



UNITED
NATIONS

EP

UNEP(DEPI)/MED WG.425/Inf.6



UNEP



UNITED NATIONS
ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN

20 August 2016
Original: English

Roundtable “Enhancing Regional Coordination on Marine Litter in the Mediterranean”

Athens, Greece, 6 September 2016

Agenda item 3: Review of marine litter related mandates and recent activities of Partner Organizations

Decision IG.22/10 Implementing the Marine Litter Regional Plan in the Mediterranean (Fishing for Litter Guidelines , Assessment Report, Baselines Values, and Reduction Targets)

For environmental and economic reasons, this document is printed in a limited number. Delegates are kindly requested to bring their copies to meetings and not to request additional copies.

Decision IG.22/10

**Implementing the Marine Litter Regional Plan in the Mediterranean
(Fishing for Litter Guidelines, Assessment Report, Baselines Values, and Reduction Targets)**

The 19th Meeting of 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,

Recalling the Regional Plan on the Management of Marine Litter in the Mediterranean adopted by Decision IG.21/7 of the 18th Meeting of the Contracting Parties providing for programmes of measures and implementation timetables to prevent and reduce the adverse effects of marine litter on human health and the marine and coastal environment, herein after referred to as the Regional Plan;

Recalling also Article 7 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities on common criteria and standards;

Recalling Decision IG.20/4 and IG.21/3 of the 17th and 18th Contracting Parties meetings “on ecosystem approach” adopting Ecological Objectives, Operational Objectives, GES and related targets for the ecological objective on marine litter;

Considering that the Mediterranean Sea is severely affected by marine litter, due to its closed basin with only few exchanges with other Oceans, densely populated coasts, highly developed tourism, having 30% of the world maritime traffic and various additional sources of litter such as rivers and very urbanized areas;

Fully aware of the importance of promoting circular economy to prevent marine litter generation and reduction of its impact on marine and coastal environment;

1. *Adopts* the Fishing for Litter Guidelines in accordance with Articles 9(6) and 10(e) of the Regional Plan as contained in Annex I to this Decision;

2. *Adopts* the marine litter baseline values contained in Annex II to this Decision against which the implementation of Regional Plan programmes of measures should be assessed for indicative purposes, taking into account that such values will be subject to periodic adjustment based on additional new data coming from the implementation of National Marine Litter monitoring programmes as well as their specification where appropriate at sub regional and/or national levels;

3. *Adopts*, without prejudice to relevant existing or to be adopted stricter reduction and prevention targets, a basin-wide marine litter reduction target of 20% of beach litter by 2024 and a significant and measurable decrease of other marine litter items as contained in Annex III to this Decision;

4. *Takes note* of the updated Marine Litter Assessment Report prepared by the Secretariat (MED POL) (Information document UNEP(DEPI)MED IG.22/Inf.9) in accordance with Article 11(e) of the Regional Plan as the first Marine Litter Assessment after the entry into force of the Regional Plan;

5. *Strongly encourages* the Contracting Parties to take the necessary measures to implement the Regional Plan in a timely manner considering as appropriate measures related to micro-plastic; and submit a report on measures taken by 2017 for the considerations of COP 20;

6. *Invites* all Contracting Parties to join and contribute to the Global Marine Litter Partnership led by UNEP;

7. *Requests* the Secretariat (MEDPOL, REMPEC and SCP/RAC) to facilitate the work of the Contracting Parties for the implementation of the Regional Plan and ensure for this purpose strong synergies and regular coordination with other regional organizations working on marine litter in the Mediterranean, with special emphasis on regional processes of adjacent marine regions such as the Black Sea Commission and OSPAR.

Annex I
Fishing for Litter Guidelines

Table of Contents

| | |
|---|-----|
| 1. Introduction | 527 |
| 2. Objective | 528 |
| 3. Implementing a Fishing for Litter practice step by step | 529 |
| 3.1. Selection of fishing harbours and vessels | 529 |
| 3.2. Marine litter collection | 529 |
| 3.3. Marine litter reception | 530 |
| 3.4. Marine litter management | 530 |
| 3.5. Additional steps | 531 |
| 3.5.1. Appointment of a coordinator | 531 |
| 3.5.2. Public relations campaign and other incentives | 531 |
| 3.5.3. Monitoring of the collected litter..... | 532 |
| 3.5.4. Monitoring and evaluation of the Fishing for Litter practice | 533 |
| 4. Health and safety implications | 533 |
| 5. Environmental impact assessment including transboundary impacts | 533 |
| 6. References | 534 |
| Appendix 1 Monitoring Forms | 536 |
| Appendix 2 Summary of the FfL Projects | 542 |
| Appendix 3 Elements for the Health and Safety Risk Assessment | 545 |

Background

1. Marine litter has been acknowledged at global level as an emerging threat with significant implications for the marine and coastal environment. Its impacts are environmental, economic, health and safety and cultural, and are rooted in our prevailing production and consumption patterns. The problem originates mainly from land-based activities as well as from sea-based activities. The limited governmental financial resources, the poor stakeholders understanding of their co-responsibility in generating and solving the problem, and the weak enforcement of laws and regulations are among the main factors that the problem of marine litter has not been addressed effectively.

2. Marine litter has been an issue of concern in the Mediterranean since the 1970s. The LBS Protocol of the Barcelona Convention recognised the importance of dealing with the problem of marine litter. The amended LBS Protocol, 1996 and entered into force in 2008 provides for litter as any persistent manufactured or processed solid material which is discarded, disposed, or abandoned in the marine and coastal environment.

3. The Mediterranean was designated a Special Area for the purposes of Annex V (Prevention of pollution by garbage from ships) of the MARPOL 73/78 Convention.

4. In December 2013 COP 18 of the Barcelona Convention adopted the Regional Plan on Marine Litter Management in the Mediterranean (hereinafter MLRP) that represents among others a set of legally binding measures to prevent and reduce marine litter generation and improve its management with the view to achieve the ECAP GES and targets on marine litter also adopted by COP 18. Thus, the Mediterranean Sea is the first regional sea to have a plan in dealing with the issue of marine litter. In the MLRP the following marine litter definition is provided: "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".

5. Fishing for Litter (hereinafter FfL) is referring to the removal of marine litter from the sea by the fishermen.

6. The MLRP provides for FfL as one of the most important measures that has the potential to reduce the amounts of marine litter at sea by involving one of the key stakeholders sectors, the fishing industry. Apart from removing litter from the sea, mainly from the seafloor, these practices substantially contribute to raising awareness on the problem within the sector and the need for better waste management.

7. In 2011 the Honolulu Strategy, developed in the course of and after the 5th International Marine Debris Conference, organised by UNEP and the US National Oceanic and Atmospheric Administration (NOAA) Marine Debris Programme, stated FfL in its strategies C4 and C5.

8. FfL initiative has demonstrated on a limited scale that the objectives and aims of the scheme can gain the support of the fishing industry, harbour authorities and local authorities. Furthermore, it can contribute to changing practices and culture within the fishing sector, provide a mechanism to remove marine litter from the sea, and raise awareness among the fishing industry, other sectors and the general public.

9. FfL initiative integrates several benefits: environmental, social, economic and scientific.

10. The MLRP has two provisions addressing FfL: explore and implement to the extent possible by the year 2017 the FfL environmentally sound practices (Art. 9.6) and the need to consider EIA and environmental impacts of implementing FfL drawing the attention that the best environmental practices and techniques should be used for this purpose due to the fact that such interventions may also have a very negative impact on marine environment and ecosystems (Art. 10.e).

11. In the Convention on Biological Diversity Expert Workshop to Prepare Practical Guidance on Preventing and Mitigating the Significant Adverse Impacts of Marine Debris on Marine and Coastal Biodiversity and Habitats held in Baltimore, USA in December 2014, “Encourage fishing for litter initiatives” is included on the list of suggestions made for marine debris mitigation and management (predominantly plastic) of the Draft Background Document¹. This document also provides an update to the review of the impacts of marine litter undertaken by the Scientific and Technical Advisory Panel of the GEF in collaboration with the Secretariat of the Convention on Biological Diversity, and jointly published as CBD Technical Series 67 in 2012.

12. FfL activities have been widely applied mainly in NE Atlantic Ocean, and specifically in the North Sea; FfL actions in the Baltic Sea and in the Mediterranean Sea have been undertaken more recently while no such actions have been initiated yet in the Black Sea. At global level, one project is under development in the United States with energy recovery from the fishing gear removed.

13. In the Mediterranean, five projects are currently being implemented: Ecological bags on board (Spanish East Coast), *Ecopuertos* (Andalusian Coast, Spain), DeFishGear (Adriatic Sea), Port of San Remo (Ligurian Coast, Italy) and Port of Rovinj (Northern Adriatic Sea, Croatia). A summary of these projects are presented in Annex 2.

14. Despite FfL is mainly considered at local scale, marine litter is a transboundary problem and therefore a coordinated, harmonised and coherent approach is the best way to tackle it.

15. At all levels, cooperation in FfL practices should be based on the exchange of relevant information and on addressing significant transboundary marine litter issues. Agreements should be made so that any vessel involved in the FfL practice can land non-operational waste at participating harbours in Mediterranean countries and other neighbouring countries.

16. Cooperation between Regional Seas Conventions will be more effective if the work undertaken within these conventions following their regulatory framework takes the same approach.

17. In this context, in accordance with UNEP/MAP Programme of work on pollution assessment and control thematic priority and the objectives of the project on ecosystem approach funded by the EC the following “Guide on best practices for Fishing for Litter in the Mediterranean” are developed to be commonly agreed at the Mediterranean level and implemented accordingly.

1. Introduction

18. There are two types of FfL practices: active and passive. Active practices are specifically performed to remove marine litter and fishermen involved are paid; passive practices are carried out by fishermen during their normal fishing activities without financial compensation.

19. Regarding to active ones the following practices can be considered:

1. Marine litter removal practices during specific fishing trips to remove litter from hotspots (marine litter accumulation) or from protected areas with financial compensation of the fishermen involved.
2. Retrieval of derelict (abandoned, lost or otherwise discarded) fishing gear at sea where individual fishermen are contracted to retrieve nets.

In both cases, expertise is needed to undertake marine litter removal actions. This removal involves fishermen and qualified divers locating and removing marine litter and derelict fishing gear (hereinafter DFG). They use various technologies to locate litter, such as side-scan sonar for sea-bed

¹ Background Document (Draft) on the Preparation of Practical Guidance on Preventing and Mitigating the Significant Adverse Impacts of Marine Debris on Marine and Coastal Biodiversity (Document UNEP/CBD/MCB/EM/2014/3/INF/2).

surveys, map locations on the basis of interviews with fisherman, or in the case of DFG information systems that track lost gear, and remove the litter from the marine environment using specialist equipment.

20. The removal of marine litter requires specific skill sets and experience from the fishermen – especially when bulky or heavy items and nets are retrieved. It is recommended to work with active fishermen that have good knowledge of techniques and the targeted areas (i.e. of the level of activity of the various fisheries in these areas, now and in the past).

21. Divers might be used to support retrieval operations, depending on the depth and the topography of the seafloor. Working with divers can help to minimise the impact of marine litter and DFG removal on the marine environment and to increase its efficiency and effectiveness. Marine litter and DFG retrieval requires a thorough understanding of the safety and environmental issues of working with marine litter and DFG. Only qualified divers with appropriate experience and training should attempt marine litter and DFG retrieval.

22. In this sense, and for marine litter removal practices in protected areas, operations using specific fishing gear and divers should be licensed. Therefore relevant permits should be requested to the competent authority (managing body of the protected area). In these cases, due to the sensitivity of these areas environmental impact assessment of the removal practice should be developed.

23. There are many environmental benefits of retrieval actions of marine litter, these benefits increase when developing in sensitive areas where protection and conservation of marine biodiversity are priority but the precautionary principle should be applied.

24. Last, regarding too passive FfL practices, marine litter removal initiatives undertaken by fishermen during their normal fishing activity can be considered. Fishing vessels are given free bags to collect any marine litter they catch in their nets during fishing operations and are provided with free disposal facilities in harbour. Operational or galley waste generated on board, and hence the responsibility of the vessel, continues to go through the established harbour waste management system.

25. All types of marine litter are targeted depending on the gear type used. Most amounts are from seafloor litter collected with bottom-contacting gear. Full bags are deposited on the quayside where the participating harbours monitor the waste before moving the bag to a dedicated skip for disposal. Normally, litter is weighed and, where possible, composition recorded, providing data that may be useful in subsequent policy development and management. Participation of fishermen is voluntary and without financial compensation but they should be motivated with indirect benefits to achieve their engagement.

26. This practise reduces the volume of debris washing up on our beaches and also reduces the amount of time fishermen spend untangling their nets. Therefore FfL is one of the most innovative and successful concepts to tackle marine litter at sea based on cooperation with fisheries associations.

27. This last type of practices, i.e. passive FfL practices, will be those considered in this guide and therefore their aspects related will be described accordingly.

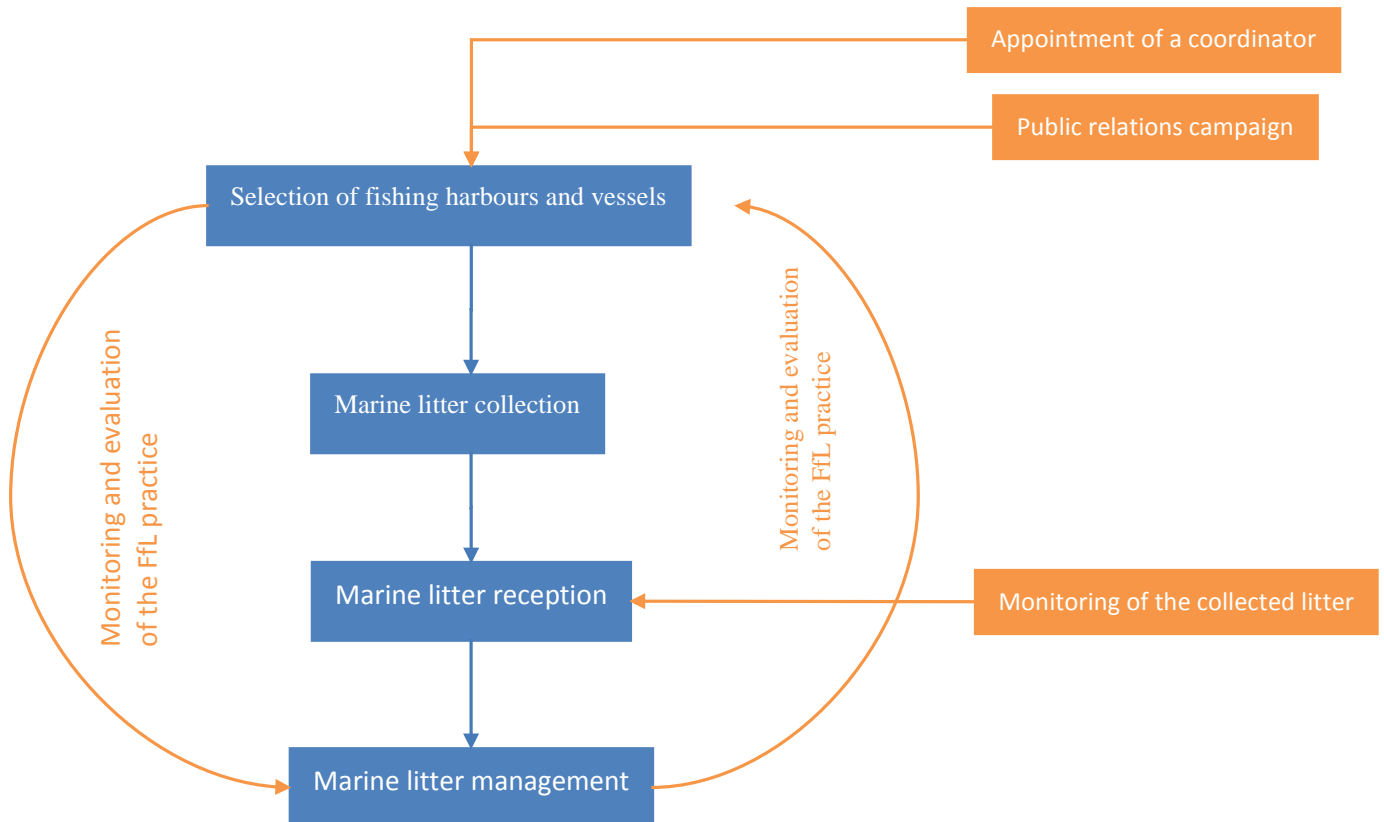
2. Objective

28. The objective of this guide is two-fold: to provide technical guidance on the mechanism to remove litter from the sea in an environmentally friendly manner ensuring negative impacts on marine environment and ecosystems are avoided, and to provide guidance on the process of involving the stakeholders responsible for the implementation and coordination of FfL practices. As stated above, the FfL practices considered within this guide are the passive FfL ones.

29. These practices are expected to be implemented in local areas at small-medium scale due to the specific characteristics of the Mediterranean trawling fishing fleet. FfL practices are described in areas where fishermen are able and allowed to fish.

3. Implementing a Fishing for Litter practice step by step

30. The steps of a FfL practice are presented in the following scheme (blue colour) and are elaborated in the chapters that follow. Where possible to implement, additional steps are also provided (orange colour).



3.1. Selection of fishing harbours and vessels

31. For the selection of fishing harbours and vessels that will participate in the FfL practice it is recommended to contact with fishermen's associations (both national and local) to explore the possibilities of collaboration. It is also recommended to contact with ports and harbours authorities because the point to collect waste will be located in the harbour area and other harbour facilities could be used for the purposes of the FfL practice. To complete the establishment of contacts with relevant stakeholders it is recommended to contact with waste management authorities and companies for the involvement of these sectors into the FfL practice.

3.2. Marine litter collection

32. For marine litter collection, bags solid enough will be needed. The size of bags used will depend on the vessel size to ensure enough free space on board during fishing activities. Typical bags, called big bags, used for FfL practices measure L90 x W90 x H90 cm and have a weight capacity of 200 kilogrammes, and a volume of 100 litres. The bags are usually made of polypropylene, for greater strength, and can be reused several times.

33. The following guidelines to collect marine litter should be followed by the fishermen to ensure the smooth running of the FfL practice:

- Marine litter should only be collected in the bags.
- Only marine litter caught in your nets should be collected in the bags. Ordinary galley and operational waste should still be disposed of through existing procedures.
- Garbage including plastics, domestic wastes, cooking oil, operational wastes and fishing gear should never be thrown overboard in the Mediterranean.
- Objects of natural origin (e.g., submerged and drifting shrubs, trees, their branches, etc.) which could be entrapped by fishing gear can be subsequently discharged back to the sea.
- Drums of fluids, chemicals or oil and hazardous items such as batteries are considered special waste under waste regulations and should be dealt with through the harbours existing special waste procedures.
- No items of marine litter should be brought onto or retained on board the vessel if the master, in his opinion, considers that doing so would have an adverse effect on the stability and seaworthiness of the vessel.
- Number of bags and approximate weight of marine litter collected in every fishing trip should be recorded.

3.3. Marine litter reception

34. The bags of marine litter should be unloaded and placed safely on the quayside in order to no marine litter losses occur and no marine litter may return to the sea. The bags will then be taken to the existing waste reception facilities in the harbour. Permanent and large containers that are emptied on regular basis and made available at the shortest possible distance from fishing boats will facilitate handling of both wastes and bags. Either fishermen will take the bags to reception facilities themselves or staff from the harbour authority or waste management company will take the bags to the reception facilities.

35. To ensure the smooth running of the FfL practice appropriate waste reception facilities in the harbour should be available. Marine litter will be disposed in closed containers with lids, large enough to receive the amounts and sizes of items removed.

36. Who takes the bags to the waste reception facilities will depend on what is agreed with the harbour authority during the FfL practice and the normal arrangements for handling waste from vessels in the port. It is recommended that the arrangements for handling marine litter are the same as the normal arrangements for handling the fishing vessels' own waste.

3.4. Marine litter management

37. Once ashore, marine litter removed has to be properly managed in order to not return to the sea. In this sense, in addition to appropriate waste reception facilities, appropriate waste treatment facilities should be available.

38. Waste management should ensure that waste is segregated and recycled conveniently prioritising the recovery (both material and energetic) from the deposit. Thus, ideally the management system should apply the following waste hierarchy as a priority order: recycling, energy recovery and disposal.

39. If the final destination of the waste is landfilling, waste disposal will take place in a controlled facility.

40. As indicated above, the management system of marine litter collected could be integrated in the harbour existing waste management system, could establish an independent management system based on collecting it by an authorised waste manager that ensures its subsequent separation and

recovery or could consist of a combined system of the two previous options. Agreements between waste management authorities and private sector could be made to put into the market segregated materials.

3.5. Additional steps

41. When possible, depending on available resources for the FfL practice the following steps could be implemented.

3.5.1. Appointment of a coordinator

42. FfL practice coordinator at national or regional level might be appointed. The coordinator might be in charge of these tasks:

- Searching for resources;
- Involving fishing harbours and vessels: contact with fishermen's associations, ports and harbours authorities, waste management authorities and companies;
- Developing of the public relations campaign;
- Reporting monitoring data.

43. From the experiences, the FfL practice coordinator could belong to a scientific or academic institution, NGO or a local authority as appropriate.

3.5.2. Public relations campaign and other incentives

44. A public relations campaign might be developed with the aims to encourage fishing industry to participate in the FfL practice and to inform general public about the FfL practice. The success of this kind of practices is the high engagement and involvement of fishermen and a good public perception could strengthen the fishermen support to the FfL practice.

Specific objectives of the campaign are outlined below:

- Raise awareness of the FfL practice within the fishing industry;
- Highlight the role of the funding bodies;
- Demonstrate good practice within the fishing industry to the general public;
- Change attitudes and behaviour within the fishing industry;
- Influence policy makers.

The main aspects public relations campaign should cover are summarised below.

3.5.2.1. Key messages of the campaign

45. Three are the key messages that the campaign needs to disseminate during the FfL practice:

- Marine litter is a problem that can be solved if everyone takes responsibility for their actions.
- Marine litter damages fishermen's livelihood (decrease of catches because fish can get caught in litter, time span spent cleaning nets) as well as the environment and it is in everyone's interest to solve the problem.
- Marine litter is a resource², not a waste.

² The increasing scarcity of resources and rising commodity prices is encouraging producers to find new ways to recover used products and to turn waste into a resource. Many end-of-life products, including plastics and packaging are increasingly being seen as sources of valuable secondary materials which are lost forever if disposed of.

3.5.2.2. *Practical objectives of the campaign*

46. Practical objectives of the campaign are listed below:

- Develop corporate image for the FfL practice (logo, colours, etc.);
- Develop A4 information leaflet on the FfL practice aimed at fishermen³;
- Develop identification flags of the FfL practice for participating vessels;
- Develop specific equipment for participating fishermen;
- Develop display material for exhibitions;
- Official launch of the FfL practice;
- Develop Fishing for Litter content on a website;
- Press launch of first new harbour in the FfL practice;
- Coverage of the FfL practice on a rural affairs television programme;
- Press launch for final harbour in the FfL practice;
- Publication of the report on the analysis of the monitoring programme.

3.5.2.3. *Media contacts*

47. Local agencies should have extensive contacts with the Trade Media and National Press. These should be utilised throughout the FfL practice to gain the maximum amount of coverage.

3.5.2.4. *Crisis management*

48. The risk of bad publicity from a FfL practice is very low however there are some situations that could impact adversely on the press coverage. For example, if a participating vessel is caught disposing of marine litter at sea. In such a situation the FfL practice coordinator should immediately release a press release condemning the action and reaffirming their commitment to eradication of such behaviour. It should also state their intention to enter into a dialogue with the vessel and master to ensure the incident would not occur again. However as a last result if there was no cooperation the vessel in question should be removed from the FfL practice.

49. Another possible scenario is that one of the vessels involved in the scheme is caught fishing illegally. In this situation the coordinator would not comment unless directly approached by the press and then only to state that they are only involved in waste management issues and fisheries management is outside their remit.

3.5.2.5. *Other incentives to promote fishermen engagement*

50. The following incentives may be taken into account to promote fishermen engagement in the FfL practice:

- increasing self-esteem by agreements with food banks to donate a part of the catches;
- giving them visibility in communication media and to the Authorities;
- encouraging them to constitute companies for fish commercialisation and sub-products elaboration, providing them with contacts with commerce;
- studying engineering solutions to save fuel (such as hybrid engines).

3.5.3. **Monitoring of the collected litter**

51. The monitoring might be implemented to ensure adequate collection, sorting, recycling and/or environmentally sound disposal of the fished litter.

52. For monitoring marine litter brought ashore as part of the FfL practice a marine litter collected form might be filled in. With regards to seafloor litter, this form is based on the Master List of main

³ Threats and impacts of marine litter should be highlighted on the leaflets developed.

categories of Litter Items as agreed in the UNEP/MAP Integrated Monitoring and Assessment Programme. The number of items will be recorded according to the categories defined (Plastic/Polystyrene, Rubber, Cloth/Textile, etc.) as well as the total weight of marine litter caught (see Table 1 in Annex 1).

53. However, this Master List may be adjusted and shortened for the purpose of the implementation of the Guide on FfL based on the most frequent items found in the course of implementation.

54. The tasks of recording composition and weight of waste brought ashore might be developed daily on the quayside by qualified personnel and monthly data might be reported to the FfL practice coordinator accordingly. The staff responsible for the characterisation of marine litter (composition and weight) should ensure that no items are lost during this process. Composition is recorded in order to identify sources of marine litter and the weight to ensure the final waste management.

55. Annually, monthly tons and composition of marine litter collected in each of participating harbours as well data related to harbour details (number of participating vessels, main vessel type) might be reported to the National Competent Authority for the protection of the marine environment (see Tables 2 and 3 in Annex 1).

3.5.4. Monitoring and evaluation of the Fishing for Litter practice

56. Data collected (number of vessels and harbours participating, amounts and composition of litter collected, etc.) might be periodically reviewed by the competent authority to evaluate the success of FfL initiatives, and might look at such factors as costs, benefits and governance. It may also enable to locate accumulation areas and support an optimised strategy to further focus on hot spots.

57. Regular FfL practice monitoring and evaluation might help to assess the impacts of the practice and to identify lessons that can be used to improve future initiatives. It might also help to prove to any organisations providing funding or other support that the practice is on track to achieve what it plans to achieve.

4. Health and safety implications

58. The experience of FfL projects in the North Sea developing since 2000 indicates that there have been no instances of accidents or injuries directly related to the collection, storage or transfer to shore of marine litter collected as part of these projects.

59. The UK Maritime and Coastguard Agency (MCA) undertook a Feasibility Study for the Conduct of a Pilot Project for Offshore Marine Debris Analysis, Project 496 (Day) that identified some of health and safety implications. The study suggested that the health and safety aspects of implementing these types of initiatives would be the same as normal fishing activities (operations) and therefore there would likely not be any additional implications.

60. The stability and seaworthiness of the vessel may be affected by the items of marine litter brought onto or retained on board. Thus, no object of marine litter will be collected if there is suspicion of hazard, adverse effect or risk jeopardizing the stability of the vessel. The master and crew of the vessel have the responsibility for effective operational risk assessment. It is recommended to consider elements provided in Annex 3 for health and safety risk assessment.

61. Fishermen should maintain litter on board in a manner that should avoid any possible fish cross pollution from marine litter.

5. Environmental impact assessment including transboundary impacts

62. FfL passive practices are carried alongside normal fishing operations therefore there are no, in principle, potential adverse effects on the marine environment. However, the MLRP highlights the need to consider EIA and environmental impacts of implementing FfL and draws the attention that the best environmental practices and techniques should be used for this purpose due to the fact that such interventions may also have a very negative impact on marine environment and ecosystems in particular regarding the FfL active practices.

63. The main potential environmental impacts of FfL practices may be related to the harm to the seafloor and the associated benthic communities, In addition, pollution with marine litter will happen in case of exceed the capacity of the harbour waste reception and storage facilities together with human health and safety risks. Best practices established in this guide could be considered as mitigation measures of potential negative impacts of FfL practices on marine environment.

64. An environmental impact assessment for active FfL practices should be considered taking into account the aspects listed below:

1. Characteristics of the FfL practice: (a) the size and design of the whole FfL practice; (b) cumulative effects with other existing and/or approved FfL practices; (c) the use of natural resources, in particular land, soil, water and biodiversity; (d) the production of waste; (e) pollution and nuisances; (f) the risk of major accidents and/or disasters which are relevant to the FfL practice concerned, including those caused by climate change, in accordance with scientific knowledge; (g) the risks to human health.

Location of the FfL practice: environmental sensitivity of geographical areas affected by the FfL practice with particular regard to marine protected areas.

2. The transboundary nature of the potential impacts.

6. References

GERMAN FEDERAL ENVIRONMENT AGENCY (UBA) AND EUROPEAN COMMISSION DG ENVIRONMENT (2013). *International Conference on Prevention and Management of Marine Litter in European Seas* (Berlin, 10-12 April 2013): <http://www.marine-litter-conference-berlin.info/index.php>.

KIMO (2010). *Economic impacts of marine litter*. Available from http://www.noordzeeloket.nl/images/Economic%20impacts%20of%20marine%20litter_1290.pdf [accessed April 2015].

KIMO (2013). *Fishing for litter projects in the North Sea*. <http://www.kimointernational.org/FishingforLitter.aspx>.

MARELITT Project (2015). *Toolkit for derelict fishing gear projects*.

MARELITT Project (2015). *Toolkit for marine litter retention projects*.

MARITIME AND COASTGUARD AGENCY GREAT BRITAIN (2004). *Research Project No. 496: Feasibility Study for Conduct of a Pilot Project for Offshore Marine Debris Analysis: Notice to Environmental Regulators, Ports and Harbours, Fishing Industry, Non-Governmental Organisations, Government Departments (Dft and Defra) and Local Authorities (Marine information note)*.

MARLISCO Project: Marine Litter in European Seas - Social Awareness and Co-Responsibility (2015). *The MARLISCO Guide for Reducing Marine Litter: Get Inspired and Become Innovative Through Best Practices*.

OSPAR (2009). *Marine litter in the North-East Atlantic Region: Assessment and priorities for response*. London, United Kingdom, 127 pp.

OSPAR COMMISSION (2007). *Guidelines on How to develop a Fishing-for-litter Project*. OSPAR Agreement 2007-10.

OSPAR COMMISSION (2010). *OSPAR Recommendation 2010/19 on the reduction of marine litter through the implementation of fishing for litter initiatives* and its annex.

SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY AND THE SCIENTIFIC AND TECHNICAL ADVISORY PANEL—GEF (2012). *Impacts of Marine Debris on Biodiversity: Current Status and Potential Solutions*, Montreal, Technical Series No. 67, 61 pages.

UNEP/CMS (2014). *Report I: Migratory Species, Marine Debris and its Management*. Available from:

http://www.cms.int/sites/default/files/document/COP11_Inf_27_Report_I_Marine_Debris_Management_Only.pdf [accessed April 2015].

UNEP/FAO (2009). *Abandoned, lost or otherwise discarded fishing gear*. UNEP Regional Seas Reports and Studies, No. 185; FAO Fisheries and Aquaculture Technical Paper, No. 523. Rome. 115 p.

Appendix 1
Monitoring Forms

Table 1. Marine litter collected form.

| | |
|--------------------------|--|
| Harbour | |
| Vessel | |
| Date | |
| Number of bags | |
| Total weight (Kg) | |
| Observations | |

| ID | PLASTIC/POLYSTYRENE | Total No. |
|-----------|--|------------------|
| G2 | Bags | |
| G6 | Bottles | |
| G10 | Food containers incl. fast food containers | |
| G18 | Crates and containers / baskets | |
| G20 | Plastic caps and lids | |
| G27 | Cigarette butts and filters | |
| G39 | Gloves | |
| G48 | Synthetic rope | |
| G51 | Fishing net | |
| G55 | Fishing line (entangled) | |
| G59 | Fishing line/monofilament (angling) | |
| G61 | Other fishing related | |
| G66 | Strapping bands | |
| G67 | Sheets, industrial packaging, plastic sheeting | |
| G93 | Cable ties | |
| G124 | Other plastic/polystyrene items (identifiable) | |
| ID | RUBBER | Total No. |
| G125 | Balloons and balloon sticks | |
| G127 | Rubber boots | |
| G128 | Tyres and belts | |
| G132 | Bobbins (fishing) | |
| G134 | Other rubber pieces | |
| ID | CLOTH/TEXTILE | Total No. |
| G136 | Shoes | |
| G137 | Clothing / rags (clothing, hats, towels) | |
| G141 | Carpet & Furnishing | |

| | | |
|--------------|--|------------------|
| G142 | Rope, string and nets | |
| G145 | Other textiles (incl. rags) | |
| ID | PAPER/CARDBOARD | Total No. |
| G146 | Paper/Cardboard | |
| G148 | Cardboard (boxes & fragments) | |
| G158 | Other paper items | |
| ID | PROCESSED/WORKED WOOD | Total No. |
| G160 | Pallets | |
| G170 | Wood (processed) | |
| G173 | Other (specify) | |
| ID | METAL | Total No. |
| G175 | Cans (beverage) | |
| G176 | Cans (food) | |
| G180 | Appliances (refrigerators, washers, etc.) | |
| G182 | Fishing related (weights, sinkers, lures, hooks) | |
| G185 | Middle size containers | |
| G187 | Drums, e.g. oil | |
| G193 | Car parts / batteries | |
| G194 | Cables | |
| G196 | Large metallic objects | |
| G197 | Other (metal) | |
| ID | GLASS/CERAMICS | Total No. |
| G200 | Bottles incl. pieces | |
| G201 | Jars incl. pieces | |
| G208 | Glass or ceramic fragments >2.5cm | |
| G209 | Large glass objects (specify) | |
| G210 | Other glass items | |
| ID | SANITARY WASTE | Total No. |
| G95 | Cotton bud sticks | |
| G96 | Sanitary towels/panty liners/backing strips | |
| G98 | Diapers/nappies | |
| G133 | Condoms (incl. packaging) | |
| ID | MEDICAL WASTE | Total No. |
| G99 | Syringes/needles | |
| TOTAL | | |

Table 2. Reporting format-Monthly tons of marine litter collected.

Appendix 2
Summary of the FfL Projects

| PRACTICE / PROJECT | IMPLEMENTING ORGANISATION | SCOPE | PERIOD | LITTER REMOVED | ACTIVITIES UNDERTAKEN | ADDED VALUE |
|---------------------------|---|---|---------------------------|--------------------------|--|---|
| Ecological bags on board | Villajoyosa fishermen's association | Alicante Coast (E Spain) | 2012- | Seabed and floating | <ul style="list-style-type: none"> 1 harbour, 38 boats (30 trawls, 8 trammels) | <ul style="list-style-type: none"> Fishermen initiative |
| Ecopuertos | RELEC Chair (University of Cadiz, Spain) | Andalusian Coast (port of Motril, Granada) | August 2013-December 2014 | Seabed | <ul style="list-style-type: none"> Until 30th September 2014: 41701 items of seabed litter collected and 17603 kg of fish donated On average 5 vessels participating each month (trawling fishing vessels) | <ul style="list-style-type: none"> Integrated waste management system Fishing discards of the participating fleet provide food to charity canteens through Granada Food Bank Foundation The project finalised at the beginning of December 2014 but the continuity of this initiative is assured thanks to funding from the port of Motril |
| DeFishGear | Lead partner: National Institute of Chemistry (Slovenia) Project countries: Slovenia, Italy, Greece, Croatia, Bosnia and Herzegovina, Montenegro and Albania | Adriatic Sea | Beginning of 2014-ongoing | Seabed and fishing gears | <ul style="list-style-type: none"> Fishing for litter pilot actions started in October and will last from 6 to a maximum of 12 months | <ul style="list-style-type: none"> Implementation of a Derelict Fishing Gear Management System in the Adriatic Region – DeFishGear Recovering and reuse fishing nets |
| Port of San Remo | Lead partner: OLPA (The Ligurian Observatory on Fishery and Environment) Partners: Liguria region; ARPA Liguria; Municipality of San Remo; fishery cooperatives (LegaPesca, Federco pesca, AGCI Pesca), port authority of San Remo; FLAG (Fisheries Local Action Group) 'Il mare delle alpi'; waste management companies (AIMERI SpA); Accordo Pelagos and RAMOGE; tourism industry (Consorzio Mediterraneo; Costa Crociere Foundation); ARPA Toscana; University of Genova; Institut Ruđer Bošković | Ligurian Coast (Port of San Remo, Italy) | 2015- | Seabed | <ul style="list-style-type: none"> 11 trawlers of San Remo are involved | <ul style="list-style-type: none"> The objectives of the project are: improve the marine environment and in particular the environmental status of the sea bottom by reducing marine litter; promote behavioural change among stakeholders and raise awareness on marine litter issues; provide evidence on marine litter hot-spots in Liguria |
| Port of Rovinj | Lead partner: Center for Marine Research of the Ruđer Bošković Institute | Northern Adriatic | 2015- | Seabed | <ul style="list-style-type: none"> 20-25 vessels are involved in the | <ul style="list-style-type: none"> The objectives of the project are: Remove marine litter and |

| PRACTICE / PROJECT | IMPLEMENTING ORGANISATION | SCOPE | PERIOD | LITTER REMOVED | ACTIVITIES UNDERTAKEN | ADDED VALUE |
|---------------------------|--|---|---------------|-----------------------|------------------------------|--|
| | Partners: fishermen of Rovinj; Port authority of Rovinj; Komunalni servis d.o.o (municipal waste management company); NGO Zelena Istra (Green Istria); Chamber of Commerce of Istria; Municipality of Rovinj | Sea, Istrian Coast (Port of Rovinj, Croatia) | | | first stage of the project | contribute to the implementation of the Marine Strategy Framework Directive in Croatia and to achieving good environmental status; Collect data on marine litter in the Northern Adriatic Sea; Raise awareness on the problem of marine litter |

Appendix 3
Elements for the Health and Safety Risk Assessment

Hazards

| Hazard no: | |
|------------|---|
| 1 | Working on fishing boat (MOD, collision, fire and flood) |
| 2 | Working with fishing gear on dock (ropes, wires, trawls and winch gear) |
| 3 | Ladders on quayside (ladders on vessel) |
| 4 | Landing debris (using landing derricks) |
| 5 | The fish quay (slippery surfaces, mooring ropes, blocks and bollards) |
| 6 | Handling debris (cutting hands on sharp objects) |
| 7 | Emptying skips (injury if craned from pontoon) |

Persons affected Crew and Project Staff

| Hazard no: | Hazard severity | Likelihood of occurrence | Risk factor |
|------------|---------------------|--------------------------|-------------|
| 1 | High / mod risk | Low likelihood | Severe |
| 2 | High / mod risk | Low likelihood | Severe |
| 3 | Low risk | Low likelihood | Medium |
| 4 | Low risk | Low likelihood | Medium |
| 5 | Moderate risk | Low likelihood | Minor |
| 6 | Moderate / low risk | Likely | Medium |
| 7 | Low risk | Unlikely | Medium |

| Likelihood / Consequence | Severe | Major | Medium | Minor |
|--------------------------|-------------------|----------------|---------------------|-----------------|
| High likelihood | Very high risk | High risk | Moderate risk | Moderate risk |
| Likely | High risk | Moderate risk | Moderate / low risk | Low risk |
| Low likelihood | High / mod risk | Mod / low risk | Low risk | Negligible Risk |
| Unlikely | Moderate/low risk | Low risk | Negligible Risk | Negligible Risk |

To assess the risk arising from the hazard:

1. Select the expression for likelihood which most applies to the hazard
2. Select the expression for degree of harm which most applies to the hazard
3. Cross reference using the above table to determine the level of risk

| <i>Existing Control Measures Re-assessed</i> | | |
|--|---|-------------|
| Hazard | Control Measures | Risk Factor |
| 1 | Vessel survey, trainee staff, good safety equipment | Medium |
| 2 | Vessel survey, trainee staff, good safety equipment | Medium |
| 3 | Survey the quay | Minor |
| 4 | Vessel survey, staff familiar with equipment | Minor |
| 5 | Survey the quay | Minor |
| 6 | Issue of safety equipment (gloves, boots, hard hat) | Minor |
| 7 | Staff to be familiar with craning procedures | Minor |

Appendix 4
Costs of Fishing for Litter Projects

Summary

The overall costs of implementing Fishing for Litter schemes (passive approach) vary significantly from one project/ country to another, depending on the way they are organized, elements built in the schemes, their size (in terms of number of vessels and ports involved) and specific costs of staff time and waste disposal. The key cost elements are treatment and disposal of collected litter, staff time needed to manage/ coordinate the project, and the costs of ‘infrastructure’ – bags and containers used to collect and store litter on board the vessels and in the ports.

Experience with 10 projects implemented in different regional seas in the period 2000 - 2015 shows that mid-scale costs per ton of collected litter are in the range of 800 to 5,200 euros⁴. Among the 10 projects there are also those where the cost per ton of collected litter is as low as 350 euros⁵ and those where the costs range from 15,500 to 20,000 euros⁶ (the latter having waste separation and recycling as constituent parts of the schemes and incineration with energy recovery as the final disposal option). Annual costs per participating vessel range from around 300 to 3,500 euros. Project management inputs (in relation to the number of participating vessels) ranged from 19 to 207 vessels per one full-time manager (depending on what specific tasks are included in the manager’s job description).

Given the large variation in the available data on costs of already implemented projects, these figures should only be used as indicative. A sound approach in implementing the Guide i.e. in designing a new Fishing for Litter scheme would be to do rough project-specific cost estimation considering primarily the price of waste removal and treatment (for preferred/ possible options) per ton of marine litter targeted for collection under the scheme. Staff time for project management and costs of necessary bags and possibly containers/ port infrastructure (if non-existent) should be also included.

Full information

Even though there is a growing experience with implementing Fishing for Litter (FfL) schemes, information on how much does it cost to implement such an intervention is not widely available and/ or readily comparable from one project to another (or from one country to another). The total costs largely depend on the following:

- 1) Scope of the scheme (How many vessel/ fishermen are participating? How many ports are included?);
- 2) How are the costs of treatment and final disposal of collected litter covered (e.g. does the FfL project pay to waste companies for this service or is it provided as a contribution of participating entities – local governments, port authorities or others?);
- 3) State of port infrastructure (Are containers to receive litter from participating vessels available and accessible at times suitable for fishermen free of charge?); and
- 4) Staff time needed to prepare and implement the project.

The main benefits associated with fishing for litter schemes include reduction in marine litter and associated negative environmental impacts, and positive publicity for fishermen. In addition to removal of the litter, FfL projects often have awareness raising and monitoring components/ functions which generate additional benefits. According to an assessment of the OSPAR Commission, ‘*financial costs of running the scheme are not onerous compared to benefits it brings*’.

General steps in preparing and implementing the scheme that entail certain costs are listed below:

| Preparation | Implementation |
|-------------|----------------|
|-------------|----------------|

⁴Data from the assessment of different Fishing for Litter schemes prepared under the MARELITT project (assessment report titled *Pilot project: removal of marine litter from Europe’s four regional seas*, prepared by Milieu Ltd in 2013) and individual project web sites (in cases where information on costs was available).

⁵ E.g. the Dutch Vuilvis project where a private waste management company provides removal and treatment services as an in kind contribution to the project.

⁶ German NABU (Nature and Biodiversity Conservation Union) and Baltic KIMO (Local Authorities International Environment Organisation - an association of local authorities in coastal areas) respectively.

| <i>Activity</i> | <i>Costs</i> | <i>Activity</i> | <i>Costs</i> |
|--|--------------------------------|---|---|
| Develop public relations/ awareness raising strategy | Staff time, consultations | Day-to-day management | Staff time |
| Develop management plan | Staff time, consultations | Provision of receptacles (bags) to fishermen | Purchase and distribution of bags |
| Develop public relations materials | Staff time, publications | Storing the bags in designated areas/ containers in ports | Provision of port infrastructure, handling of waste |
| Organise PR events to launch the scheme | Staff time, events, media time | Transport and treatment/ final disposal of collected litter | Transport, separation (if any), recycling and final disposal of waste |
| Develop guidelines for fishermen | Staff time, publications | Marine litter monitoring | Staff time |
| | | Continuous awareness raising activities | Staff time, publications, media time |

Principal cost elements of FfL scheme therefore include:

1. Preparation costs (strategy, plan, organisation of events, publications);
2. Project management costs;
3. Cost of bags distributed to fishermen to transport collected litter;
4. Costs of providing adequate port infrastructure (if not available);
5. Waste management costs; and
6. Project management cost.

The experience from a growing number of projects implemented during the past 10 – 15 years show that day-to-day management of the scheme is crucial for its success, which implies the necessity to employ a project manager/ coordinator on a full- or part-time basis, depending on the number of participating vessels and specific tasks to be addressed (e.g. delivery of bags, instructions to fishermen, monitoring, awareness raising, etc.).

Waste management costs are expected to represent the most substantial item in the budget of any FfL project. In addition to the quantity of collected litter, they will directly depend on whether there will be attempts to separate (for recycling) certain types of wastes and what final disposal option will be selected (e.g. landfilling or incineration with/ without energy recovery). The waste management arrangements can also affect project budget significantly, as the removal and disposal costs may be covered by local governments, port authorities and/ or waste management companies. If for example waste management companies directly cover waste removal and disposal costs (possibly as an in-kind contribution to the project) or if they charge the project at preferential rates, the amount of money that needs to be raised to implement the scheme can be reduced.

There is a wide range of experiences as to who bears the costs of FfL projects. Port authorities, national governments (in particular marine management/ protection authorities), local and regional authorities, are the most frequent funders. Furthermore, cost of FfL schemes are often covered through various partnerships and projects involving waste disposal companies, private sector as well as NGOs and specialised public funds (e.g. fishery development fund). Experience shows that regional and/ or national schemes tend to be more effective and receive more publicity compared to the local ones.

Information on specific costs of already implemented projects is limited and the most comprehensive data and analysis can be found in the report prepared under the MARELITT project⁷. All together 14 projects were assessed (3 of them implemented in the Mediterranean Sea) for the purpose of this MARELITT report. Out of the 14 projects, two entailed direct payments to fishermen and as such, they were not analyzed for the purpose of the MED POL Guide on Ffl.

⁷*Pilot project: removal of marine litter from Europe's four regional seas*, Milieu Ltd, 2013. The report presents a comparative analysis of the existing marine litter removal projects and was submitted to the European Commission as an annex to the MARELITT Progress Report of December 2013.

Annex II
Marine Litter Baselines Values

Marine Litter Baselines Values

| Common Indicator (CI) | minimum value | maximum value | mean value | Proposed baseline |
|---|----------------------|----------------------|-------------------|--------------------------|
| 16. Beaches (items/100 m) (CI 16) | 11 | 3600 | 920 | 450-1400 |
| 17. Floating litter (items/km ²) (CI 17) | 0 | 195 | 3.9 | 3-5 |
| 17. Sea floor (items/km ²) (CI 17) | 0 | 7700 | 179 | 130-230 |
| 17. Micro-plastics (items/km ²) (CI 17) | | 4860000 | 340 000 | 200000-500000 |
| 18. Sea Turtles Affected turtles (%) | 14% | 92.5% | 45.9% | 40-60% |
| Ingested litter(g) (CI 18) | 0 | 14 | 1.37 | 1-3 |

It must be noted that the amount of existing information is limited to set definitive baselines that may be adjusted once the national monitoring programs could provide additional data. Moreover, Average values over large areas are difficult to harmonize, in particular for beach litter. Then, the setting or derivation of baselines should take the local conditions into account and may follow a more localized approach. Finally, additional specific baselines may be decided by the Contracting Parties on specific litter categories especially when they may represent an important part of litter found or a specific interest (targeted measures, etc.).

Annex III
Marine Litter Environmental Targets

Marine Litter Environmental Targets

| Marine Litter EcAp Indicators | Type of Target | Minimum | Maximum | Reduction Targets | Remarks |
|---|--|----------------|----------------|---------------------------|---|
| Beaches (Common Indicator 16) | % decrease | significant | 30 | 20% by 2024 | not 100% marine pollution |
| Floating Litter (Common Indicator 17) | % decrease | - | - | Statistically Significant | sources are difficult to control (trans border movements) |
| Sea Floor Litter (Common Indicator 17) | % decrease | stable | 10% in 5 years | Statistically Significant | 15% in 15 years is possible |
| Micro-plastics (Common Indicator 17) | % decrease | - | - | Statistically Significant | sources are difficult to control (trans border movements) |
| Ingested Litter (Common Indicator 18) | | | | | Movements of litter and Animals to be considered |
| Number of turtles with ingested litter (%) | % decrease in the rate of affected animals | - | - | Statistically Significant | |
| Amount of ingested litter | % decrease in quantity of ingested weight(g) | - | - | Statistically Significant | |