper COP 18 Decision IG.21/1 - Compliance Committee including renewal of members, the modification of the rules of procedure and the Programme of</p>	<p>All SDG 14 targets; 16.3; 17.14; to a lesser extent SDGs 6, 12, 13</p>	<p>65,000 €</p>	<p>50,000 €</p>	<p>115,000 €</p>			
<p>b) Interactions and possible joint sessions with Compliance Committees of other MEAs held.</p>												

	c) Compliance Procedures and Mechanisms further developed with additional elements to maximize their effective use and impacts.				Work of the Compliance Committee							
5.2.5. Strengthen the MAP result-based programmatic framework including gender mainstreaming and sustainability of operations (in-house expertise, consultancy, MAP Task Force meetings, regional and international meetings)	a) Methodology/ tool for the monitoring and evaluation of MTS and POW indicators and targets developed; Integration of/links with other sets of MAP indicators and targets assessed.	CU	All MAP Components	GRID, HELCOM, OSPAR	COP 15 Decision IG.17/5 - Governance paper COP 16 Decision IG.19/5 - Mandates of the Components of MAP COP 21 Decision IG.24/2 - Governance	All SDG 14 targets, 17.14	97,000 €	90,000 €	187,000 €	1,880,000 €	13,000 €	External secured funds for project management (285,000 USD IMAP MPA, 224,000 USD ML MED II, 307,000 ECAP MED III, 1,473,000 USD MedProgramme)
	b) Resource Mobilisation Strategy updated; New project concept notes developed.		All MAP Components	GRID, HELCOM, OSPAR								
	c) Externally funded projects executed effectively and in coordination with PoW.		All MAP Components	GEF, EC, EIB, EBRD, UNESCO-IHP, GWP-Med, WWF Mediterranean, IUCN-Med, FAO, GFCM								
	d) Sustainable practices ensured in MAP operations and meetings/events (paperless meetings, CO2 calculation etc.); Internal Task Forces at the Coordinating Unit and each MAP Component operational and/or team meetings conducted; Staff capacities enhanced.		All MAP Components	MEAs, UN Agencies, Academia, NGOs								
	e) Gender mainstreaming activities of the MedProgramme (TDA, wastewater sector in specific countries; ensure awareness-raising campaigns on Women in Coastal Management; ensure gender is integrated in the nexus approach), and ECAP MED III, ML MED II and IMAP/MPA.		All MAP Components	EIB, EBRD, UNESCO-IHP, GWP-Med, IUCN-Med, WWF-Med								
	f) Regional policy-makers meetings and donor conferences targeting the Post-2020 SAPBIO and Post-2020 Regional Strategy for MPAs and OECMs in the Mediterranean organized.	SPA/RAC	CU, PAP/RAC, REMPEC, Plan Bleu	Global and regional relevant actors (i.e., SCBD, FAO GFCM, UNFCCC, IUCN, IMO, UN-Oceans, UNESCO-IOC, IPBS, etc.) and relevant international and regional multilateral and bilateral donors including private foundations								
5.2.6. Develop Public Trust Approach (PTA) application to the Barcelona Convention and MAP policies (in house expertise, regional expert workshop, publication)	a) Develop a MAP Agenda for applicability of the PTA to the sustainability governance of the UNEP/MAP-BC system. b) Report for consideration by the MCS D and Compliance Committee published.	CU	TBC	MEPIELAN Centre/Panteion University, MIO-ECSDE, MCS D, Compliance Committee, MAP Partners	COP 15 Decision IG.17/5 - Governance paper COP 18 Decision IG.21/1 - Compliance Committee including renewal of members, the modification of the rules of procedure and the Programme of	All SDG 14 targets ; 17.14	0 €	0 €	0 €	0 €	40,000 €	

					Work of the Compliance Committee COP 19 Decision IG.22/17 - Reform of the Mediterranean Commission on Sustainable Development (MCSD) and Updated MCSD Constitutive Documents							
5.2.7. Organize SAP BIO correspondent meetings (in-house expertise, regional meetings)	a) Two meeting reports of the SAP BIO National Correspondents (one presentational meeting in 2022; one virtual meeting in 2023).	SPA/RAC	All MAP Components	CPs (SPA/BD FPs, SAPBIO Correspondents)	COP 15 Decision IG.17/5 - Governance paper COP 16 Decision IG.19/5 - Mandates of the Components of MAP COP 21 Decision IG24/07 - Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAP BIO, the Strategy on Monk Seal, and the Action Plans concerning Marine Turtles, Cartilaginous Fishes and Marine Vegetation; Classification of Benthic Marine Habitat Types for the Mediterranean Region, and Reference List of Marine and Coastal Habitat Types in the Mediterranean COP 21 Decision IG.24/2 - Governance	14.2; 14.5; 17.14	25,000 €	0 €	25,000 €			
5.2.8. Establish and enhance Inter-Ministerial Coordination (IMC) frameworks at national level (in-house expertise, country missions, national assistance)	a) IMAP steering committees established and operational in several Contracting Parties.	CU	MAP Components	Participating CPs and their relevant authorities and institutions	COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management	All SDG 14 targets; 17.14	0 €	0 €	0 €	0 €	0 €	
	b) IMC for ICZM established and functional in four CPs (BH, Egypt, Lebanon and Tunisia).	PAP/RAC	CU	CPs, GWP Med, IHP-UNESCO		All SDG 14 targets; 17.14	0 €	0 €	0 €	40,000 €	0 €	MedProgramme
Outcome 5.3. Policy coherence and complementarity ensured among relevant work at global, regional and national levels and among MAP-Barcelona Convention system's policy and regulatory instruments								3,000 €	7,000 €	10,000 €	0 €	80,000 €
5.3.1. Strengthen further and sustain the Simplified Peer Review Mechanism (SIMPEER) (in-house expertise, consultancy, workshops, side events, publication)	a) Peer review process extended to 2 to 3 CPs. b) Updated SIMPEER methodology, based on lessons learned from previous exercises, in cooperation with relevant global processes and organizations (OECD, UNECE, HLPF); publication and side events delivered.	Plan Bleu	CU	UNDESA - HPLF, OECD, UNECA, UNECE, UNESCWA, EPLO MCSD members and MAP Partners	COP 21 Decision IG.24/3 - Implementation, Monitoring and Mid-Term Evaluation of the Mediterranean Strategy for Sustainable Development 2016–2025 and of the Regional Action Plan on Sustainable	crosscutting especially on SDGs 2, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17	0 €	0 €	0 €	0 €	70,000 €	

					Consumption and Production in the Mediterranean								
5.3.2. Maximize synergies with Post 2020 Global agenda for the implementation of SAP BIO (in-house expertise, working sessions with partner institutions, regional meetings and donor conferences)	a) Effective working exchanges with Global institutions of relevance for the implementation of Post 2020 SAPBIO actions linked to their prerogatives ensured. b) Reports of working sessions celebrated with each relevant institution; list of agreed bilaterally coordinated actions with draft timelines.	SPA/RAC	CU, PAP/RAC, REMPEC, Plan Bleu	Relevant CPs, SCBD, FAO GFCM, UNFCCC, IUCN, IMO, UN-Oceans, UNESCO-IOC, IPBS	Possible COP 22 Decision on Post 2020 SAP BIO	14.2; 14.5; 17.14	3,000 €	7,000 €	10,000 €		10,000 €		
5.3.3. Strengthen cooperation for joint reporting under the BC and its Protocols (in-house expertise, national trainings, twinings)	a) Mechanisms for promoting mutual supportiveness with other relevant international instruments when it comes to reporting developed. b) Support for reporting provided at national level (e.g. e-reporting modules, twinning approach).	CU	RACs, MEDPOL	MEAs	COP 15 Decision IG.17/5 - Governance paper COP 20 Decision IG.23/1 - Revised reporting format for the implementation of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols	All SDG 14 targets; 17.14	0 €	0 €	0 €	0 €	0 €		
Outcome 5.4. Enhanced partnerships and multi-stakeholder engagement, including with the private sector and science policy interface								88,000 €	28,000 €	116,000 €	40,000 €	40,000 €	
5.4.1. Promote dialogue and enhanced engagement of global and regional organizations and partners (in-house expertise, partnerships, bilateral cooperation, private sector engagement)	a) Leading role of MAP further defined and strengthened in existing and new areas. b) New areas of cooperation identified and added to existing bilateral cooperation agendas: Focus GFCM, UfM, Biodiversity related organisations, Marine Litter. c) Cooperation with new partner institutions, including from private sector, initiated.	CU	RACs, MEDPOL	International and regional organizations, private sector/donors, UNEP, MEAs, CPs	COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership	17,17	0 €	0 €	0 €	3,000 €	0 €	Marine Litter Med II (3,400 USD)	
5.4.2. Strengthen participation and contribution of civil society and private sector to the work of MAP BC system (in-house expertise, support attendance in MAP meetings, round tables)	a) MAP Policy on Partnerships updated including an Engagement mechanism/strategy for Civil Society Organisations. b) New MAP Partners added and existing MAP Partners renewed; Enhanced engagement of MAP Partners in policy development and implementation.	CU	RACs, MEDPOL	MAP Partners, NGOs, CPs	COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership	17,17	18,000 €	5,000 €	23,000 €	0 €	0 €		

	c) Annual round table discussions held (back-to-back with other meetings).												
	d) Comprehensive plan of actions implemented, including the resource mobilization strategy for the effective and sustainable delivery of the Mediterranean Offshore Action Plan (2016-2024)	CU, REMPEC	-										
5.4.3. Strengthen SPI networks and enhance partnership with scientific institutions to support MAP Barcelona Convention system (in-house expertise, consultancy, pilot action(s), national thematic events/workshops)	a) MedECC institutional set-up reviewed including ToRs for the Steering Committee; governance framework agreed including Plan Bleu functioning as the host of MedECC Secretariat.	Plan Bleu	CU	MedECC, UfM	COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 20 Decision IG.23/6 - 2017 Mediterranean Quality Status Report COP 21 Decision IG.24/4 - Assessment Studies	17,17		0 €	37,000 €			EcAp Med III (45,500 USD)	
	b) National thematic IMAP SPI networks/hubs established in two countries.	Plan Bleu, CU	All MAP Components, IMAP Task Force				15,000 €	15,000 €		25,000 €	15000 from EcapMedIII		
	c) Partnership Agreement signed with scientific Institutions to support integrated assessment of GES. d) SPI platform set up to support IMAP implementation at national and regional levels.	CU	All MAP Components, IMAP Task Force	Scientific institutions; UNESCO; IOC; CNR							0 €		
	e) Joint Work Plan 2022-2027 between EEA and UNEP/MAP implemented (main areas of cooperation: Building strengthened knowledge base; Responding to political priorities; Supporting digital transformation; Ensuring coordinated networking, communication and stakeholder interaction).		INFO/RAC, MED POL, Plan Bleu, PAP/RAC	EEA, EIONET, ETC, H2020, DG NEAR									
5.4.4. Promote the title of Partner to Regional Action Plan for the conservation of threatened species and marine key habitats "Regional Action Plans Partners" (in-house expertise, consultancy)	a) Conditions and criteria for the award of the Regional Action Plans Partners titles developed.b) The Mediterranean MPA Forum process and the Post-2020 Mediterranean MPA Forum Roadmap followed up.	SPA/RAC	CU, relevant RACs	RAPs Partners, MedPAN, SPA/RAC Partners	COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership	14.2; 14.5; 17.17	5,000 €	5,000 €	10,000 €				
5.4.5. Implement the targeted actions of the Mediterranean Strategy for Prevention of and Response to Marine Pollution from Ships (2022-2031) (in-house expertise,	a) Up to six (6) National Action Plans for the implementation of the Mediterranean Strategy (2022-2031) developed, considering pollution, biodiversity and NIS, and climate change related aspects.	REMPEC	CU	IMO, EMSA, UfM, WestMed Initiative	Possible COP 22 Decision on Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships	SDGs 3, 4, 5, 7, 9, 12, 13, 14, 17, Especially; 12.4; 14.1	50,000 €	18,000 €	68,000 €		15,000 €		

<p>consultancy, national assistance, regional meeting)</p>	<p>b) Biennial review of the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031) undertaken.</p> <p>c) Thematic meeting of REMPEC FP held in the first year of the biennium for this purpose.</p> <p>d) Recommendations on the way forward elaborated.</p>	<p>CU</p>	<p>IMO, EMSA, UfM, WestMed Initiative</p>	<p>(2022-2031) and its Action</p>								
<p>Outcome 5.5. Coordinated approaches implemented to strengthen public institution capacities for the implementation of the Barcelona Convention and its Protocols</p>							<p>37,000 €</p>	<p>27,000 €</p>	<p>64,000 €</p>	<p>50,000 €</p>	<p>62,000 €</p>	
<p>5.5.1. Strengthening national governance frameworks for the BC and its Protocols (in-house expertise, partnerships)</p>	<p>a) Short courses designed and organized linked to the implementation and enforcement of the BC and its Protocols in universities and other academic institutions.</p>	<p>CU</p>	<p>MEDPOL, RACs</p>	<p>MEAS, UNEP, Academic institutions, InforMea</p>	<p>COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership</p>	<p>All SDG 14 targets; 17.14</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>		<p>22,000 €</p>	
<p>5.5.2. Development of funding proposals to support Parties' institutions on initial implementation of Post-2020 SAPBIO (in-house expertise, consultancy, conference, project proposals)</p>	<p>a) 4+ years Project concepts and full proposals of regional/ subregional level for key priority strategic actions of Post-2020 SAPBIO.</p> <p>b) Mediterranean biodiversity funding conference involving public and private donors with policy makers organized.</p> <p>c) External funds secured to support the implementation of at least 2-3 key regional priorities of Post-2020 SAPBIO.</p>	<p>SPA/RAC</p>	<p>CU /Other RACs as per thematic</p>	<p>Public and private donors, SCBD, FAO</p>	<p>COP 20 Decision IG.23/5: Updated Resource Mobilization Strategy COP 20 Decision IG.23/9 - Identification and Conservation of Sites of Particular Ecological Interest in the Mediterranean, including Specially Protected Areas of Mediterranean Importance COP 21 Decision IG24/07 - Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAP BIO, the Strategy on Monk Seal, and the Action Plans concerning Marine Turtles, Cartilaginous Fishes and Marine Vegetation; Classification of Benthic Marine Habitat Types for the Mediterranean Region, and Reference List of Marine and Coastal Habitat Types in the Mediterranean Possible COP 22 Decision on Post 2020 SAP BIO</p>	<p>14.2; 14.5; 17.14</p>	<p>20,000 €</p>	<p>20,000 €</p>	<p>40,000 €</p>		<p>40,000 €</p>	<p>b- MAVA foundation under negotiation</p>

5.5.3. Undertake capacity building on ICZM, MSP and CC (in-house expertise, consultancy, sub-regional trainings)	a) Training materials updated for the English and French edition of the MedOpen virtual training course.	PAP/RAC		CPs and their academic institutions	All SDG 14 targets; 17.14	17,000 €	7,000 €	24,000 €	50,000 €	0 €	MedProgramme
	b) Two runs of MedOpen Advanced organized.			CPs, IOC-UNESCO							MedProgramme
	c) Three sub-regional face-to-face trainings organized in support of the ICZM Protocol implementation.										
TOTAL						<u>539,000 €</u>	<u>1,078,000 €</u>	<u>1,617,000 €</u>	<u>2,155,000 €</u>	<u>440,000 €</u>	

	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	
MTS Programme 5						
CU	324,000 €	696,000 €	1,020,000 €	1,883,000 €	210,000 €	
MED POL	0 €	50,000 €	50,000 €	0 €	0 €	
REMPEC	70,000 €	88,000 €	158,000 €	0 €	15,000 €	
Plan Bleu	35,000 €	45,000 €	80,000 €	62,000 €	95,000 €	
SPA/RAC	88,000 €	97,000 €	185,000 €	6,000 €	90,000 €	
PAP/RAC	17,000 €	47,000 €	64,000 €	200,000 €	0 €	
INFO/RAC	5,000 €	40,000 €	45,000 €	4,000 €	30,000 €	
SCP/RAC	0 €	15,000 €	15,000 €	0 €	0 €	
TOTAL	<u>539,000 €</u>	<u>1,078,000 €</u>	<u>1,617,000 €</u>	<u>2,155,000 €</u>	<u>440,000 €</u>	

Outcomes	539,000 €	1,078,000 €	1,617,000 €	2,155,000 €	440,000 €	
Outputs	539,000 €	1,078,000 €	1,617,000 €	2,155,000 €	440,000 €	

MTS Programme 6: Towards Monitoring, Assessment, Knowledge and Vision of the Mediterranean Sea and Coast for Informed Decision-Making												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 6.1. Inclusive and participatory foresight activities conducted at regional and national and local levels, with associated capacity-building							55,000 €	35,000 €	90,000 €	737,000 €	20,000 €	
6.1.1. Support transition towards a Sustainable and Inclusive Future in the Mediterranean at 2050 – Building Back Better using strategic participatory foresight (in-house expertise, consultancy, publication, toolbox, national technical support, pilots(s))	a) MED2050 Modules on scenarios and transition pathways; Med2050 synthesis report finalized, published and disseminated; Outreach with CPs regarding the Med2050 findings and their impact on MSSD priorities.	Plan Bleu	CU, all MAP components	EEA; IUCN; WWF; Université of Aix-Marseille, Bari and of Naples; Université Polytechnique Mohamed VI, Ecole Polytechnique d'Architecture et d'Urbanisme d'Alger, MedECC.	COP 21 Decision IG.24/4 - Assessment Studies	crosscutting especially on SDGs 2, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17	55,000 €	35,000 €	90,000 €	40,000 €	20,000 €	
	b) Elaboration of a Med2050 toolbox, including best practices, in support of decision-making; MED 2050 dissemination at national / subnational / watershed levels: pilot(s) ; in relations with national / local ISP.		CU	Région Sud, MTES, ABH Moulouya (Morocco)								Région Sud, AFD, Fondation de France
	c) Partnership building through a network of Mediterranean foresight institutes on the basis of MED 2050, and follow-up work.		CU									
	d) One Contracting Party supported for "future-proofing" assessment of national policies (2023).		CU	1 Contracting Party on a volunteer basis								
6.1.2. Prepare the Transboundary diagnostic analysis for the Mediterranean Sea (in-house expertise, consultancy)	a) Methodology of the Transboundary diagnostic analysis elaborated; priority transboundary problems identified for the Mediterranean Sea; socio-economic characteristics assessed.	CU, MED POL	CU, IMAP Task Force (including SPA/RAC, Plan Bleu, INFO/RAC)	National IMAP competent laboratories / authorities; relevant national and international scientific institutions; EU MSFD technical bodies;	COP 10 UNEP(OCA)/MED IG.11/10 Strategic action programme to address pollution from Land-based activities (SAP)	14.a			0 €	697,000 €		MedProgramme: Child Project 1.1. (850,000 USD)
Outcome 6.2. Science-based IMAP, foresight and other assessments and assessment tools for strengthened science-policy interface and decision making							173,000 €	175,000 €	348,000 €	1,240,469 €	130,000 €	

<p>6.2.1. Strengthen the implementation of national IMAP-based monitoring programmes for all clusters and deliver quality assured data</p> <p>(in-house expertise, consultancy, IMAP TF, national assistance and trainings)</p>	<p>a) Technical and financial support provided to support coast and hydrography cluster of IMAP for at least 7 countries for CI 16 including provision of related quality of data, as well as their reporting using the IMAP Info System.</p> <p>b) National assessment fact sheets developed for selected indicators.</p> <p>c) Methodology developed and baseline assessment conducted for CI 15.</p>	PAP/RAC	CU, IMAP Task Force	National IMAP competent laboratories/authorities; relevant national and international scientific institutions; EU MSFD technical bodies;	<p>COP 15 Decision IG.17/6 - Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment</p> <p>COP 17 Decision IG.20/4 - Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap</p> <p>COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets</p> <p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria</p> <p>COP 21 Decision IG.24/4 - Assessment Studies</p>	14.1 ; 14.a	30,000 €	0 €	30,000 €	48,000 €	0 €	ECAP MED III (58,000 USD)
	<p>d) Technical and financial support provided to support pollution and litter cluster of IMAP to at least 7 countries to ensure delivery of quality assured data, as well as their reporting using the IMAP Info System.</p>	MED POL					30,000 €	20,000 €	50,000 €	260,000 €	0 €	ECAP MED III, IMAP-MPA, ML MED II (317,000 USD)
	<p>e) Technical and financial support provided for undertaking specific joint biodiversity and pollution monitoring programmes in MPAs and in high pressure areas, including provision of related quality of data, as well as respective national reporting using the IMAP Info System. National assessment fact sheets developed for selected indicators.</p>	SPA/RAC					5,000 €	5,000 €	10,000 €	403,000 €	60,000 €	ECAP MED III, IMAP-MPA, ML MED II (492,391 USD)
	<p>f) Joint Monitoring and Assessment programme on Non-Indigenous Species (NIS) implemented at national and sub-regional level and reporting of results through IMAP Info System; Baseline national, sub regional and regional assessment for NIS supported, National assessment fact sheets developed for selected indicators.</p>											
<p>6.2.2. Upgrade the assessment component of IMAP including possible integrated assessment for all IMAP clusters: Focus on assessment criteria and thresholds (CI 1, 2, 6, 13, 14, 16, 17, 21, 22, 23, CCI 25)(in-house expertise, consultancy, IMAP TF, CORMONs)</p>	<p>a) Assessment criteria defined and discussed by CORMONs Biodiversity for a number of Common Indicators, including pelagic habitats.b) Assessment scales defined for a number of Common Indicators, including pelagic habitats.c) Baseline sub-regional assessments undertaken for NIS.</p>	SPA/RAC	IMAP Task Force, Plan Bleu, INFO/RAC	National IMAP competent laboratories/authorities; relevant national and international scientific institutions; EU MSFD technical bodies;	<p>COP 15 Decision IG.17/6 - Implementation of the ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal</p>	14.1; 14.a	5,000 €	5,000 €	10,000 €	101,000 €		ECAP MED III, IMAP-MPA, ML MED II (123,789 USD)

	<p>d) Assessment criteria for CI 16 defined and submitted to CORMON Coast and Hydrography.</p> <p>e) Assessment scales defined for a number of Common Indicators.</p> <p>f) Methodology and Baseline sub regional assessment for CI 16 and CCI 25.</p>	PAP/RAC			environment COP 17 Decision IG.20/4 - Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies			0 €	57,000 €		ECAP MED III	
	<p>g) Updated/new scales of monitoring and assessment proposed for mandatory Common Indicators as applicable (EO 5.9, 10).</p> <p>h) GIS atlas prepared for scales of monitoring and scales of assessment to be integrated into IMAP Info System.</p> <p>i) IMAP methodology on integrated assessments adjusted and further developed.</p> <p>j) Proposals to upgrade IMAP discussed by CORMONs Pollution and Litter and ECAP CG meeting.</p> <p>k) Further progress on assessment criteria and thresholds for IMAP Common Indicators 13, 14, 17, 18, 22 and 23, if possible also at sub-regional level, based on data availability.</p>	MED POL	INFO/RAC	ONEDD, EEAA, IOLR, CNRS, EGA, MMEMWE, APAL, GEF		14.2 ; 14.a	50,000 €	50,000 €	100,000 €	38,000 €	30,000 €	ECAP MED III (47,000 USD)
	<p>l) Proposal developed on integrated assessment scales as appropriate across clusters.</p>	CU	IMAP Task Force	EU MSFD,EEA, OSPAR, UNEP Regional Seas		14.2 ; 14.a	0 €	0 €	0 €			
<p>6.2.3. Further develop IMAP Common Indicators (in-house expertise, consultancy, IMAP TF, CORMONs)</p>	<p>a) Status of Candidate Common Indicators evaluated for possible inclusion as Mandatory Common Indicators.</p>	CU	IMAP Task Force		<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies</p>	<p>14.1.; 14.2; 14.a</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>20,000 €</p>		<p>MedProgramme Child Project 2.1</p>
	<p>b) Offshore Monitoring strategy for IMAP and Offshore Indicators developed.</p>	CU	IMAP Task Force, REMPEC									
	<p>c) Common Indicators for EO 4 and EO 6 developed.</p>	CU, SPA/RAC	IMAP Task Force	GFCM								
	<p>d) Updated IMAP Guidance Fact Sheets for a number of Common Indicators including 13, 14, 17, 18, 20, 21, 22 and 23 developed.</p>	CU	IMAP Task Force									
	<p>e) Updated methodology related to CCI 25 tested in seven GEF eligible countries (Albania, Algeria, Egypt, Lebanon, Libya, Morocco, Tunisia)</p>	CU, PAP/RAC	IMAP Task Force	EEA								
<p>6.2.4. Deliver 2023 MED Quality Status Report (QSR)(in house expertise, thematic assessments, consultations with partners, GIS maps, IMAP TF,</p>	<p>a) Thematic assessments for Ecological Objectives 1,2,3,4, 6 contributing to 2023 MED QSR whilst progressing towards integration with other Ecological Objectives as appropriate, CORMON Meeting.</p>	SPA/RAC, CORMON Biodiversity	CU, SPA/RAC, PAP/RAC, IMAP Task Force	UNEP-GRID, UNIGE, EEA, ACCobams, MED Region, ICES, JRC, etc		14.1 ; 14.a	10,000 €	10,000 €	20,000 €	92,000 €		ECAP MED III (51,000 USD),ABIOMED

CORMONs)	b) Thematic assessments for Ecological Objectives 5, 9 and 10 contributing to 2023 MED QSR whilst progressing towards integration among these 3 EOs and as appropriate with other Ecological Objectives 1, 7 and 8 of IMAP Biodiversity, Coast and Hydrography Cluster, as appropriate and feasible; CORMON Meeting held annually.	MED POL, CORMON Pollution and Litter			human activities that may affect the Mediterranean marine and coastal environment COP 17 Decision IG.20/4 - Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies		25,000 €	25,000 €	50,000 €	164,000 €	10,000 €	EcAp MED III, IMAP MPA, Marine Litter MED II (200,000 USD)
	c) Thematic assessments for Ecological Objectives 5, 9 and 10 contributing to 2023 MED QSR whilst progressing towards integration among these 3 EOs and as appropriate with other Ecological Objectives 1, 7 and 8 of IMAP Biodiversity, Coast and Hydrography Cluster, as appropriate and feasible; CORMON Meeting held annually.	PAP/RAC, CORMON Coast and Hydrography					0 €	20,000 €	20,000 €	30,000 €		EcAp MED III (36,000 USD)
	d) Integrated MED 2023 QSR report including Recommendations delivered through an inclusive process including collaboration with scientific community and main partners; annual consultation with key partners held, the final reports submitted to ECAP CG meeting, MAP FP meeting and COP 23.	CU, Integrated CORMONs					0 €	0 €	0 €			
	e) Elaboration and spatial data analysis of monitoring data aggregated by MAP components for the purposes of 2023 MED QSR.		CU, MAP Components	UNEP-GRID, UNIGE								
	f) Dissemination of 2023 MED QSR products on monitoring and assessment elaborated by MAP Components through the production of web-Story Maps integrated with web-GIS maps, graphics diagrams for data analysis (pie and bar charts), multimedia contents, to enhance the fruition of Barcelona Convention achievements.	INFO/RAC										
			CU	UNEP-GRID, UNIGE		All SDG 14 targets	0 €	20,000 €	20,000 €	0 €	30,000 €	European Commission - ABIOMMED
6.2.5. Enhance use of socioeconomic analysis and linked tools in the UNEP/MAP system (in-house expertise, consultancy, national technical assistance)	a) Framework developed to ensure an effective, strategic streamlined use of socioeconomic analysis and linked tools in the UNEP/MAP (2022-2027).		CU and all RACs	OECD, WG POMESA								
	b) CPs supported in conducting socio-economic assessment of measures aimed at achieving GES.	Plan Bleu	SPA/RAC	ABIOMMED consortium led by HCMR, European Commission			3,000 €	15,000 €	18,000 €	12,469 €	0 €	

					COP 21 Decision IG.24/4 - Assessment Studies							
6.2.6. Follow-up on MSSD dashboard and SCP indicators (in-house expertise, consultancy)	a) MSSD dashboard updated.	Plan Bleu	CU	FAO, GFCM, IUCN, OECD, UNESCO, UNICEF, UNEP-GRID	COP 20 Decision IG.23/4: Implementation and monitoring of the Mediterranean Strategy for Sustainable Development 2016–2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean	crosscutting	10,000 €	5,000 €	15,000 €	15,000 €	0 €	
	b) Database of SCP indicators updated in coordination with Plan Bleu Observatory.	SCP/RAC	Plan Bleu				5,000 €	0 €	5,000 €	0 €	0 €	
6.2.7. Analyse COVID-19 impacts using One Health approach on environment and development in the Mediterranean	a) Publication issued (2023), using available international statistics covering at least the year 2020.	Plan Bleu	CU		LBS Protocol, MSSD, SAP MED	14.a	0 €	0 €	0 €	0 €	0 €	
Outcome 6.3. IMAP implementation and Environment and Development Observation provide updated and quality assured data in support of decision-making by Contracting Parties and assessment of GES.								173,000 €	192,000 €	365,000 €	173,000 €	432,000 €
6.3.1. Strengthen national capacities to apply harmonized and standardized monitoring and assessment practices related to pollution and marine litter in line with IMAP (in-house expertise, consultancy, field survey, national laboratories, training, IMAP TF)	a) National MED POL/ IMAP laboratories supported to apply good laboratory practices for monitoring of contaminants in biota and sediment, as well as for biomarkers if feasible, through organization of the proficiency tests (PT) and related Training Courses.	MED POL	CU, IMAP Task Force	IAEA;National IMAP competent authorities; Scientific institutions; bodiesEU MSFD;	COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies	14.a	80,000 €	80,000 €	160,000 €	0 €	0 €	
	b) Proposal prepared for inter-calibration proficiency testing and training courses for eutrophication (nutrients and chlorophyll-a) in seawater.											
6.3.2. Ensure InfoMap platform maintenance and evolution towards a fully integration of available databases and integrated data consultation (in-house expertise,	a) InfoMap technological infrastructure and InfoMap System modules upgraded and feasibility study on migration towards a cloud infrastructure hosting and providing services and applications in line with the digital transformation and optimization.	INFO/RAC	All MAP Components	N/A	COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean	Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15	6,000 €	7,000 €	13,000 €	0 €	15,000 €	

<p>consultancy, contractual services)</p>	<p>b) Vulnerabilities identified and systems configured to enhance existing security features to prevent cyber-attacks.</p>				<p>Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies</p>							
<p>6.3.3. Ensure effective operation of the BCRS on-line reporting system. (in-house expertise, national technical assistance and trainings, IT services)</p>	<p>a) Reporting system maintained, tuned and upgraded.</p>	<p>INFO/RAC</p>	<p>CU</p>	<p>N/A</p>	<p>COP 20 Decision IG.23/1 - Revised reporting format for the implementation of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols</p>	<p>Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15</p>	<p>6,000 €</p>	<p>7,000 €</p>	<p>13,000 €</p>	<p>0 €</p>	<p>15,000 €</p>	
<p>b) System management: profiles, users, access rights managed and updated.</p>												
<p>c) Component updated and modules for external data integration developed.</p>												
<p>d) Dedicated assistance and training for access and filling of BCRS reporting modules provided.</p>												
<p>6.3.4. Ensure effective operation of the NBB reporting system (in-house expertise, national technical assistance and trainings)</p>	<p>a) Reporting system maintained, tuned and upgraded.</p>	<p>INFO/RAC</p>			<p>LBS Protocol, SAP MED and updated NAPs</p>	<p>Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15</p>	<p>6,000 €</p>	<p>7,000 €</p>	<p>13,000 €</p>	<p>0 €</p>	<p>15,000 €</p>	
<p>b) System management: profiles, users, access rights managed and updated.</p>												
<p>c) Dedicated assistance and training for access and filling of NBB reporting modules.</p>												
<p>d) Relationship with the PRTR and EU Registry component implemented and assessment functions strengthened at regional, subregional, national and river basin scale.</p>	<p>MED POL</p>		<p>EEA</p>									
<p>6.3.5. Ensure Data Centre evolution towards a standardization of the management of the data flows(in-house expertise, national technical assistance and trainings)</p>	<p>a) Dataflows in the Data Centre implemented.</p>	<p>INFO/RAC</p>			<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy</p>	<p>Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15</p>	<p>6,000 €</p>	<p>7,000 €</p>	<p>13,000 €</p>	<p>0 €</p>	<p>15,000 €</p>	
<p>b) System management for Users Directory and Groupware performed and upgraded.</p>												
<p>c) Dedicated assistance and training for access and use of Groupware and consultation of Data Dictionaries and Data Repository.</p>	<p>CU, MAP Components</p>											
<p>d) MAP components and regional organizations supported to collect metadata and data in the Metadata Catalogue.</p>	<p>MAP Components</p>											

<p>6.3.6. Complete and maintain IMAP Info System with all IMAP Common Indicators fully implemented for the CPs to upload their monitoring data</p> <p>(in-house expertise, consultancy, national technical assistance, and trainings, IMAP TF)</p>	<p>a) IMAP Info System (hardware and software platform further developed and upgraded) expanded to include all mandatory IMAP CIs, fully operational enabling CPs to report their monitoring data in 2020, 2021, and 2022.</p> <p>b) Data Standards (DSs) and Data Dictionaries (DDs) developed for IMAP Common Indicators (all the remaining ones: part of them with the support of the EcAp MED III Project).</p> <p>c) Quality control on data formats and data coherence upgraded and developed for IMAP CIs (all the remaining: part of them with the support of the EcAp MED III Project).</p> <p>d) Dedicated assistance and support trainings to CPs to organize, upload, validate and release monitoring data in 2022 and 2023. Creating and sharing tutorials on the IMAP site to help CPs in workflow processes.</p> <p>e) Coordination and collaboration with relevant Regional Organization (i.e. Accobams, GFCM, etc.) in order to facilitate the dialogue between IMAP and their Infosystems and databases as appropriate.</p>	<p>INFO/RAC</p>	<p>EEA, MSFD WG DIKE</p> <p>MED POL, SPA/RAC, PAP/RAC</p> <p>MED POL, SPA/RAC, PAP/RAC</p> <p>MED POL, SPA/RAC, PAP/RAC</p> <p>CU</p>	<p>ACCOBAMS, GFCM, etc.</p>	<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance</p> <p>Possible COP 22 Decision on MAP General Data Policy</p>	<p>Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15</p>	<p>25,000 €</p>	<p>25,000 €</p>	<p>50,000 €</p>	<p>123,000 €</p>	<p>70,000 €</p>	<p>EcAp Med III (150,000 USD)</p>
<p>6.3.7. Ensure full implementation of the InfoMAP Spatial Data Infrastructure for the geographical data and maps (InfoMAPNode)</p> <p>(in-house expertise, consultancy, national technical assistance, and trainings, platforms)</p>	<p>a) InfoMAPNode maintained, tuned and upgraded. Reconnaissance, collection and implementation in the InfoMAPNode of the available information layers provided. Interoperability with CPs information systems strengthened.</p> <p>b) Dedicated assistance and support trainings to CPs to organize, upload and consult Spatial Data. Creation of user profiles and groups for InfoMAPNode ensured.</p> <p>c) Geoviewer for the visualization of georeferenced data developed and implemented.</p> <p>d) Basic and thematic layers collected, developed and visualized.</p> <p>e) Spatial data and metadata from Regional organisations integrated in the InfoMapNode platform.</p>	<p>INFO/RAC</p>	<p>MAP Components</p>	<p>ACCOBAMS, GFCM, etc.</p>	<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance</p> <p>Possible COP 22 Decision on MAP General Data Policy</p>	<p>Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15</p>	<p>6,000 €</p>	<p>7,000 €</p>	<p>13,000 €</p>	<p>0 €</p>	<p>2,000 €</p>	

6.3.8. Enhance the use INFO/RAC Cloud tools for document repository and collaboration platform (in-house expertise, consultancy, working group meetings)	a) System upgraded and maintained.	INFO/RAC			COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy	Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15	0 €	0 €	0 €	0 €	10,000 €	
	b) Creation and maintenance of on-line working groups.		MAP Components									
6.3.9. Ensure visualization of integrated data through a customized Dashboard (to be integrated in the Data Centre) (in-house expertise, consultancy)	a) Data Analytics dashboard fully implemented.	INFO/RAC			COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy	Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15	10,000 €	10,000 €	20,000 €	0 €	20,000 €	
	b) Elaboration of pre-compiled data products as aggregation and integration of data for different targets.		MAP Components									
6.3.10. Undertake Copernicus data analysis/integration of Copernicus Service to support indicator and data collection and ingestion (in-house expertise, consultancy)	a) Analysis of Copernicus Services products to promote fully exploitation for IMAP data collection.	INFO/RAC			COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy	Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15	0 €	0 €	0 €		30,000 €	
	b) Use of Copernicus Services products and integration in IMAP Contracting Parties' national programmes.		MAP Components									
6.3.11. Towards the Development of a Climate change adaptation platform (in-house expertise, consultancy, regional meeting)	a) State of play and feasibility study on the possible development of an overall access point to Climate Change adaptation including best practices, case studies, lessons learnt, models or tools for the Mediterranean Sea Region	INFO/RAC	CU, Plan Bleu, PAP/RAC	MedECC	COP 19 Decision IG.22/6 - Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas COP 21 Decision IG.24/4 - Assessment Studies	Crosscutting to all SDG 14 targets, especially 14.a but also 5, 6,8,9,12,13,15	0 €	0 €	0 €		40,000 €	
	b) Prototype Climate Change platform focusing on a "knowledge brokerage" system which provides access to selected and highly relevant scientific information in the Mediterranean Sea Region implemented		CU, Plan Bleu, PAP/RAC	MedECC								

<p>6.3.12. Develop monitoring protocols and guidelines (in-house expertise, consultancy)</p>	<p>a) Monitoring Guidance/Protocols prepared for IMAP CI23 (seafloor macro-litter, beach macro-litter; as well as for floating macro-litter, beach micro-litter, and seafloor micro-litter), as well as for Candidate Indicator 24, as feasible due to availability of relevant scientific inputs.</p>	<p>MED POL</p>			<p>COP 17 Decision IG.20/4 - Implementing MAP ecosystem approach roadmap: Mediterranean Ecological and Operational Objectives, Indicators and Timetable for implementing the ecosystem approach roadmap COP 18 Decision IG.21/3 - Ecosystems Approach including adopting definitions of Good Environmental Status (GES) and targets COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 18 Decision IG.21/7 - Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol</p>	<p>14.a</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>38,000 €</p>		<p>ML MED II (47,000 USD)</p>
<p>6.3.13. Expand and improve the monitoring and forecasting capacities in the marine environment through integrating networks of observing and forecasting systems (oceanographic observatories) across the Mediterranean Sea (in-house expertise, consultancy, trainings and working meetings)</p>	<p>a) Priority needs and actions agreed to strengthen reliable and cost-effective monitoring and GES assessment related to IMAP Pollution Cluster, including use of best available knowledge and technologies within science-policy interface, thereby also contributing to the Implementation Plan of UN Decade on Ocean Science.</p>		<p>MED POL</p>	<p>CU, SPA/RAC, PAP/RAC, IMAP Task Force</p>	<p>Scientific institutions; UNESCO; IOC; CNR</p>	<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies</p>	<p>14.1 ; 14.a</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>		<p>20,000 €</p>
	<p>b) Possible application of modeling and forecasting techniques and tools explored, as available and appropriate.</p>			<p>IMAP Task Force</p>			<p>14.2 ; 14.a</p>					

	c) Coordination, training and working meetings organized for interfacing oceanographic observatories exchange among Parties of respective countries with EU ILIAD Project Consortium through the UNEP/MAP system, to support an enhanced implementation of the IMAP through access to observatories' regular/real time data on ocean water parameters, NIS, litter including microplastic, spills, etc.	SPA/RAC	CU, INFO/RAC, other components as per parameter monitored	Consortium of Euromediterranean Partners of ODYSSEA Project follow up (56 partners)		14.2 ; 14.a			0 €		180,000 €	
6.3.14. Maintain Biodiversity databases as appropriate, regularly update databases content and elaborate operational strategy of marine biodiversity data management in line with the UNEP/MAP Data Management Policy (in-house expertise, consultancy, platform)	a) SDF web and SPA Directory web applications finalized and operational and linked to the Mediterranean biodiversity Platform.	SPA/RAC	CU, INFO/RAC, MED POL, SCP/RAC, PAP/RAC, Plan Bleu, REMPEC	Action Plans Partners, MedPAN network, MEDACES, ACCOBAMS, GFCM...	COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy	14.2 ; 14.a	10,000 €	10,000 €	20,000 €			MedProgramme
	b) MAPAMED and MAMIAS web applications maintained and fully operational within the Mediterranean Biodiversity Platform.											
	c) Data available online on the Mediterranean Biodiversity Platform and contributing to the 2023 MED QSR.											
	d) Operational Strategy for Data Management within SPA/RAC developed in line with the UNEP/MAP Data Management Policy.											
6.3.15. Strengthen the MSSD monitoring framework and a regional observatory on the environment and development (in-house expertise, consultancy, framework Agreement, partnership agreements)	a) Framework agreement with UNEP Science Division and / or UNEP-GRID signed.	Plan Bleu	CU, INFO-RAC, other RACs	UNEP-GRID, UNIGE	COP 20 Decision IG.23/4 - Implementation and monitoring of the Mediterranean Strategy for Sustainable Development 2016–2025 and of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy	crosscutting	18,000 €	12,000 €	30,000 €	12,000 €		External resources (activity supported partially by GEF MedProject 2.1 through activity entitled “development of conceptual framework for coastal observation”) (15,000 USD)
	b) MAP Environment & Development observatory worked out, based on up-to-date tools and technology on an open-access data-sharing platform.											
	c) 4 agreements with national or regional partners to give access to their data through the shared platform.											

<p>6.3.16. Support and strengthen existing national and subnational observation networks and capacities (in-house expertise, consultancy, national workshops)</p>	<p>a) Capacity-building conducted at national level through workshops, in line with the work done for the definition of national IMAP in the framework of the ecosystem approach (EcAp).</p>	<p>Plan Bleu</p>	<p>INFO/RAC</p>	<p>EEA, regional and national agencies</p>	<p>COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy</p>	<p>crosscutting</p>	<p>0 €</p>	<p>20,000 €</p>	<p>20,000 €</p>			
<p>6.3.17. Streamline shipping and offshore data-sharing and monitoring platform with Info-MAP Data management system (in-house expertise, consultancy, IMAP TF, awareness raising)</p>	<p>a) MEDGIS-MAR linked to Info-MAP Data management system.</p>	<p>REMPEC</p>	<p>INFO/RAC, CU</p>		<p>COP 19 Decision IG.22/3 - Mediterranean Offshore Action Plan in the framework of the Protocol for the Protection of the Mediterranean Sea against Pollution resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil COP 19 Decision IG.22/7 - Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MAP General Data Policy</p>	<p>14.a ; 9.5</p>		<p>0 €</p>				
<p>b) List of indicators reviewed; factsheets prepared and reviewed by the OFOG Meeting and CORMON Pollution.</p>												
<p>TOTAL</p>							<p><u>401,000 €</u></p>	<p><u>402,000 €</u></p>	<p><u>803,000 €</u></p>	<p><u>2,150,469 €</u></p>	<p><u>582,000 €</u></p>	

	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022- 2023	External non- secured Funding 2022-2023	
MTS Programme 6						
CU	0 €	0 €	0 €	717,000 €	0 €	
MED POL	185,000 €	175,000 €	360,000 €	500,000 €	60,000 €	
REMPEC	0 €	0 €	0 €	0 €	0 €	
Plan Bleu	86,000 €	87,000 €	173,000 €	79,469 €	20,000 €	
SPA/RAC	30,000 €	30,000 €	60,000 €	596,000 €	240,000 €	
PAP/RAC	30,000 €	20,000 €	50,000 €	135,000 €	0 €	
INFO/RAC	65,000 €	90,000 €	155,000 €	123,000 €	262,000 €	
SCP/RAC	5,000 €	0 €	5,000 €	0 €	0 €	
TOTAL	<u>401,000 €</u>	<u>402,000 €</u>	<u>803,000 €</u>	<u>2,150,469 €</u>	<u>582,000 €</u>	

Outcomes	401,000 €	402,000 €	803,000 €	2,150,469 €	582,000 €	
Outputs	401,000 €	402,000 €	803,000 €	2,150,469 €	582,000 €	

MTS Programme 7: For informed and consistent advocacy, awareness, education and communication (Enabling Programme)												
Main activity (means of implementation)	Expected deliverable	Lead Component	Other Component(s)	Partners	Related COP Decisions	SDG Targets	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022-2023	External secured Funding 2022-2023	External non-secured Funding 2022-2023	Comments
Outcome 7.1. Stakeholders and policy makers properly informed about the state of the Mediterranean Sea and coast and aware of the environmental priority issues							54,000 €	54,000 €	108,000 €	688,100 €	149,000 €	
7.1.1. Disseminate knowledge of the state of the Mediterranean Sea and Coast (in-house expertise, Communication TF, media)	a) MED QSR 2023 communication toolkit as part of a system-wide communication plan that would include media engagement and outreach activities.	CU	INFO/RAC,	UNEP GRID	COP 21 Decision IG.24/4 - Assessment Studies COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on MED QSR 2023: Approach and Communication	14,a	0 €	0 €	0 €	6,500 €	10,000 €	ECAP MED III (8,000 USD)
	b) Communication material and events organized to enhance knowledge and disseminate information on Plan Bleu assessment findings, i.e, SoED or Med2050 messages (at least 24 web articles per year, 2 webinars/events for the general public per year, at least 5 publications per year, communication material such as a calendar).	Plan Bleu, SCP/RAC					10,000 €	10,000 €	20,000 €			
7.1.2. Upgrade and Implement MAP Communication Strategy (in-house expertise, Communication TF)	a) MAP Communication Strategy document updated for the period 2024-2029.	INFO/RAC, CU	MAP Components		COP 21 Decision IG.24/2 - Governance	crosscutting especially SDG 14 Targets	0 €	10,000 €	10,000 €		20,000 €	
	b) MAP Operational Communication Strategy document updated for the biennium 2024-2025.											
	c) UNEP/MAP Website updated regularly; new content created.											
	d) MED News - The MAP Newsletters (periodic publication quarterly released).			CU,MAP Components								
7.1.3. Develop and Implement COP 23 Communication Plan (in-house expertise, external expertise, Communication TF, COP Host Country Agreement, publication, side event)	a) Short video capturing the main results achieved during the biennium (to be screened during COP 23).	INFO/RAC	CU,MAP Components		COP 21 Decision IG.24/2 - Governance	crosscutting especially SDG 14 Targets	0 €	15,000 €	15,000 €		25,000 €	
	b) Special issue of the MAP Newsletter capturing the main achievements of the biennium.											
	c) COP23 website in close cooperation with the host Country.											
	d) COP23 Communication Pavilion in close cooperation with the host Country.											
	e) Communicative booklet highlighting the main results achieved in the current biennium											
	f) Communicative booklet focusing on the key topic of the biennium.											
7.1.4. Towards a MAP Knowledge Management Strategy: develop the Regional Sea KM Platform of the MAP fully integrated in UNEP KM platform and	a) MAP Knowledge Management Strategy.	INFO/RAC	CU, MAP Components		COP 21 Decision IG.24/2 - Governance	12,8	10,000 €	0 €	10,000 €		30,000 €	
	b) Knowledge Hub for the harmonization of all the documental heritage of the MAP System (integrated in the Knowledge Platform).			Possible COP 22 Decision on MAP General Data Policy Possible COP 22 Decision on MED								

<p>in close dialogue with other initiative as MED Programme KM platform.</p> <p>(in-house expertise, consultancy, Communication TF, web platform, participation in events, knowledge sharing twinnings, regional meetings)</p>	<p>c) MAP Knowledge Platform as data visualization public interface highlighting key data from MAP multiple databases.</p>				<p>QSR 2023: Approach and Communication</p>						
	<p>d) MED QSR 2023 integration in the Knowledge Platform for an interactive consultation.</p>										
	<p>e) The MedProgramme knowledge platform established and populated with key information showcasing progress towards impact and the contribution of the MedProgramme to global and regional environmental goals. The platform features a highly user-friendly interface including effective search functions, filters and analytical capabilities. Semi-annual bulletins to showcase progress of the UNEP-GEF MedProgramme.</p>		<p>INFO/RAC, MAP Components</p>	<p>N/A</p>							
	<p>f) Cooperation and synergy with the GEF International Waters Learning and Resource Exchange Network (IW:LEARN) Project, including participation in one (1) GEF International Waters Conference to showcase results of the MedProgramme among a wide set of technical practitioners and government representatives; preparation of at least three (3) GEF Experience Notes to disseminate results and promote replication of successful approaches applied in the MedProgramme; and evaluation of the potential to organize IW:LEARN Twinnings with other relevant GEF projects and programs to exchange knowledge, best practices and innovative approaches on the thematic priority areas of the MedProgramme.</p>	<p>CU</p>	<p>(MedProgramme Coordinating Unit) MED POL, PAP/RAC, Plan Bleu, InfoRAC</p>	<p>EIB, EBRD, UNESCO-IHP, GWP-Med</p>		<p>0 €</p>	<p>0 €</p>	<p>0 €</p>			
	<p>g) Two Annual Stocktaking Meetings (ASM) for the MedProgramme organized to provide a forum for peer-to-peer learning among the Programme portfolio; bringing together a broad spectrum of stakeholders.</p>		<p>(MedProgramme Coordinating Unit) MED POL, PAP/RAC, Plan Bleu, SPA/RAC, SCP/RAC, InfoRAC</p>	<p>EIB, EBRD, UNESCO-IHP, GWP-Med, IUCN-Med, WWF-Med</p>							
<p>7.1.5. Promote Mediterranean awards (in-house expertise, Communication TF, award delivery events)</p>	<p>a) Next edition of the Istanbul Environment Friendly City Award to be granted at COP 23. including a communication campaign and promotional video.</p>	<p>CU</p>	<p>INFO/RAC, Plan Bleu</p>		<p>COP 21 Decision IG.24/2 - Governance</p>	<p>crosscutting especially SDG 14 Targets</p>	<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>44,000 €</p>	
	<p>b) 2nd edition of the WeMed Mediterranean Sustainability Award celebrated to Recognize and spread the word about outstanding achievements of green and circular economy businesses and the supporting ecosystems.</p>	<p>SCP/RAC</p>	<p>MAP Components</p>				<p>0 €</p>	<p>0 €</p>	<p>0 €</p>	<p>100,000 €</p>	<p>ENI CBC Med (StandUp) + DG NEAR (SwitchMed II)</p>
<p>7.1.6. Strengthen MAP Advocacy to promote enforcement of and compliance with Barcelona Convention and enlist support of key stakeholders and policymakers to a green renaissance underpinned by the circular economy and a sustainable Blue Economy.</p> <p>(in-house expertise, Communication TF, regional event)</p>	<p>a) Engage with the parliamentarian: The Parliamentarian's guide to save the Med.</p>	<p>CU</p>	<p>INFO/RAC and MAP components</p>		<p>COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership COP 21 Decision IG.24/2 - Governance</p>	<p>12,8</p>	<p>4,000 €</p>	<p>5,000 €</p>	<p>9,000 €</p>	<p>0 €</p>	<p>30,000 €</p>
	<p>b) Engage with civil society including Youth as well as and the private sector to promote stakeholders' dialogue.</p>										
	<p>c) Networking with Contracting Parties and engagement: communication products dedicated to provide an overview of Country activities (factsheets, interactive stories, etc.).</p>	<p>INFO/RAC, CU</p>	<p>MAP Components</p>				<p>3,000 €</p>	<p>2,000 €</p>	<p>5,000 €</p>	<p>0 €</p>	<p>14,000 €</p>

	d) 1 Regional Networking Event "SwitchMed Connect 2023".	SCP/RAC	CU and other MAP component as relevant				0 €	0 €	0 €	523,600 €	0 €	DG NEAR (SwitchMed II)	
7.1.7. Celebrate the MAP Days in the Mediterranean Sea (in-house expertise, Communication TF, regional events)	a) Mediterranean Coast Day celebrated: Promotional/awareness raising material prepared; Two regional celebrations organized; Support provided to local Coast Day celebrations.	PAP/RAC	CU and other MAP component as relevant		COP 21 Decision IG.24/2 - Governance COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management	crosscutting especially SDG 14 Targets	12,000 €	12,000 €	24,000 €	0 €	10,000 €	external funds to be identified : ENI CBC MED (ENSERES project), Bilateral Cooperation with Italy	
	b) SPAMI Day celebrated and SPAMI Certificates delivered to SPAMIs.	SPA/RAC	CU and other MAP component as relevant	SPAMI managers, CSOs, national & local authorities, private sector, etc.			Possible COP 22 Decision on Post 2020 SAP BIO	15,000 €		15,000 €	14,000 €	10,000 €	
Outcome 7.2. Citizen and general public awareness and outreach raised through citizen science and digital campaigns								43,000 €	49,000 €	92,000 €	438,000 €	115,000 €	
7.2.1. Engage the media in the Mediterranean region (in-house expertise, Communication TF)	a) At least 4 press releases on key developments. b) Outreach event with journalists and university students.	CU	INFO/RAC and MAP components		COP 21 Decision IG.24/2 - Governance	crosscutting especially SDG 14 Targets	5,000 €	0 €	5,000 €		10,000 €		
7.2.2. Enhance public awareness and outreach on UN Days observance and their topics (in-house expertise, external expertise, Communication TF, digital campaigns, web platforms, outreach events, publications)	a) Decades on Ocean Science and on Restoration promoted in the Mediterranean with an active Decade Collaborative Center for the Mediterranean set up, a Mediterranean roadmap for the Decade issued, Awareness raised through events, publications, and digital campaigns.	CU, Plan Bleu	All MAP Components	ICM-CSIC Spain, UNESCO, UICN Med	COP 21 Decision IG.24/2 - Governance COP 21 Decision IG.24/5 - Common Regional Framework for Integrated Coastal Zone Management Possible COP 22 Decision on Post 2020 SAP BIO	crosscutting especially SDG 14 Targets	0 €	14,000 €	14,000 €				
	b) Digital Campaign for enhancing knowledge of oceans on UN Oceans Day observance (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).	INFO/RAC	CU,MAP Components										
	c) Digital Campaign for enhancing knowledge of Coast on Mediterranean Coast Day observance (i.e web page; interactive story; burning issues; story map; infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).		PAP/RAC CU and MAP Components					6,000 €	6,000 €	12,000 €		20,000 €	
	d) Digital Campaign for enhancing knowledge of Environment on UN Environment Day observance (i.e web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; 28 MED News).		CU and MAP Components										
	e) Digital Campaign for enhancing knowledge of SPAMI Day observance (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; MED News).		CU and MAP Components										

	f) Knowledge on Biodiversity enhanced through digital campaign on UN Biodiversity Day observance and other communication products (1 annual calendar (illustrated with messages), 48 website articles, publications, focus feature in MAP newsletter, Interactive brochure, outreach events); Relevant communication material and events to enhance knowledge on SPA/RAC mandate and action developed (1 agenda per year, at least 24 web articles per year, 2 webinars/events for the general public per year, at least 2 reports published per year).	SPA/RAC, INFO/RAC	CU and other MAP components as relevant	Relevant partners/actors depending on events			4,000 €	6,000 €	10,000 €					
	g) Networking among SPAMIs enhanced and visibility of the SPAMI List increased through the SPAMI Collaborative Platform. h) Information on SPAMIs (management unit, documentation, ecology, photos ...) are updated at least once a year in collaboration with the SPAMI managers. i) The webpage on the SPAMI Day is created and integrated within the SPAMI Collaborative Platform. j) At least 12 web articles on SPAMIs published with the support of SPAMI managers. k) The SPAMI Collaborative Platform is used as a tool for information exchange through the SPAMI forum (1 subject per month).	SPA/RAC	CU and other MAP component as relevant	Relevant SPAMI managers, CSOs, national & local authorities, private sector			0 €	0 €	0 €			external funds to be identified : ENI CBC MED (ENSERES project), Bilateral Cooperation with Italy		
7.2.3. Enhance public awareness and outreach on key MAP topics (in-house expertise, external expertise, Communication TF, digital campaigns, web platforms, outreach events, publications, IT services)	a) Awareness, information materials on marine pollution from ships and offshore produced and disseminated.	REMPEC	CU and other MAP component as relevant	IMO, IOGP, IPIECA and other partners	COP 21 Decision IG.24/2 - Governance COP 19 Decision IG.22/5 - Regional Action Plan on Sustainable Consumption and Production in the Mediterranean COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) Possible COP 22 Decision on Post 2020 SAP BIO Possible COP 22 Decision on Mediterranean Strategy for Prevention of, and Response to Marine Pollution from Ships (2022-2031) and its Action	crosscutting especially SDG 14 Targets	3,000 €	3,000 €	6,000 €					
	b) Digital Campaign for enhancing knowledge of Greener Maritime transport (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).	INFO/RAC	REMPEC CU and MAP Components											
	c) Digital Campaign for enhancing knowledge of Pollution (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).		MED POL CU and MAP Components											
	d) Digital Campaign for enhancing knowledge of Climate Change (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).		Plan Bleu, PAP/RAC CU and MAP Components											
	e) Digital Campaign for enhancing knowledge of Circular economy (i.e., web page; interactive story; burning issues; story map; Infographics; Twitter cards; Video; articles and interviews; "focus in" section in MED News).		SCP/RAC											
	f) Highlight progress on key pollution issues tackled by MED POL. 4 News articles on progress in implementation, including on websites and in MAP Newsletter.	MED POL								0 €	0 €	0 €	0 €	0 €

	<p>g) Digital (web/mobile) mini brochure on the story "Accelerating the transition to sustainability ", Catalogue presenting the Circular Economy tools and services, including TheSwitchers.org success stories, Campaign for the Mediterranean Green Business Award, Outreach and communication campaign for the Regional Measures adopted at COP22 (TBC), Web series with interviews, short videos that demonstrate rise of the sustainable economy and how stakeholders integrate into their sector. Outreach and communication campaign for the Regional Measures adopted at COP22 (TBC). News articles on progress in implementation, including on websites and in MAP Newsletter. Web series with interviews, short videos that demonstrate rise of the sustainable economy and how stakeholders integrate into their sector. Activity reports.</p>	SCP/RAC	CU and other MAP component as relevant				5,000 €	5,000 €	10,000 €	398,000 €	10,000 €	DG NEAR (SwitchMed II), ENI CBC Med (StandUp)	
	<p>h) Support efforts towards a pollution free Mediterranean Sea and Coast embracing circular economy. Digital publication highlighting Circular Economy approaches incorporated into key sectors that are main sources of pollution - Global partnerships to prevent pollution: Regional and National Plastics Pacts.</p>		CU and MAP Components										
	<p>i) Engaging general public on circular economy products and services and sustainable lifestyle, positioning the "Switchers" with specific awareness activities: i) The Switchers Community Communication and Marketing Plan 2022-2023; ii) "We are the Switchers" dissemination campaign, iii) Digital campaign on "Sustainable Fashion", iv) campaign on SCP/circular practices among consumers on marine litter.</p>		CU and MAP Components										
7.2.4. Enhance public awareness and outreach for specific targets (MAP Partners, Civil Society and students) (in-house expertise, external expertise, Communication TF)	<p>a) MAP Partners contribution to Digital Campaigns, dissemination and social media participation promoted.</p> <p>b) Web APP for Citizen Science developed and implemented specifically for different targets (citizens, scientists, students).</p> <p>c) Video Contest on the key topics of the biennium.</p>	INFO/RAC	MAP Components		COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership COP 21 Decision IG.24/2 - Governance	12,8	5,000 €	5,000 €	10,000 €		25,000 €		
7.2.5. Co-create and implement education and awareness programmes also in cooperation with academic institutions, focusing on marine and coastal issues, with the aim to promote education on sustainable development.(in-house expertise, external expertise, Communication TF, partnership Agreements)	<p>a) Education and awareness programmes on biodiversity conservation co-created and implemented in collaboration with CSOs within at least 2 SPAMIs.</p>	SPA/RAC	CU and other MAP component as relevant	CSOs, national & local authorities, private sector	COP 16 Decision IG.19/6 - MAP/Civil society cooperation and partnership COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) COP 21 Decision IG.24/2 - Governance	4.7; 14.2; 14.5	0 €	0 €	0 €	40,000 €	10,000 €	external funds to be identified : ENI CBC MED (ENSERES project), Bilateral Cooperation with Italy	
	<p>b) At least 6 MoU signed with CSOs to develop education and awareness actions within SPAMIs.</p>		CU and other MAP component as relevant	Relevant SPAMI managers, CSOs, national & local authorities, private sector							external funds to be identified : ENI CBC MED (ENSERES project), Bilateral Cooperation with Italy		
	<p>c) Further establish/extend educational activities and promote educational programmes in cooperation with academic institutions, focusing on marine and coastal issues, with the aim to promote education on sustainable development. Partnership agreements with educational institutions established.</p>	CU	MAP Components					5,000 €	0 €	5,000 €	20,000 €		
Outcome 7.3. Towards a digital transformation: use of digital technologies to improve networking and MAP visibility								17,000 €	27,000 €	44,000 €	6,000 €	45,000 €	

7.3.1. Enhance networking among SPAMIs and increase the visibility of the SPAMI List through the SPAMI Collaborative Platform (in-house expertise, external expertise, Communication TF, web platform)	a) Information on SPAMIs (management unit, documentation, ecology, photos ...) are updated at least once a year in collaboration with the SPAMI managers.	SPA/RAC	CU and other MAP component as relevant	CSOs, national & local authorities, private sector	COP 21 Decision IG.24/2 - Governance Possible COP 22 Decision on Post 2020 SAP BIO	14.2; 14.5	2,000 €	3,000 €	5,000 €	6,000 €	external funds to be identified : ENI CBC MED (ENSERES project), Bilateral Cooperation with Italy
	b) The webpage on the SPAMI Day is created and integrated within the SPAMI Collaborative Platform.										
	c) At least 12 web articles on SPAMIs published with the support of SPAMI managers.										
	d) The SPAMI Collaborative Platform is used as a tool for information exchange through the SPAMI forum (1 subject per month).										
7.3.2. Towards a digital transformation (in-house expertise, external expertise, Communication TF)	a) Digital transformation strategy document developed: priorities, focus and adaptation to the MAP System.	INFO/RAC	CU,MAP Components		COP 21 Decision IG.24/2 - Governance	crosscutting especially SDG 14 Targets	5,000 €	15,000 €	20,000 €	0 €	20,000 €
	b) Digitalization of the MAP publication heritage - Catalogue developed for MAP Publication harmonized in Publication series layouts.										
7.3.3. Promote MAP educational capacity through E-Learning (in-house expertise, external expertise, Communication TF, web platform, training)	a) E-Learning platform maintained and further developed.	INFO/RAC	CU	MAP Partners	COP 19 Decision IG.22/2 - Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) COP 21 Decision IG.24/2 - Governance	4,7	10,000 €	5,000 €	15,000 €		15,000 €
	b) On-line general courses on MAP System and Barcelona Convention developed.										
	c) On-line thematic courses on MAP Components main topics developed.										
	d) Streamline MAP BC system and Protocols in university and postgraduate curricula through online platforms.	CU, MAP Components		0 €			4,000 €	4,000 €			
7.3.4. Enable effective MAP communication (Internal/external communication and MAP Staff digital capacity)(in-house expertise, external expertise, Communication TF, web platform, online event)	a) INFO/RAC Cloud developed and maintained.	INFO/RAC	MAP Components		COP 21 Decision IG.24/2 - Governance	crosscutting especially SDG 14 Targets			0 €		10,000 €
	b) Directory of all the MAP network maintenance and update (repository of NFPs designations).										
	c) On-line Event Calendar of all the MAP network initiatives maintenance and update.										
	d) MAP Communication Task Force on-line network enhanced.										
	e) Survey tool further developed and maintained.										
	f) Impulse to social media in the MAP system: Social media account followers increased.										
TOTAL							<u>114,000 €</u>	<u>130,000 €</u>	<u>244,000 €</u>	<u>1,132,100 €</u>	<u>309,000 €</u>

	MTF Budget 2022	MTF Budget 2023	Total MTF Budget 2022- 2023	External secured Funding 2022- 2023	External non- secured Funding 2022- 2023	
MTS Programme 7						
CU	14,000 €	23,000 €	37,000 €	50,500 €	70,000 €	
MED POL	0 €	0 €	0 €	0 €	0 €	
REMPEC	3,000 €	3,000 €	6,000 €	0 €	0 €	
Plan Bleu	10,000 €	10,000 €	20,000 €	0 €	0 €	
SPA/RAC	21,000 €	9,000 €	30,000 €	60,000 €	20,000 €	
PAP/RAC	12,000 €	12,000 €	24,000 €	0 €	10,000 €	
INFO/RAC	49,000 €	68,000 €	117,000 €	0 €	199,000 €	
SCP/RAC	5,000 €	5,000 €	10,000 €	1,021,600 €	10,000 €	
TOTAL	114,000 €	130,000 €	244,000 €	1,132,100 €	309,000 €	

Outcomes	114,000 €	130,000 €	244,000 €	1,132,100 €	309,000 €	
Outputs	114,000 €	130,000 €	244,000 €	1,132,100 €	309,000 €	