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Background Information for the Roadmap for the NOWPAP Regional Action Plan on Marine and Coastal Biodiversity (RAP BIO)

Regional Seas

Contents

List of Acronyms

APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BBP	Biodiversity-based Products
BCAMP	Biodiversity Conservation and Management of Protected Areas in ASEAN
CBD	Convention on Biological Diversity
CCCC	Climate Change and Carrying Capacity Programme
CEARAC	Special Monitoring and Coastal Environmental Assessment Regional Activity Centre
COBAM	Coordination of Biodiversity Assessment and Monitoring
COBSEA	Coordinating Body on the Seas of East Asia
COP	Conference of the Parties
DINRAC	Data and Information Network Regional Activity Center
DPSIR	Drivers, Pressures, States, Impacts, Responses
EAAFP	East Asian-Australian Flyway
EBSAs	Ecologically or Biologically Significant Marine Area
ECM	Expert Consultation Meeting
EEA	European Environment Agency
ESABII	East and Southeast Asia Biodiversity Information Initiative
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GBIF	Global Biodiversity Information Facility
GEO BON	Group on Earth Observations Biodiversity Observation Network
GIS	Geographic Information System
GMO(s)	Genetically Modified Organism(s)
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
GPML	Global Partnership on Marine Litter
ICES	International Council for the Exploration of the Sea
ICG	Inter-sessional Correspondence Group
ICRI	International Coral Reef Initiative
IGM	Intergovernmental Meeting
ILTER	International Long-Term Ecological Research
IOC	Intergovernmental Oceanographic Commission
ISB	Institutional Strengthening of the Biodiversity Sector in ASEAN
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported, and Unregulated Fishing
HELCOM	Baltic Marine Environment Protection Commission
MAP	UNEP Mediterranean Action Plan
MALITA	Marine Litter Activity
MARPOL	International Convention for the Prevention of Pollution from Ships

MIS	Marine Invasive Species
MERRAC	Marine Environmental Emergency Preparedness and Response Regional Activity Center
MPA	Marine Protected Area
MSP	Marine Spatial Planning
MERRAC	Marine Environmental Emergency Preparedness and Response Regional Activity Center
MSSD	Mediterranean Strategy on Sustainable Development
MTS	Medium-Term Strategy
NBSAPs	National Biodiversity Strategies and Action Plans
NEASPEC	North-East Asian Subregional Programme for Environmental Cooperation
NEAMPAN	North-East Asian Marine Protected Areas Network
NPEC	Northwest Pacific Environmental Cooperation Center
NOWPAP	Northwest Pacific Action Plan
OFWG	APEC's Oceans and Fisheries Working Group
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
RAP MALI	Regional Action Plan on Marine Litter
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
PICES	North Pacific Marine Science Organization
POMRAC	Pollution Monitoring Regional Activity Center
POPs	Persistent Organic Pollutants
PoWPA	Programme of Work on Protected Areas
RAC(s)	Regional Activity Center(s)
RAP BIO	Regional Action Plan on Marine and Coastal Biodiversity Conservation
RAP MALI	Regional Action Plan on Marine Litter
RCU	Regional Coordination Unit
ROPME	Regional Organization for the Protection of the Marine Environment
SACEP	South Asia Co-operative Environment Programme
SAP BIO	Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region
SASAP	South Asian Seas Action Plan
SASP	South Asian Seas Programme
SDGs	Sustainable Development Goals
SOM	Senior Officials Meeting
SOMER	State of Marine Environment Report for the NOWPAP Region
SPAMIs	Specially Protected Areas of Mediterranean Importance in the Mediterranean
SPAs	Specially Protected Areas
SPA/RAC	Specially Protected Areas Regional Activity Center
UN	United Nations
ESCAP	Economic and Social Commission for Asia and the Pacific

UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEP	United Nations Environment Programme
UNEP RSP	UNEP Regional Seas Programme
WESTPAC	IOC Sub-Commission for the Western Pacific
YSLME	UNDP/GEF Yellow Sea Large Marine Ecosystem Project

The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP) is one of the Regional Seas Programmes of the UN Environment and was adopted by the four Member States (P.R. China, Japan, R. Korea and the Russian Federation) in 1994 (https://www.unenvironment.org/nowpap). The overall goal of the NOWPAP is "the wise use, development and management of the coastal and marine environment so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations".

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3. The project is coordinated by Yegor Volovik and Ning Liu.

Purpose of the document

4. This document provides background information to support the rational, and provide further details, of the proposed *Roadmap* for the development of a *Regional Action Plan on Marine and Coastal Biodiversity Conservation*. The Roadmap itself is presented in a separate document for consideration by the NOWPAP Inter-Governmental Meeting.

5. This background document was developed with the collaboration of regional experts from all four NOWPAP Member States and key national and/or regional scientific or technical institutes as listed in the acknowledgements section above.

6. This background document was discussed at a Workshop on the NOWPAP Regional Action Plan for Marine and Coastal Biodiversity Conservation, held 28 November 2019, in Chiba, Japan.

1. Background

7. The four Member States of the NOWPAP Region (P.R. China, Japan, R. Korea and the Russian Federation) approved the NOWPAP Medium-term Strategy 2018-2023 in June 2018. A major focus of the Medium-term Strategy 2018-2023 is on the coordination of the regional implementation of the ocean-related Sustainable Development Goals (SDGs), particularly SDG 14 ("*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*") using the NOWPAP mechanism. The NOWPAP Medium-term Strategy 2018-2023 will implement this leading role by focusing on three pillars: (i) an ecosystem-based management approach to sustainable development of marine and coastal areas to achieve the Ecological Quality Objectives; (ii) monitoring and reporting on progress towards Sustainable Development Goal 14 and its targets, and (ii) strengthening partnerships with relevant global and regional institutions.

8. One of the Medium-term Strategy 2018-2023 priorities is the conservation of marine and coastal biodiversity. Work in this area will be capped with the development of a Regional Action Plan on Marine and Coastal Biodiversity Conservation (or RAP BIO thereafter) by the end of Medium-term Strategy period in 2023. The future NOWPAP RAP BIO should be aligned with the priorities and vision of the NOWPAP Medium-term Strategy 2018-2023 and based on: (i) an assessment of the current state of, and identified regional priorities for, marine and coastal biodiversity conservation and use and the main impacts of human activities, incorporating future trends affecting ecosystem health; (ii) an identification of main actors, key strategic objectives and actions by different partners to identify NOWPAP's role and comparative advantage, complemented by a draft Action Plan for Marine and Coastal Biodiversity with priority activities for future development, with potential funding opportunities identified.

9. The draft RAP BIO will be ready by 2020, will be considered for adoption by Member States by 2021 and will commence in 2022. The objective of the current document is to support the discussion among relevant stakeholders and partners on identifying the approach and methodology for developing the RAP BIO during 2020: the "Roadmap for the RAP BIO ". The Roadmap for RAP BIO is to include the list of activities, with identified work plan, and a participatory consultative process that would result in the production of the final, complete, draft of the NOWPAP RAP BIO (and any related Sub-Action Plans, Activities or Work Plans) that will meet the requirements of Member States. This Roadmap for the RAP BIO will be presented to the Intergovernmental Meeting (IGM) in early 2020, enabling the work on the details of the actual RAP BIO to commence thereafter.

10. The objective of the Roadmap for the RAP BIO is, therefore, to set out the strategy and activities to be undertaken to produce the final RAP BIO, but not to produce the finer details of the RAP BIO, nor to populate it with detailed scientific findings. Developing the details of, and final recommended form of, the RAP BIO will commence from 2020. However, in order to be comprehensive and relevant the Roadmap will need to discuss and identify a draft Vision, Mission, Goals and Principles for the RAP BIO and at least a provisional draft annotated outline of its contents and work areas. These will, of course, be subject to further development as the consultations on the RAP BIO progresses, from 2020, and as relevant details become available.

2. Introduction

2.1. The scope of "marine and coastal biodiversity conservation" and the RAP BIO

11. In order to avoid defining what "marine" and/or "coastal" mean (neither of which have consistent definitions) it is proposed to define the ecological/geographic scope of the RAP BIO as the "*biodiversity occurring within, or dependent upon, the NOWPAP region*". The "dependent upon" is important to capture species or populations that rely on the area at any point in their lifecycle (most notably migratory species).

12. There are in fact multiple definitions of "conservation" depending on stakeholder usage, including among the environment/biodiversity community. In general, "conservation" is an umbrella term that defines anything we do to protect our planet and its natural resources, including biodiversity, so that its continued and sustained existence can be maintained in order to sustain life, including human wellbeing. Although this, or similar, concepts are generally understood, for the purposes of the RAP BIO it should be clear that the use of the term "conservation", unless used in a specific context, means "conservation and sustainable use" as defined and used by The Convention on Biological Diversity (1992). That is, use of biodiversity is permitted (if not often promoted), provided such use is sustainable and supports conservation outcomes.

13. "Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Convention on Biological Diversity 1992). In recent times the subject of "biodiversity" has generally tended to include the role that biodiversity plays in supporting ecosystem functions and the delivery of ecosystem benefits - which are ecosystem services. The Strategic Plan for Biodiversity 2011-2020, and the Aichi Biodiversity Targets, encompass ecosystem services. All National Biodiversity Strategies and Action Plans (NBSAPs) of the four NOWPAP Member States include an explicit focus on ecosystem services. Priority 4 of the NOWPAP Medium-term Strategy 2018-2023 (Conserve marine and coastal biodiversity) is to contribute to, or be measured by progress towards, SDG 14 (*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*) and in particular SDG Target 14.2 (*By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans*). Both of these use language (e.g. "sustainable development", "healthy and productive") implying that ecosystem services is the link between biodiversity and the goals/targets.

14. The implications of this is that the NOWPAP RAP BIO needs to include monitoring and managing ecosystem services in the NOWPAP region in addition to biodiversity at the level of species, populations and ecosystems. This will also enable the RAP BIO to generate information and knowledge that is policy relevant (speaking to benefits for people) and hence strengthen linkages between the RAP BIO and sustainable development (as intended in the NOWPAP Medium-term Strategy 2018-2023 and consistent with national policies/approaches to biodiversity conservation).

2.2. The relationship between the RAP BIO and the overall NOWPAP strategy and work-plan

15. The Goal of the NOWPAP is "the wise use, development and management of the coastal and marine environment so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations". Since there is a close relationship between the status of "biodiversity" and the status of "the environment" most of the activities undertaken under the NOWPAP, including monitoring, policy advice and management interventions, actually have the improvement of biodiversity as a direct or indirect outcome. For example, the NOWPAP Regional Action Plan on Marine Litter was developed because of the impact of marine litter on biodiversity (among other reasons). Similarly, efforts to reduce marine pollution are, inter alia, designed to improve outcomes for the environment and/or biodiversity. Therefore, most current and previous work of NOWPAP is biodiversity related.

16. The implication of this is that the status of, and trends in, biodiversity (including ecosystem services, threats or pressures and responses) is a major measure of progress towards the overall NOWPAP and a major means of establishing the NOWPAP programme of work and its priorities. Therefore, the RAP BIO is not simply an addition to the NOWPAP Strategy and Work-plan but is central to it.

2.3. Activities on marine and coastal biodiversity at national level

2.3.1. China

17. Currently being compiled.

2.3.2. Japan

The Basic Act and Plan on Ocean Policy

18. The Japanese government has several policies and strategies on marine biodiversity conservation. In 2007, the Japanese government developed the ***"Basic Act on Ocean Policy"***. This is the foundation for management of Japanese sea areas. This act aims to manage all marine related issues, and marine biodiversity conservation is one of them.

19. Based on the Basic Act on Ocean Policy, the ***"Basic Plan on Ocean Policy"*** was developed in 2008. This plan was revised in 2013 and 2018, and the latest is the third version. This basic plan also covers all marine related issues, so marine biodiversity conservation is one of these, but there is no specific description of a plan for marine biodiversity conservation.

20. The National Biodiversity Strategy 2012-2020 was developed based on the decision at the 10th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10). The Japanese government set the five basic strategies for biodiversity conservation as shown above. The Japanese government assesses the status of biodiversity regularly and publishes reports such as the *Japan Biodiversity Outlook* (see below). Status and trend of biodiversity is assessed using indicators and appropriate measures are reflected in the national strategies.

Marine Biodiversity Conservation Strategy

21. The Japanese government developed the *Marine Biodiversity Conservation Strategy* in 2011. This strategy focuses on marine biodiversity and detailed actions are described below. This strategy

has five basic perspectives, in addition to the five basic perspectives of the National Biodiversity Strategy:

1) Recognition of the importance of marine biodiversity

- It is important to recognize marine biodiversity and its various blessings. Long-term and continuous utilization of the ecosystems services requires maintenance of sound ecosystems. In addition, for continuous promotion of their conservation and sustainable utilization, it is essential to properly assess the importance of marine biodiversity for our economic activities and social life, to accept its conservation as worthwhile.

2) Integrated management of the sea

- The importance of linkages between land, coastal areas and seas and oceans. It is necessary to manage a coastal area considering the linkage between the land and the sea. Approaches to perceive a whole watershed as an integral part are among such management.
- Importance of extensive perspective on the open ocean: Considering the continuity of the ocean and the extensive migration of marine organisms, international cooperation, such as cooperation with neighboring countries, is important for the open ocean.

3) Measures appropriate to the characteristics of marine areas around Japan

- Characteristics of ecosystems and the major influencing factors differ between coastal waters and the open ocean. The marine environment also varies significantly with latitude, ocean current and bottom topography. It is important to implement measures for their conservation and sustainable utilization, taking characteristics of individual marine areas into consideration.

4) Effective measures to utilize local knowledge and technology

- It is important to respect activities of local communities for conservation and management on the basis of their long history and traditional wisdom. Participation of various local actors and facilitation of coordination among them are also important.

5) Summary of the concept of Marine Protected Areas

- Marine Protected Areas: Marine areas designated and managed by law or other effective means, in consideration of use modalities, aimed at the conservation of marine biodiversity supporting the sound structure and function of marine ecosystems and ensuring the sustainable use of marine ecosystem services.
- Current status of Marine Protected Areas in Japan and their challenges: In Japan, areas that would fall under Marine Protected Areas have been designated in various forms such as National Parks. From now on, it is necessary to consider a concept of efficient Marine Protected Areas through their improvement by application of the existing systems and effective combinations of these. Continuous review for appropriate measures or systems in also required, considering accumulation of knowledge and changes in the social situation.

Monitoring Site 1,000

22. In order to monitor and collect long-term environmental data and species data for conservation of various kinds of ecosystem, the Japanese government established a program *"Monitoring Site 1,000"*. Over 1,000 monitoring sites are selected, and many universities, research institutes, experts and NPOs and volunteers support this program.

23. Monitoring sites are located in mountains, forests, satoyama, lakes, marshes, beaches, tidal flats, seagrass beds, coral reefs and islands. Summary reports are published every 5-10 years.

The Japan Biodiversity Outlook

24. The Japan Biodiversity Outlook is a comprehensive assessment report of biodiversity and ecosystem services in Japan. The Japan Biodiversity Outlook was published in 2010 and 2016. In this outlook, status and trend of biodiversity and ecosystem services are assessed in four crises: the first crisis is development, direct use, and water pollution; the second crisis is reduction in use and management; the third crisis is invasive alien species and chemical compounds; and the last crisis is climate change.

25. The brief results of the latest assessment are as follows;

- Biodiversity remains on a declining trend driven by the same major factors (1st to 4th Crises) as those of the precious assessment;
- Impact of climate change on species distribution and ecosystems has been reassessed to be of great certainty;
- Many domestic ecosystem services have been either declining or remaining at the same level compared to the past years;
- Domestic provisioning services have been declining compared to the past years;
- Decline of provisioning services is caused by overuse, habitat destruction and others, and underuse;
- Dependence on imported food and resources and reduced domestic production are underlying causes of underuse;
- Regulating services are declining and disservices are increasing due to reduced human activities, etc.;
- Cultural services rooted in local communities and natural environment are diminishing; and
- While opportunities to interact with nature on a daily basis have decreased, people looking into eco-tourism and other ways to reconnect with nature are increasing.

26. Based on these assessment results, future strategies to 2050 are proposed:

- Enhance mainstreaming of biodiversity into various strategies to raise awareness and encourage actions;
- Develop personnel to implement cross-sectoral efforts, and foster collaboration among related organizations;

- Recognize the “sound material-cycling socio-ecological sphere” and develop a mechanism for supporting sustainable use and management of biodiversity and ecosystem services;
- Recreate a vision regarding appropriate land management by taking the population decrease into account;
- Promote the use, management, and governance of ecosystems based on updated scientific findings and traditional wisdom;
- Promote the planned and balanced use of domestic resources;
- Provide social support for consumers to buy more sustainable products;
- Effectively utilize ecosystem services for promoting health; and
- Incorporate ecosystem services in the implementation of various projects and programs.

Latest actions for marine biodiversity conservation by the Japanese government

27. Ecologically or Biologically Significant Marine Area (EBSAs) (2016)

The Ministry of Environment selected EBSAs for marine biodiversity conservation in coastal areas, offshore surface, and offshore bottom using following criteria:

- Uniqueness or rarity;
- Special importance for life-history stage of species;
- Importance for threatened, endangered or declining species and/or habitats;
- Vulnerability, fragility, sensitivity, or slow recovery;
- Biological productivity;
- Biological diversity;
- Naturalness; and
- Representativeness or typicality.

The selected sea areas are potential sea area for future MPAs in Japan.

28. New MPAs in offshore area

The total covered area of MPAs in Japan is 8.3 % of Japanese territorial waters. In order to achieve Aichi Biodiversity Target 11, at least a further 1.7 % of Japanese territorial waters needs to be newly designated as MPA. Most of designated MPAs are located in coastal area. It is difficult to designate new MPA in coastal waters. Therefore, MoE tries to designate MPA in offshore area, especially offshore bottom. For this, MoE revised the Natural Conservation Law in 2019, and it was approved by a cabinet meeting.

2.3.3. Republic of Korea

29. Currently being compiled.

Russian Federation

30. Currently being compiled.

2.4. Previous work of NOWPAP on marine and coastal biodiversity

31. Although most of the previous and current work of the NOWPAP is biodiversity related (as above), there have been activities that have been specifically and explicitly focused on marine and coastal biodiversity. These previous, and on-going, efforts form a significant information and experience base to support the development of the RAP BIO. A brief summary of some of this previous work follows:

2.4.1. Marine invasive species

32. The NOWPAP DINRAC implemented a project on the marine invasive species in the NOWPAP region in 2009-2010 with compilation of four national reports from China, Japan, Korea, and Russia and a regional overview (NOWPAP-DINRAC, 2010). DINRAC (2013) published an atlas of the common and economically/environmentally important alien species in the NOWPAP region with their illustrations and basic data on the biology, regional distribution and relevant references.

2.4.2. Database on endangered species

33. NOWPAP-DINRAC maintains a database on the conservation status of species (endangered species) in the NOWPAP region.

2.4.3. Seagrass mapping

34. A feasibility study was conducted for the assessment of seagrass in the NOWPAP region in 2015 as an activity of the Special Monitoring and Coastal Environmental Assessment Regional Activity Canter (CEARAC) of NOWPAP. The objective of this activity was to investigate the usefulness of satellite images for the assessment of seagrass distribution in the NOWPAP region and identify obstacles and required resources and/or tasks for implementing the assessment. Collection and review of the literature on seagrass distribution and threats to seagrass in each member state were first conducted by national experts nominated in each NOWPAP member state. Among the ten species of seagrasses reported in the NOWPAP region, 6 species were listed on the IUCN (International Union for Conservation of Nature) Red List of Threatened Species. More than 800 locations of seagrass observation records in the NOWPAP sea area were then mapped on a web-based GIS prototype developed by CEARAC. It was concluded that the conventional processing method using software for analyzing satellite images is laborious and impractical to map seagrass distribution in the entire NOWPAP sea area. Use of cloud computing technology for the analysis of satellite images was recommended to reduce the time and cost required to map the distribution of seagrass in the NOWPAP region (NOWPAP-CEARAC, 2018).

2.4.4. Impacts of global warming

35. On behalf of NOWPAP, in 2011-2013, the Asia-Pacific Network for Global Change Research analysed spatial and temporal variability in oceanographic conditions and recruitments of major fish species in the NOWPAP sea area for the last 40 years. In 2013-2014, the project forecasted the changes in potential production of fisheries resources and evaluated risks and vulnerabilities, induced by climate change, in fisheries-dependent sectors across NOWPAP countries (APN, 2014). The report provides scientific basis to decision makers in developing policy strategies that incorporate regional differences in marine ecosystems supporting fish stocks and vulnerability and adaptation of fisheries industries to climate change. The report contributes to comprehending the status and outlook of marine ecosystems supporting fisheries in the Northwest Pacific, and to extending regional policy makers' knowledge and understanding for adapting fisheries sectors to climate change.

2.4.5. Monitoring and management of Marine Protected Areas

36. NOWPAP-CEARAC has undertaken a review of the marine protected areas (MPAs) in the NOWPAP region, and their management and monitoring (NOWPAP-CEARAC 2013). The report compiles basic information on the existing MPAs in the NOWPAP Member States, including the laws and regulations stipulating the establishment of MPAs as well as the monitoring programmes and management practices employed. The possibility of applying internationally emerging concepts and ideas for marine and coastal biodiversity conservation to the NOWPAP region was also discussed. As of 2012, 277 MPAs were designated in the NOWPAP region and the area covered by these MPAs was 67,483 km^2. The NOWPAP Member States designate MPAs based on relevant national laws and regulations using their own or internationally recognized MPA definitions. Each member state designated MPAs within the range of MPA categories of the IUCN even if the IUCN categorization system was not explicitly employed. Some Member States now plan to increase the area and number of MPAs to achieve the Aichi Biodiversity Targets. Monitoring programmes and management practices for selected MPAs in the NOWPAP Member States are reported. It is difficult to provide sufficient management for all MPAs and self-evaluation of the effectiveness of MPAs management would be helpful in clarifying the issues and identifying priority management practices in each MPA. While most of the existing MPAs in the Member States are located along coastal areas the concept of *ecologically or biologically significant marine areas* (EBSAs) could be useful in the protection of open seas and deep seas. Japan and Russia have begun a study on EBSAs in their waters. To protect common endangered marine species migrating across national boundaries regional networking of MPAs could be an effective tool. Based on the findings of this report the following actions were recommended to the NOWPAP Member States: (i) Increase the area of MPAs to achieve the Aichi Targets by 2020; (ii) Improve monitoring programmes in MPAs including the implementation of regular monitoring of marine environment and enhance information collection of endangered marine species; (iii) Realize effective and efficient management of MPAs by identifying priority issues to be addressed in each MPA; (iv) Study internationally emerging concepts and ideas for the conservation of marine biodiversity and consider possibilities of their application.

37. It is anticipated that MPAs will be a prominent element of the RAP BIO and this report will help identify appropriate approaches and strategies for MPAs.

2.4.6. Regional and National Reports on Marine and Coastal Biodiversity Data and Information

38. The review and consolidation of existing information on marine and coastal biodiversity was one of the earliest activities on marine and coastal biodiversity under the NOWPAP. An early assessment was published by NOWPAP-DINRAC (2007). NOWPAP-DINRAC has continued to track the availability of, and activities regarding, marine and coastal biodiversity and information. Three basic directions for prevention of existing and potential threats to coastal and marine biodiversity were identified in 2007: (i) reduction of marine and coastal pollution and eutrophication; (ii) prevention of habitat destruction; and (iii) reduction of over-exploitation of fisheries resources. Priority research activities identified included: (i) identification of centres with high species and genetic diversity (biodiversity "hot spots") by integrated studies and inventories of the marine and coastal biota; (ii) selection of the bio-monitoring zones for investigating the biodiversity at all levels; (iii) preparation of additional guides for biota of the study areas; (iv) establishment of the banks of genetic data about marine and coastal flora and fauna; (v) preparation of proposals and making administrative decisions on the conservation of the coastal and marine biodiversity including the restriction or prohibition of the fishing of individual populations of commercial species; and (vi) establishment of a regional node of the metadata base in the field of biodiversity. By 2007, all countries of NOWPAP region had developed (or were developing) a system of monitoring of their marine and coastal biodiversity. The results of these scientific activities were: the collections of marine and coastal biological species; description of new species; diagnosis and forecast of the state of separate populations; recommendations for the sustainable wildlife management; new guides for species identification; publications; software and ecosystem models. It was noted that NOWPAP Member States have ample expertise in marine biodiversity with many experts in the field who have been trained at both domestic and foreign universities/institutions. Three issues or weaknesses were identified, the biggest being the lack of linkages among databases, together with limited resources of experienced taxonomists and funding shortfalls. It was recommended that NOWPAP members should continue their comprehensive studies of marine and coastal biodiversity aiming to conserve and protect their precious resources. The establishment of the common metadata base in the field of biodiversity and exchange of the guides of biological species could be the further lines of activities of the NOWPAP Member States. There are many initiatives to create database about marine and coastal biodiversity in the global scale.

2.4.7. Threats to marine and coastal biodiversity

39. To enhance the understanding of key regional and global issues related to marine biodiversity conservation, NOWPAP started to compile data and information on the threats to marine and coastal biodiversity as well as on management responses, in accordance with the set of common indicators (NOWPAP 2010). The UNEP Regional Seas Programme global outlook report (see below), which included these data and information from NOWPAP, contributed to the discussions on marine and coastal biodiversity at the Tenth Conference of the Parties to the Convention on Biological Diversity in October 2010. NOWPAP (2010) contains information on the pressures to marine and coastal biodiversity in the NOWPAP region (overfishing, pollution, invasive species and climate change) and responses from NOWPAP Member States (e.g., establishing marine protected areas and reducing fishing fleets). From this Pressure, State and Response assessment it was clear that while many of the factors documented are still impacting ecosystems in the NOWPAP area, the region appears to be serious in confronting the issues.

2.4.8. The Marine Biodiversity Outlook Reports

40. Although not exclusive to the NOWPAP, a Marine Biodiversity Outlook Reports and summary was prepared by UNEP's Regional Seas Programme for the 10th Conference of Parties of the Convention on Biological Diversity (UNEP 2010). It provided the first systematic overview at a sub-global scale of the state of knowledge of marine biodiversity, the pressures it faces currently and the management frameworks in place for addressing those pressures. It provided a reasonable understanding of the nature and extent of the problems facing marine biodiversity and marine resources. There are examples of effective actions to address those problems, but management performance is generally insufficient and inadequately coordinated to address the growing problems of marine biodiversity decline and ecosystem change. Providing sound scientific assessments is a key element of the Regional Seas Conventions and Actions Plans as they provide an important tool for policy makers to make informed decisions. It was hoped that the Regional Seas Conventions and Programmes will be supported in the further development and implementation of this system of regular reporting of the regional outlooks for marine biodiversity.

41. The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the North-West Pacific Region (NOWPAP) was noted as the main response instrument to address the pressures on marine biodiversity in the region. NOWPAP faces the challenge of directing the action plan based on the goodwill of the Member States to comply with international treaties and conventions, as there is currently no convention in place for the NOWPAP region. Nevertheless, the Member States have responded to the need to address many of the issues of protecting the marine environment. Some key responses are: the United Nations Convention on the Law of the Sea and United Nations Fish Stock Agreement, with all NOWPAP Member States being parties to both Conventions; the FAO Code of Conduct for Responsible Fisheries but where compliance is low; the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), with countries in the region progressing towards the creation of National Programmes of Action; and, Marine Protected Areas with the region having 87 MPAs covering over 4 million hectares (as of 2010) but this is below the MPA targets set by the Convention on Biological Diversity.

42. A set of common indicators was developed to establish a consistent basis for the assessment and outlook reports. For the NOWPAP region, the trend is for nitrogen deposition and numbers and impacts of alien species to be increasing and fish catches decreasing. The urgent need to plan and implement ecosystem scale and ecosystem-based management of the seas was noted.

2.4.9. Pilot assessment of the impacts of threats on marine biodiversity

43. In order to assess the impact of pressures/threats on marine biodiversity in the NOWPAP region, "Pilot assessment on the impacts of major threats to marine biodiversity in the NOWPAP region" was started in 2014 as the first step for assessment of the impacts (NOWPAP-CEARAC 2017). The objectives of this pilot assessment were to clarify available data on major threats in the NOWPAP region and understand the situation of the threats using available data. Each NOWPAP member state selected one or two target sea areas for the pilot assessment, and nominated experts collected available data and assessed the situation of the threats.

44. In China, a pilot assessment was undertaken in the coastal area of Changdao County, Yantai and the coastal area of Changhai County, Dalian. Both areas are significant sea areas for marine

species and have very active fisheries. Available data on eutrophication, non-indigenous species and habitat alteration showed that current situations are within the national standards and are not recognized as “potential risks” to marine biodiversity. However, due to active operation of aquaculture of non-indigenous species in recent years, there are potential threats on diffusion of non-indigenous species and its impacts to indigenous species in the assessed areas.

45. In Japan, two target sea areas were selected and many kinds of data on eutrophication, non-indigenous species and habitat alteration are available in both areas. Eutrophication is a threat in several sea areas in Japan. Nutrient condition is improved in the coastal areas compared with past years. However, nutrient concentration is still high and red tides occur frequently in several specific bays. Integrated management, that covers management of land, needs to be enhanced. Non-indigenous species are found in north Kyushu sea area and coastal area of Hokuriku region. Serious impacts to local indigenous species are reported and continuing monitoring is necessary. In Japan, landfill is not active compared with the past. However, habitat loss is happening by coastal protection and dredging and collection of sea gravel.

46. In Korea, the pilot assessment focused on dike construction in Saemanguem. After the dike enclosure, the marine environment inside of the dike changed. The environmental change caused the change of phytoplankton species and benthic species. This is obviously an impact to marine biodiversity, and collected data are useful information to understand the impact of habitat alteration on marine biodiversity. Unfortunately, data on non-indigenous species and other habitat alteration was not available in this pilot assessment, therefore it is expected that other relevant information will be collected in the future.

47. In Russia, the pilot assessment was undertaken in Peter the Great Bay. In the bay, several indicators on eutrophication show an increase trend in recent years because of waste-water output and storm water. Regarding non-indigenous species, not only artificial introduction but the influence of climate change is also problematic. Through aquaculture and ship transportation, non-indigenous species appeared, and increase of the water temperature caused expansion of warm water species in Peter the Great Bay. Physical alteration is not a serious problem, but expansion of aquaculture activities caused biological alterations in Russia.

48. Through these pilot assessments, available data on major threats, namely eutrophication, non-indigenous species and habitat alteration in each member state were collected. However, available indicators common in the four Member States are quite limited. Some information gaps can be addressed from and/or complemented by the outputs of other NOWPAP activities. However, it was expected to start monitoring of major indicators in each member state to gather more data. Based on the results of these pilot assessments, potential assessment indicators and assessment methodologies will be discussed as the next step.

2.4.10. Major pressures on marine biodiversity

49. In 2018, NOWPAP CEARAC published the first systematic overview of major pressures on marine biodiversity in the NOWPAP region (NOWPAP-DINRAC, 2018). Eutrophication, non-indigenous species, and habitat alteration are focused on as major pressures on marine biodiversity, and the current situation of these three pressures were assessed using the DPSIR framework (Drivers, Pressures, States, Impacts, Responses). The states of the three major pressures are becoming worse due to the rapid economic growth in this region, despite various measures taken by

the Member States. Aquaculture is related to all three major pressures and its impact on marine biodiversity is quite strong in the NOWPAP region. Member States have been taking effective actions to address the pressures, but they may be insufficient. Providing scientific assessment through this report is a key element for policymakers of the Member States to increase their understanding in order to make better decisions.

2.4.11. Regional Overview and National Reports on the Marine Invasive Species

50. Taking into account the importance of the biological invasions as part of global environmental changes and their significance to the NOWPAP member countries, the NOWPAP and its subdivision, DINRAC (Data and Information Network Regional Activity Center) developed a proposal and then implemented a project on the marine invasive species (MIS) in the NOWPAP Region in 2009-2010 (NOWPAP-DINRAC 2010). The activity included compilation of four national reports and a regional overview. Conclusions and general recommendations for future NOWPAP activities included: that the problems related to the MIS in the NOWPAP region are one of the most important issues with regard to biodiversity changes and management. MIS appearance, establishment and expansion impact ecosystems, economy and public health. There is insufficient information about MIS at both national and international levels, and there is no international coordination in research and management of the MIS in the NOWPAP region. The legislation system often does not deal directly with marine alien species although there is a number of laws and regulations on biodiversity management touching this issue to some degree, especially in China and Russia. There is still no comprehensive database on the MIS in the North-West Pacific area. The regional overview and four national reports are the first efforts to describe and summarize MIS issues in a complex manner in the NOWPAP region. However, future activities of the NOWPAP are recommended as desirable.

51. Recommendations included: (i) there is a strong need to organize a joint China-Japan-Russia-Korea workshop or conference on MIS problems under auspice of the NOWPAP RCU and to share available information and to discuss future activities of the NOWPAP in this field; (ii) a training course and on-site field observations on MIS with involvement of young scientists might be held as one of the NOWPAP actions in one of the members countries; (iii) preparation of flyers, posters, and booklets in Chinese, Japanese, Korean and Russian languages for general public are of crucial importance in terms of public outreach and education; (iv) a bibliographic database with full bibliographic descriptions, in a most complete and full manner, including abstracts is proposed to be constructed, the database should include (whenever possible according to international copyright) pdf copies of papers thus representing a first collection of pdf copies of papers on MIS in the region and serve as an electronic library resource for future work, this activity would complement the PICES database; (v) a book or atlas containing data/information, images and other relevant information on the MIS might be prepared by joint efforts of the member countries in four languages. It may summarize major species and basic information.

2.4.12. State of the Marine Environment

52. Although not specifically on marine and coastal biodiversity, the NOWPAP Pollution Monitoring and Activity Centre (POMRAC) has been undertaking assessments of marine pollution in the region. The first “State of Marine Environment Report for the NOWPAP Region” (SOMER) was compiled by POMRAC in close cooperation with other RACs in 2006 and published in 2007. The main goal of that report was to give a holistic description, analysis and overview of marine environmental problems of the NOWPAP sea area. First SOMER for the NOWPAP region was based on the results obtained

through the NOWPAP RACs activities implemented before 2005. The achievements of other regional and international programmes/projects, and information from the scientific literature were broadly used as well. Since 2005, there was significant progress in the activities of all NOWPAP RACs. The second State of the Marine Environment Report (SOMER-2) was completed in 2014 (NOWPAP-POMRAC 2014). It reports that the activities of all NOWPAP RACs were being implemented in an increasingly holistic way. Therefore, the regular compilation or synthesis of environmental problems, status and trends connected with natural and socio-economic conditions seems a logical cornerstone of NOWPAP activities. The regular assessments of the state of marine environment were proposed as one of the key thematic elements of the NOWPAP medium-term strategy 2012-2017. The regularity of the assessment procedure is in line with the UN approach ("UN Regular Process for Global Reporting and Assessment of the State of the Marine Environment Including Socioeconomic Aspects"). The objective of SOMER-2 was the synthesis of information on the environmental problems, status and trends related to existing and changing natural and socio-economic conditions in the NOWPAP region. The main characteristic of the SOMER-2 compared with the previous SOMER (2007) is intrinsic consistency with the "UN Regular Process". The approach based on the "ecosystem services" concept is one important feature of the assessment. The international experts stressed the inevitable difficulties in any attempts to implement "tripartite" approach combining ecosystems services, human activities and stresses induced by these activities, and biodiversity/habitats issues. The most important feature of SOMER-2 is its integrative nature. SOMER-2 was prepared in close collaboration with all NOWPAP RACs as was done during the preparation of the first SOMER. Moreover, compared with first SOMER, the earlier involvement of all collaborators was realized during the SOMER-2 preparation.

2.4.13. Strengthening Sub-Regional Cooperation to Address Environmental Challenges

53. Based on the request of the Senior Officials Meeting to further elaborate the proposal on "Strengthening Subregional Cooperation to Address Environmental Challenges related to Transboundary Marine Pollution" (made by the Republic of Korea) an Expert Consultation Meeting (ECM) was organized in 2012. The meeting was attended by sixteen participants including national experts nominated by the governments of China, Japan, Republic of Korea, and the Russian Federation and resource persons from Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Northwest Pacific Action Plan (NOWPAP) of UNEP and UNDP/GEF Yellow Sea Large Marine Ecosystem Project (YSLME). The ECM identified the following possible areas for joint sub-regional activities within the frame of the North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC): marine litter; Marine Protected Areas (MPA); influence of chemicals; ecosystem assessment; and climate change. In particular, considering existing programmes, scientific capacity and subregional needs for each topic, it was generally perceived that the facilitation of cooperation among Marine Protected Areas could be the main focus of NEASPEC. Following the ECM, the Secretariat conducted research on the situations of MPAs in the sub-region as well as potentials of establishing an MPA network. In terms of MPAs, NEASPEC can contribute to the following: establish common terms and definitions for participating MPAs; create a knowledge platform that collects and disseminates information on MPAs, management plans, and other regional guidelines; devise an administrative manual including a set of common management rules to overcome institutional differences; convene stakeholders, encouraging shared funding and technology to arrange joint assessment and monitoring activities through intergovernmental

meetings, management training sessions, and joint research projects; and act as a liaison body among individual MPAs, as well as with national, regional and global network programmes.

2.5. Conclusions relevant to the NOWPAP RAP BIO

54. Since the proposed NOWPAP RAP BIO will, first and foremost, build on and add value to existing national activities on marine and coastal biodiversity, further details of these activities will be a cornerstone of developing the RAP BIO. Work is in progress on compiling this information.

55. There has already been much previous work to backstop the development of the NOWPAP RAP BIO. This is particularly the case for data, reviews and assessments of the drivers of biodiversity loss (pressures on the marine and coastal environment), that status and trends in marine alien invasive species and preliminary work on marine protected areas. Gaps in current knowledge in particular are: (i) on the status and trends, and future requirements for, marine and coastal ecosystem services; (ii) on the quantified extent and condition of various marine and coastal ecosystem types (habitats); and (iii) on the effectiveness of response measures.

3. Relevant existing National and Regional Seas marine and coastal biodiversity strategies and action plans

3.1. In NOWPAP Member States

56. The primary frameworks for the conservation and sustainable use of biodiversity in the four NOWPAP Member States are their National Biodiversity Strategies and Action Plans (NBSAPs) provided in response to the requirements of the Convention on Biological Diversity. Although the four NBSAPs differ somewhat in structure, they are all formulated within the common framework of the Strategic Plan for Biodiversity 2011 - 2020 and the Aichi Biodiversity Targets adopted by the CBD in 2010. These NBSAPs cover all biodiversity, not just marine and coastal, but nevertheless present an agreed and common vision and strategy among the four NOWPAP Member States.

3.1.1. The People's Republic of China NBSAP 2011- 2030

57. The overall goal of the NBSAP (2011- 2030) of China is to achieve the conservation and sustainable use of biodiversity and the fair and equitable sharing of benefits arising from use of genetic resources, guided by the scientific development principles and the principle of coordination between socio-economic development and biodiversity conservation, as well as through developing or strengthening institutions and mechanisms for biodiversity conservation, strengthening capacities for ecosystem management and protecting biological and genetic resources, increasing public awareness and participation, and promoting ecologically friendly development and harmony between human beings and nature.

58. Basic principles of the NBSAP are:

- *Conservation first***.** Priority is given to biodiversity conservation while advancing social and economic development, and active measures will be taken to effectively protect important ecosystems, species and genetic resources and to ensure ecological security;
- *Sustainable use.* Unsustainable exploitation of biological resources should be prohibited and research, development and dissemination of technologies for sustainable use of biological

resources should be enhanced so as to achieve the scientific, rational and orderly utilization of biological resources;

- *Public participation.* Communication and education on biodiversity conservation should be strengthened and local communities and the general public should be encouraged to participate more actively and widely in biodiversity conservation. Access to information and media supervision should be strengthened, and effective mechanisms should be established to allow the participation of the whole society in biodiversity conservation; and
- *Benefit sharing*. A system should be established for access to and fair and equitable sharing of benefits from use of genetic resources and associated traditional knowledge.

59. Priority Areas and Actions for Biodiversity Conservation in China's NBSAP (2011-2030) are:

- Priority Area 1: To improve the policy and legal system of biodiversity conservation and sustainable use;
- Priority Area 2: To incorporate biodiversity conservation into sectoral and regional planning and promote sustainable use;
- Priority Area 3: To carry out identification, evaluation and monitoring of biodiversity;
- Priority Area 4: To strengthen in-situ biodiversity conservation;
- Priority Area 5: To carry out ex-situ conservation based on science;
- Priority Area 6: To promote rational use and benefit sharing of biological genetic *resources and associated traditional knowledge;*
- Priority Area 7: To strengthen biosafety management of invasive alien species and genetically modified organisms;
- Priority Area 8: To improve capacities to cope with climate change;
- Priority Area 9: To strengthen scientific research and human resources development in the field of biodiversity; and
- Priority Area 10: To establish public participatory mechanisms and partnerships for biodiversity conservation.

60. Supporting Measures for Implementation of China's NBSAP include:

- Strengthening overall coordination and guidance;
- Implementing supporting policies;
- Improving implementation capacities;
- Increasing investments; and
- Strengthening international exchange and cooperation

61. The Short-term Goal of the NBSAP is that by 2015, China strives to control effectively the declining trend of biodiversity in key areas. Specifically, China will

- Complete *baseline* surveys and evaluations of biodiversity in 8 to 10 priority conservation areas and implement effective monitoring and control;
- Maintain the total area of territorial nature reserves at 15% or so of China's total land area with strengthened *in-situ* conservation to conserve 90% of the national key protected species and typical ecosystems;
- Implement *ex-situ* conservation rationally and effectively to protect over 80% of threatened species of very small wild populations which are insufficiently conserved *in-situ;* and
- Establish a system of biodiversity monitoring, evaluation and warning, and set up a system to manage trade in biological resources as well as a system for access to and benefit sharing of genetic resources.

62. The Mid-term Goal of the NBSAP is by 2020, China strives to basically control biodiversity decline and loss. Specifically, China will

- Complete baseline surveys and evaluations of all the priority areas of biodiversity conservation and implement effective monitoring and control;
- Establish a network of nature reserves with reasonable coverage and sound functions, with the functions of national nature reserves maintained stable and effective for protection of major protected species;
- Further improve the system of biodiversity monitoring, evaluation and warning, the system to manage trade in biological resources and the system for access to and benefit sharing of genetic resources.

63. The NBSAP Long-term Goal is by 2030 biodiversity in China has been effectively protected. The number and area of nature reserves of all levels will have reached the required level and ecosystems, species and genetic diversity have been effectively protected. A complete policy and legal system on biodiversity conservation and a sound mechanism of sustainable use of biological resources has been established. The public will participate voluntarily in biodiversity conservation.

64. Strategic Tasks include:

- Further improve related policies, regulations and systems on biodiversity conservation:
    - Study policies to promote environment-friendly business development in areas adjacent to nature reserves and explore incentive measures and policies to promote conservation and sustainable use of biological resources;
    - Study and develop regulations and systems for access to and benefit sharing of genetic resources, protection of traditional knowledge, biosafety management and prevention and control of invasive alien species; and
    - Improve coordination mechanisms of biodiversity conservation and management of biological resources by fully playing the role of the Coordinating Group for Implementation of the CBD and the Inter-Ministerial Joint Meeting for the Protection of Biological Resources;

- Promote mainstreaming of biodiversity conservation into related planning processes
    - Mainstream biodiversity conservation into national economic and social development planning as well as relevant sectoral planning processes;
    - Promote formulation by local governments of local biodiversity conservation strategies and action plans; and
    - Establish mechanisms of review and monitoring of implementation of related plans and programmes to ensure their effective implementation;
- Strengthen capacities for biodiversity conservation
    - Strengthen the infrastructure construction for biodiversity conservation;
    - Carry out baseline survey and inventory of biodiversity, and complete assessments of threatened status of higher plants, vertebrates and large fungus and issue lists of endangered species;
    - Strengthen research capacities of biodiversity conservation, improve disciplinary and major establishments in universities and research institutions and reinforce the training of professionals;
    - Carry out innovation research on technologies and techniques for biodiversity conservation and utilization;
    - Further reinforce capacities for biodiversity monitoring and upgrade levels of biodiversity management and warning; and
    - Strengthen capacities for inspection of imported and exported biological resources by developing relevant technical standards for inspection and providing inspection equipment and tools needed.
- Strengthen *in-situ* conservation of biodiversity and rationally carry out *ex-situ* conservation
    - Continue giving priority to *in-situ* conservation, supplemented by *ex-situ* conservation, with both mutually supportive, with a view to achieving a reasonable spatial structure of nature reserves by establishing more nature reserves in priority areas and strengthening biodiversity conservation outside reserves through undertaking such pilot demonstration projects;
    - Establish a system for assessing the management effectiveness of nature reserves and strengthen law enforcement and inspection to continuously improve the management effectiveness of nature reserves;
    - Study and develop incentives that promote linking biodiversity conservation with poverty alleviation and the participation of local governments and communities in the establishment and management of nature reserves;
    - Take measures combining *in-situ* and *ex-situ* conservation for species with small wild populations and weak abilities of survival and reproduction. For agricultural genetic resources China will focus on *ex-situ* conservation, and for domesticated animal genetic resources China will focus on *in-situ* conservation; and

- Strengthen the establishment of genetic resources banks;

- Promote sustainable development and use of biological resources
  - Combine biological technology development and promoting sustainable use of biological resources;
  - Strengthening exploration, classification, detection, screening and property assessment of biological resources for genetic discovery and selection;
  - Improve the application of related biological technology in such fields as agriculture, forestry, biological medicine and environmental protection; and
  - Encourage innovations and strengthen the protection of intellectual property rights;
- Improve benefit sharing of biological and genetic resources and associated traditional knowledge
  - Draw on advanced international experience in this regard and carry out pilot demonstration projects;
  - Strengthen studies on the evaluation of biodiversity and the rules for management of biological and genetic resources;
  - Rescue, protect and inherit related traditional knowledge by improving the protection system of traditional knowledge; and
  - Explore the establishment of a system for access to and benefit sharing of biological and genetic resources and associated traditional knowledge, and coordinate the interests between the protectors, developers and users of biological and genetic resources and associated traditional knowledge to ensure that the interests of all stakeholders will be protected;
- Improve capacities to cope with new threats and challenges to biodiversity
  - Improve research on the invasion mechanism, diffusion path, control measures as well as means of use of invasive alien species;
  - Establish a system of monitoring, warning and risk management of invasive alien species;
  - Improve research on environmental release, risk assessment and environmental impact assessment of genetically modified organisms by improving related technical standards and regulations to ensure the safety of the environmental release of GMOs;
  - Improve research on technologies for biodiversity conservation to cope with climate change and explore related management measures to mitigate impacts; and
  - Establish a monitoring and warning system of pathogenic and epidemic microorganisms and improve emergency response capabilities to protect the health of human beings and domesticated animals.
- Raise public awareness and strengthen international cooperation and exchange

- Carry out various communication and educational activities on biodiversity conservation to encourage public participation in biodiversity conservation and strengthen the school education of biodiversity by disseminating knowledge about biodiversity;
- Establish and improve a system of public monitoring and reporting on biodiversity conservation and mechanisms of public participation;
- Establish partnerships for biodiversity conservation and mobilize relevant stakeholders both home and abroad widely for participation in biodiversity conservation and fully play the roles of local non-profit organizations and charity organizations in common efforts to enhance biodiversity conservation and sustainable use;
- Reinforce the implementation of the CBD and actively participate in the development of related international rules; and
- Further deepen international exchange and cooperation and introduce advanced technologies and experiences from other countries.

65. Priority geographic areas for the conservation of marine and coastal biodiversity include the Bo, South China, East China, and Yellow Seas (the latter two being part of or bordering the NOWPAP area).

66. Priority areas and conservation priorities for the Yellow Sea and Bohai Sea Protected Region include:

- Main estuaries and adjacent sea areas in Liaoning Province;
- Coastal wetlands of Lian Mountain in Yingkou and Tuan Mountain in Gaizhou;
- Marine areas in Liaodong Bay of Panjin, Chrysanthemum Island of Xingcheng, Pikou of Pulandian;
- Big and Small Pat Ka Shan Island near Jinzhou;
- Tombolo systems at Shilin on Changxing Island and Fantuozi Island of Jinzhou Bay;
- Black stone reefs, Hei Island of Jinzhou and Qingdui Bay of Zhuanghe in Dalian;
- Tanghai and Huanghua coastal wetlands of Heibei;
- Wetlands of Hangu and Tanggu and Dagang salt marsh wetlands in Tianjin;
- Hangu littoral wetland ecosystem and coastal wetlands of Zhanhua, Diaokou Bay, Jiaozhou Bay, Lingshan Bay, Wuleidao Bay Jinghai Bay, Rushan Bay, Jinshan Port of Yantai, Penglai-Longkou in Shandong Province;
- Main estuaries and adjacent sea areas of Shandong Province;
- Laizhou Bay of Weifang, Taozi Bay of Yantai, Sanggou Bay of Rongcheng, Diaolongzui Sand Barrier and Sanshan Island of Laizhou in Shandong;
- Large offshore sea grass bed distribution areas at the northern section of the Yellow Sea;

- Offshore coastal wetlands at the abandoned estuary of the Yellow River Delta and Guanhe estuary in Jiangsu Province;
- Continental coastal wetlands at the radial submarine sand ridges and the artificial coastal wetlands at the south radial submarine sand ridges, outer sand ridges wetlands in north Jiangsu; and
- Cold water mass waters in the central part of the Yellow Sea.

67. Priority areas and conservation priorities for the East China Sea and Taiwan Strait Protected Region include:

- North coastal wetland, Qingcaosha and Hengsha shoal area at Hangzhou Bay of Fengxian, Shanghai;
- Coastal wetlands at South bank of Hangzhou Bay, Wenzhou Bay and Oujiang Estuary Delta;
- Yushan Islands, Pishan Islands, Dongtou Islands, Tongpan Island, Beiji Islands and adjacent sea areas;
- Coastal wetlands at Dachen, Xiangshan Port, Sanmen Bay in Zhejiang Province, Sansha Bay, Luoyuan Bay, Xinghua Bay, Meizhou Bay, Quanzhou Bay of Fujian Province;
- Marine areas of Dongshan Bay, Min River Estuary and Xinglin Bay;
- Marine biodiversity corridors at Dongshan-Nan'ao; and
- Great marine ecosystems of Kuroshio area.

68. Some priority projects relevant to the NOWPAP RAP BIO include:

- Demonstration projects on wetland conservation and restoration and establishment of a system for monitoring major wetlands
- Establishment of a national biodiversity information management system
- Demonstration projects in establishment and management of transboundary protected areas of wild animals
- Conservation and ecological restoration of typical coastal and offshore marine ecosystems
- Mangrove forest ecosystem restoration
- Establishment of a system for ex-situ conservation of biological resources
- Rescue of rare and endangered wild animal species
- Rescue of rare and endangered wild plant species
- Identification, evaluation and development of genetic resources of domesticated animals
- Establishment of a system to oversee import & export of biological species resources

- Establishment of a system of monitoring and warning of invasive alien species and of emergency responses
- Evaluation of impacts of climate change on biodiversity and development of response measures

3.1.2. The Japan NBSAP 2012-2020

69. Japan's NBSAP consists of three parts: Part 1, The Strategy towards Conservation and Sustainable Use of Biodiversity; Part 2, Road Map towards Achieving the Aichi Biodiversity Targets; and Part 3, The Action Plan on Conservation and Sustainable Use of Biodiversity. The short-term target in order to halt the loss of biodiversity, is to take effective and urgent action with the aim of achieving the Japanese national targets towards the achievement of the Aichi Biodiversity Targets. Various marine and coastal areas are specifically referred to as priority areas for action including those encompassing the NOWPAP region. Strategies and actions for marine and coastal biodiversity are accompanied by a detailed and comprehensive set of specific time-bound national targets, including the identification of lead agencies involved.

70. Priority marine and coastal actions include:

- Restore the connection between people and the sea and the rich biotas that are inherent in coastal areas where the land is in contact with the sea;
- Restore coastlines so that people can approach and enjoy them, through prioritizing the conservation of existing neritic sea areas including tidal flats, salt marshes, seagrass beds and coral reefs and the conservation of natural coastlines, as well as through the restoration and creation of habitats for diverse organisms;
- Promote sustainable fisheries based on appropriate resource management;
- Revitalize sustainable fisheries in coastal areas through efforts for forest development in upstream areas, water quality improvement, etc.;
- Promote the conservation and restoration as well as the sustainable use of coastal areas which are safe, secure and in harmony with the natural environment, through the restoration of coastal disaster prevention forests, etc.; and
- Promote the appropriate establishment of marine protected areas and the improvement of their management based on scientific knowledge, in order to work towards the above-described directions.

71. Specifically, the NBSAP recognizes it is necessary to appropriately evaluate the importance of marine biodiversity and the various ecosystem services it provides. It is also necessary to implement integrated management measures that take into consideration the links between the land and the sea in coastal areas including Satoumi areas, the continuity of ecosystems in the open sea and the migration of marine organisms over extended areas.

72. The vision for Japan's NBSAP for marine and coastal areas is that although remaining habitats in coastal areas such as important tidal flats, salt marshes, seagrass beds and coral reefs will be greatly affected by increased sea water temperatures and sea levels caused by global warming, coastal ecosystems of tidal flats, seagrass beds and coral reefs will maintain their richness while

receiving natural disturbances such as typhoons. This will be achieved through the improvement of habitat environments by making the following efforts: accumulation of data; efforts to conserve healthy ecosystems; efforts to restore coastal ecosystems based on scientific knowledge by fully taking into account environmental conditions such as the depth of water, tidal currents and bottom sediments; the establishment and appropriate management of marine protected areas based on scientific knowledge. In tidal flats throughout the country, there will be various kinds of marine life including shellfish such as the Japanese littleneck and crabs such as the fiddler crab, shore birds will be eating food and many people will be observing the coastal wildlife, participating in surveys about coastal wildlife and enjoying digging for clams. In closed ocean areas such as deeply indented bays, the appropriate balance of nutrients will be ensured and there will be improvements to problems which cause deterioration of coastal environments including accumulated sludge, the generation of anoxic water masses and ocean/beach debris. Rich fishing grounds will be conserved thanks to forests in upstream areas being maintained properly with support from fishermen and other interested people. Coastal areas that nurture rich life will continuously supply plenty of diverse kinds of seafood to people. In addition, healthy ecosystems will be maintained in coastal areas through humans living in harmony with nature, for example, seals will be seen swimming in the northern sea and dugongs in the southern sea. The inhabitation of the Japanese horseshoe crab will be ensured in Western Japan by securing the continuity of ecosystems starting from sandy beaches, through tidal flats and seagrass beds to the bottom of the sea. The inhabitation of amphidromous organisms such as the Japanese mitten crab will be ensured by securing the continuity of rivers, coastal areas through to the sea. Although coastlines will be affected by increased sea levels due to global warming, natural coastlines will be conserved, and sandy beaches will be maintained with earth and sand carried down through rivers from the mountains with no interruption in between. Sea turtles will come ashore, little terns will breed, and coastal plants will grow well on the sandy beaches. With the cooperation of Asian and other countries, people will enjoy bathing in the sea from clean beaches free of litter and waste.

73. For Ocean areas the strategy includes:

- Promote the conservation of long-traveling animals while watching the trend for international coordination;
- Organize general marine data including marine resources, secure genetic diversity, and then promote sustainable fisheries on the basis of the ecological approach and appropriate resource management, through international cooperation where necessary;
- Strengthen efforts to remove and prevent marine pollution with international collaboration;
- Establish appropriate marine protected areas and improve the management of the areas based on scientific knowledge in order to achieve the directions mentioned above.

74. Habitat environments will be improved for marine mammals, sea birds, sea turtles and fish that travel long distances in their life cycles through the following measures: conservation activities and the sustainable use of marine animals with the cooperation of the Pacific nations and other countries involved; and the establishment and appropriate management of marine protected areas based on scientific knowledge. Techniques to avoid by-catch will also be improved. In oceanic areas where these forms of life thrive, sustainable fishing in conformity with scientifically set rules (for the Total Allowable Catch, etc.) will be actively conducted together with efforts for the conservation of biodiversity in light of the trend in international coordination and

through the framework of regional fishery management organizations, etc. where necessary. International cooperation efforts to remove and prevent marine pollution such as ocean/beach debris, harmful chemical substances and spilled oil, which affect marine ecosystems, will be on going.

75. Basic perspectives of the strategy are:

- Scientific recognition and a preventive/adaptive attitude;
- Community-based efforts;
- The wide-area view;
- Coordination and collaboration;
- Mainstreaming biodiversity in socio-economic systems;
- Integrated viewpoint; and
- The long-term merits of sustainable use.

76. Basic strategies include:

- Mainstreaming biodiversity in our daily life;
- Reviewing and rebuilding relationships between man and nature in local communities;
- Securing linkages between forests, the countryside, rivers and the sea;
- Taking action with a global perspective; and
- Strengthening the scientific foundation and utilizing it in policy making.

77. The importance of international cooperation is well-recognised in Japan's NBSAP. In order to effectively promote the conservation and sustainable use of biodiversity, the first step should be to actively become involved in efforts to implement various biodiversity-related agreements more effectively, while promoting the sharing of information on the monitoring and conservation of global biodiversity. It is then necessary to implement programmes and initiatives for each issue or theme through various cooperative frameworks including bilateral and multilateral frameworks as well as frameworks between developed countries or between developing countries. As part of the efforts in this context, Japan will take the initiative in the fields of coral reef preservation and the conservation of migratory birds and their habitats using such frameworks as the International Coral Reef Initiative (ICRI), the Partnership for the East Asian-Australian Flyway (EAAFP), bilateral conventions and agreements for the protection of migratory birds and the Ramsar Convention. These efforts will include hosting the International Coral Reef Marine Protected Area Network Meeting centered on the Asia-Pacific region and the establishment of a regional network of important coral reefs centered on East Asia, for coral reef conservation. In particular, Japan will establish partnerships on protected areas in Asia with the cooperation of other Asian countries, the CBD and the International Union for Conservation of Nature (IUCN), towards the achievement of the Aichi Biodiversity Targets (target 11 in particular) and the implementation of the CBD Programme of Work on Protected Areas (PoWPA).

78. Specific measures and policies regarding cooperation related to information on biodiversity conservation in the Asia-Pacific region include:

- developing the “Partnership for Protected Areas in Asia (tentative name)” as a cooperative framework in Asia for the achievement of the Aichi Biodiversity Targets (related to protected areas) and the implementation of PoWPA, in cooperation with other Asian countries, the Secretariat of CBD, IUCN, etc.;

- improvement of existing global biodiversity information infrastructure, including the Global Biodiversity Information Facility (GBIF) which is international scientific information infrastructure for biodiversity, the Group on Earth Observations Biodiversity Observation Network (GEO BON) and International Long-Term Ecological Research (ILTER);

- focused support for activities by biodiversity monitoring networks in the Asia-Pacific region while coordinating and cooperating with existing international programmes such as GBIF and GEO BON;

- collect and organize biodiversity information in East and Southeast Asia and promote the East and Southeast Asia Biodiversity Information Initiative (ESABII) which conducts training on taxonomy, in cooperation with the relevant countries and organizations, in order to contribute to decision making on the conservation and sustainable use of biodiversity in the region; and

- bilateral treaties and agreements for the protection of migratory birds: bilateral treaties and agreements for conservation, etc. of migratory birds with the United States, China, Australia and Russia; with the Republic of Korea in the protection of migratory birds, etc., based on the *Agreement between the Government of Japan and the Government of the Republic of Korea on Cooperation in the Field of Environmental Protection* (put into force in 1993); The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)**;** The East Asian-Australasian Flyway Partnership (EAAFP) with identification of potential candidate Flyway Sites, based on which it will increase the number of Flyway Sites; promote the sharing of information among China, the Republic of Korea and Japan on species that migrate over the Yellow Sea to Japan, which particularly need conservation measures.

- the government will integrate data on the marine environmental database and improve the content of the database;

- centralized management and provision of oceanographic data - promote the accumulation of basic data on the marine environment at the Japan Oceanographic Data Center and further strengthen cooperation with marine research institutes including the development of the Marine Cadaster, operation of CeisNet, an online system where, the coastal area information needed to take appropriate measures in the case of large-scale oil spills, etc. is collected with the cooperation of relevant organizations. The government will also release ESI (Environmental Sensitivity Index) maps created by editing information obtained from CeisNet, in a printable PDF format; and

- promoting mitigation of global warming and adaptation to its impacts from a biodiversity standpoint.

Specific measures for the NOWPAP region are expressly identified *and include**:***

- Through active involvement in and support for activities based on the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP, the Northwest Pacific Action Plan), the Japanese

government will strive to contribute to the collection of marine environment-related data, scientific clarification of the causes for marine pollution, as well as promoting the establishment of international cooperation systems for the Northwest Pacific ocean. The government will thereby work to enhance biodiversity conservation through the prevention of marine environment pollution. With regard to marine protected areas, the government will clarify each country's policy on the establishment of marine protected areas and how they should be managed, by assisting the Special Monitoring & Coastal Environmental Assessment Regional Activity Centre (CEARAC), in order to promote the establishment of appropriate protected areas and improve their management; and

- Through the NOWPAP Regional Action Plan on Marine Litter (RAP MALI), the government will promote cooperation such as information exchanges for investigating the sources, policy dialogues, etc. and strengthen measures to solve ocean/beach debris from abroad.

3.1.3. The Republic of Korea NBSAP

79. The National Biodiversity Strategy and Action Plans of the Republic of Korea have been established by the legal basis of "Conservation and Management of Marine Ecosystems Act" to achieve the goals of the Convention on Biological Diversity. The act stipulates that the NBSAP shall be established every 10 years. The first phase of the NBSAP started from 2009 and ended in 2018 and the second phase was launched in 2019 and will be finished in 2028.

80. In the first phase of the NBSAP (2009~2018), there were 5 priority actions:

- Priority 1 - Systematic management of the habitats for marine organisms
    - Management system for major marine ecosystems
    - Strengthening the management system for salt marshes and estuaries
    - Management of the ecosystems in coastal buffer zones
    - Restoring the damaged marine ecosystems
- Priority 2 - Strengthening the conservation and management on marine biodiversity
    - Designation and management of the marine protected species
    - Building the invasive species management system
    - Management of the harmful organisms and risk assessment
    - Securing and management of the marine species
    - Monitoring on marine biodiversity related to the climate change
- Priority 3 - Promoting the awareness for marine ecosystems and sustainable use
    - Promoting the awareness through education and cooperation between public organizations
    - Securing the marine bio-resources and sustainable use
    - Utilization of the marine ecosystems and landscapes
- Priority 4 - Building a base of marine ecosystem management
    - Establishment of organizations and recruiting for marine ecosystem management
    - Modifications of the marine ecosystems-related policies and legislations

    - Implementation of the international conventions
- Priority 5 - Establishing the marine ecosystem survey systems
    - Expansion of the marine ecosystem surveys
    - Marine ecosystem mapping and building assessment systems
    - Promoting the research and development of marine ecosystems

81. During the first phase of the NBSAP, 19 new marine protected areas covering 1,482.71 km^2 were designated and the total protected area is 9,675.51 km^2 that accounts for 2.18% of the total ocean area around the Korean Peninsula. The 19 marine protected areas can be subdivided into 9 for marine ecosystems, 1 for marine species, 1 for landscape and 8 for saltmarshes and mud flats. Also, 9 damaged tidal flats covering 1,080,000 m^2 were restored. A National Marine Species List that includes 13,356 species has been published annually since 2017. Marine protected species (34 spp.), harmful organisms (17 spp.) and bioturbation organism (1 sp.) were newly designated and managed. The Act on Marine Spatial Plan and Management and the Act on Sustainable Management and Restoration of Tidal Flats were enacted during the first phase in order to ensure the marine biodiversity as well as sustainable use of marine bioresources. In 2015, the National Marine Biodiversity Institute of Korea was established for the research and education on marine biodiversity. For the efficient management of the marine ecosystem, general marine ecosystem monitoring was established and thus stably administers a general diagnosis on the marine ecosystems in all areas ranging from monitoring and investigation to examination, assessment and policy development. To systematically and comprehensively grasp the characteristics and changes of the marine ecosystem, integrated investigations that had been completed separately and is now seasonally conducted by National Marine Ecosystem Monitoring Program at 841 points around tidal flat, coastal areas, and adjacent seas. The investigation cycle has been shortened in order to more promptly notice shifts in the marine ecosystem from 5-8 years to 2 years.

82. Although the first phase of the NBSAP has been implemented successfully, there are more requirements for conservation and management of marine ecosystems. For example, reclaiming land from the coastal waters or modification of natural coastlines damage the habitats and breeding grounds for various marine organisms. Also, the marine ecosystems and human health are threatened by chemical pollutants and microplastics in the ocean. It is necessary to make the second phase of NBSAP to reflect number of changes in conditions for conservation and management of marine ecosystem to support new policies.

83. It is recommended to encourage the local governments and the public organizations to engage in localized marine ecosystem management in the second phase of the NBSAP while the central government of Korea and experts have led the marine ecosystem management during the first phase. The integrated management of marine ecosystem using the concepts of ecosystem connectivity and spatial management is highly required in order to overcome the species-based or habitat-based fragmentary management. The assessment of marine ecosystem service should be considered to minimize the side effect on marine ecosystem when the marine resources are utilized or developed. Also, the second phase of the NBSAP should be modified and designed to respond to new emerging issues on marine pollutions such as microplastics and persistent organic pollutants (POPs).

84. Recognizing the changed conditions or issues for marine ecosystem management, the second phase of NBSAP (2019~2028) includes 5 priority actions:

- Priority 1 - Habitats protection in marine ecosystem

- The introduction of a concept marine ecosystem network
- Strengthening the designation and management of marine protected areas
- Expansion of restoring the damaged marine ecosystems

- Priority 2 - Protection and recovery of marine organisms
  - Protection and recovery of the marine protected species
  - Providing the safe marine ecosystem for marine life
  - Protection and management of the marine organisms from the climate change
- Priority 3 - Promoting the benefits of marine ecosystem services
  - Integrated ecosystem-based management of marine space
  - Building the assessment system for marine ecosystem service
  - Promoting the marine ecosystem service
- Priority 4 - Advanced marine ecosystem conservation and management
  - Advanced marine ecosystem survey
  - In-depth assessment of the marine ecosystem
  - Promoting the research and development of marine ecosystem
  - Promoting the awareness on marine ecosystem conservation
- Priority 5 - Systematic marine ecosystem governance
  - Encouraging the cooperative works among the central and local governments and local people
  - Active response to international trends
  - Enhancing the international collaboration for marine ecosystem issues amongst NOWPAP member states

3.1.4. The Russian Federation NBSAP

85. The realization of the three goals of the CBD: conservation of biodiversity, sustainable use of its components and the fair and equitable benefits received from its use, create the fundamental base of the future visions in the development of biodiversity conservation of the NBSAP of the Russian Federation.

86. The National Strategy for the Conservation of Biodiversity of Russia was based on biological principles of biodiversity conservation within the framework of two chief conceptual approaches: Species-population (organism, population species); and ecosystem (community of organisms, ecosystem, territorially interconnected system of ecosystems, biosphere).

87. The goal of the National Strategy for the Conservation of Biodiversity in Russia is the following: The conservation of the biodiversity of bio-systems at a level that ensures their stable existence and sustainable use as well as the conservation of the diversity of domesticated and cultivated forms of living organisms and human-created ecologically-balanced environmental-cultural complexes at a level that ensures efficient economic growth and an optimal environment for human life.

88. The Framework of the Governmental Policy in the Field of Ecological Development of the Russian Federation until the year 2030, approved by the President of the Russian Federation on April 28, 2012, has the following targets:

- The creation of an efficient management system that foresees the cooperation and coordination of various governmental bodies;
- The improvement of the legal framework targeted at environmental protection and ecological security;
- Ensuring ecologically oriented economic growth and the ecologically efficient innovative technology;
- The prevention and decrease of the existing negative impact on the environment;
- The restoration of destroyed ecosystems;
- Ensuring an ecologically safe waste disposal system;
- The conservation of the environment, including ecosystems ad plant/animal species;
- Developing of the economic regulation and of market tools for environmental protection and the provision of ecological security;
- Improving the system of governmental ecological monitoring (environmental monitoring) and forecasting of natural and human-induced disasters as well as climate change;
- The provision of informational support for environmental protection and ecological security efforts;
- Creating a culture of ecological awareness, the development of ecological education;
- Ensuring the efficient involvement of citizens, public organizations, non-profit-organizations and businesses in solving problems associated with environmental protection and ecological security;
- Fostering international cooperation in the field of environmental protection and ecological security;
- Solving problems associated with environmental protection including ecosystems as well as plant and animal species utilizes the following mechanisms:
    - Improving the protection and development a system of protected areas of federal, regional and local significance in strict accordance with their designated roles;
    - Creating an efficient system of measures aimed at the conservation of rare and endangered species of plants and animals;
    - Forming and ensuring the stable functioning of systems of protected areas of various levels and categories with the goal of conserving biological and landscape diversity;
    - Preventing the uncontrolled spread of invasive species of animals, plants and microorganisms throughout the Russian Federation;
    - Conserving the genetic fund of wild animals;
    - Solving the ecological problems of the Baikal ecosystem, Northern and Arctic regions as well as other territories used for traditional lifestyle by indigenous populations of the North, Siberia and Far East;
- Ensuring ecologically oriented economic growth and the mass introduction of innovative green technologies entails:
    - The creation of an efficient, competitive and ecologically oriented economic model which provides the best results while protecting the environment through sustainable use and the minimization of negative environmental effects;
    - Introduction of innovative, resource-efficient, ecologically safe and efficient practices and technologies through the cooperation amongst the government,

business community, scientific and educational organizations, public organizations and non-for-profits; and

- Accounting total and per-unit indicators of the efficiency of using natural resources and energy, the negative environmental impact after the introduction of governmental regulations and measures aimed at environmental protection as well as the evaluation of economic efficiency in general as well as specific industries.

- The prevention and decrease of the existing negative impact on the environment entails:
  - Limitation of acceptable ecological impact according to scientifically determined standards with the purpose of establishing a tolerable impact on the environment and general population;
  - Establishing a mandatory governmental ecological expertise for all ecology-threatening projects;
  - Improving the methodology and system that account for ecological damage at all the different decision-making levels. This includes the alignment of Russian ecological assessment standards with those established by international agreements and the creation of a legal framework for a strategic ecological evaluation; and
  - Increasing the amount of building and projects that are certified according to the voluntary ecological certification of real estate that has been developed according to the best "green" international practices; and
- Implementing measures outlined in the Climate Doctrine of the Russian Federation and in other thematic documents.

89. A set of national goals is identified that mirror the Global Goals and Targets of the Strategic Plan for Biodiversity 2011 - 2020 (The Aichi Biodiversity Targets). A combined set of national action plans defines what will be done and these include responsible agencies and the timeframe for implementation. Individual action plans include sub-actions to be achieved. These action plans include:

- for the implementation of the Strategy for the Conservation of Biodiversity within the Russian Federation;
- implementation of NSAPBC at the regional level;
- inter-agency cooperation – taking into account and including biodiversity issues in development plans of other sectors of the economy;
- mechanisms aimed at the implementation of the strategy;
- plan for the build-up of capabilities for the NSAPBC implementation, including assessment of technological needs;
- financial resources mobilization plan for NSAPBC implementation;
- organization, monitoring and reporting;
- national coordinating structure; and
- monitoring and reporting.

3.2. Regional Seas strategies and action plans

90. Of the 18 Regional Seas Programmes, 12 do not have systematic or comprehensive Strategic Action Plans and/or Programmes that are specific to marine and coastal biodiversity. All of these do,

however, have strategic action plans, programmes or activities that address the drivers of biodiversity loss (threats to biodiversity) such as pollution control, ship ballast water management, etc., or have programmes or activities aimed at specific components of biodiversity (e.g., fish stocks, krill, individual species or species groups, etc.) or biodiversity related measures such as protected areas and/or wildlife. These 12 are: the *Caribbean Region* (Caribbean Environment Programme; the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Cartagena Convention); *East Africa - Western Indian Ocean* (Nairobi Convention); *Western African Region* (The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region, Abidjan Convention in short); *Black Sea* (Convention on the Protection of the Black Sea against Pollution, The Commission on the Protection of the Black Sea Against Pollution; that has a formal permanent Advisory Group on Biodiversity); *North-East Pacific* (the Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the North-East Pacific, **The Antigua Convention, has** not yet entered into force); *South-East Pacific* (The Permanent Commission of the South Pacific, CPPS, The Action Plan for the Protection of the Marine Environment and Coastal Areas of the Southeast Pacific, the Convention for the Protection of the Marine Environment and the Coastal Zone of the Southeast Pacific and other complementary agreements); *Pacific Region* (South-Pacific Regional Environment Programme, the Waigani Convention, The Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, Noumea Convention, along with its two additional Protocols, and The Convention on Conservation of Nature in the South Pacific, Apia Convention); *East Asia* (COBSEA - Coordinating Body on the Seas of East Asia); *Arctic* (PAME - The Protection of the Arctic Marine Environment Working Group); *Antarctic Region* (The Commission for the Conservation of Antarctic Marine Living Resources, CCAMLR); *Baltic Sea* (HELCOM, Baltic Marine Environment Protection Commission, the Convention on the Protection of the Marine Environment of the Baltic Sea Area, Helsinki Convention).

91. The following Regional Seas Programmes have, or are developing, action plans or programmes that are systematic and comprehensive and specific to marine and coastal biodiversity. Although some of these refer to a Protocol on biodiversity (that is, a formal arrangement under a Convention, and therefore more formally and legally binding than the proposed NOWPAP RAP BIO) their scope and rationale are relevant to the development of the NOWPAP RAP BIO.

3.2.1. Mediterranean: Mediterranean Action Plan (Barcelona Convention)

92. Under the Mediterranean Action Plan, the overall mission under its biodiversity theme is to provide 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), and implementing the "Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region" (SAP BIO), adopted by the Contracting Parties in 2003, as well as the Mediterranean Strategy on Sustainable Development (MSSD) (decision IG.19/5 "Mandates of the Components of MAP").This theme contributes to the implementation of the Convention on Biological Diversity and the promotion of the Aichi biodiversity targets. It corresponds to the first MSSD objective and to SDG 14. The Mid-Term Strategy 2016-2021 sets out the following *Strategic Objectives* of the SPA/BD Protocol of the Barcelona Convention:

- 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;
- To protect, preserve and manage threatened or endangered species of flora and fauna.

93. The SPA and Biodiversity Protocol commits the Contracting Parties to support actions to protect and enhance natural and cultural heritage, in particular to promote the establishment and preservation of Specially Protected Areas and to incorporate the conservation of biological diversity into their national policies. Details of the SAP-BIO are prescribed in decision IG. 19/5 (ref. UNEP(DEPI)/MED IG.19/8 Annex II).

94. The *Specially Protected Areas Regional Activity Center* (SPA/RAC) was established in Tunis in 1985 by the decision of the Contracting Parties (UNEP/IG.23/11), which entrusted it with responsibility for assessing the situation of natural and scenic heritage and assisting countries to implement the 1982 Geneva Protocol concerning Specially Protected Areas in the Mediterranean. In 1993, the Contracting Parties indicated their determination to make the Mediterranean a pilot region for application of the Convention on Biological Diversity through the amendment of the Barcelona Convention and the adoption of the 1995 Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, which came into force in 1999. The specific objective of SPA/RAC is to contribute to the protection and 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 this context the mission of SPA/RAC is to provide assistance to the Contracting Parties in meeting their obligations under Articles 4 and 10 of the Barcelona Convention, 1995, and under the Specially Protected Areas and Biodiversity Protocol and implementing the SAP BIO as well as the MSSD and by carrying out the tasks assigned to it in Articles 9, 11(7), and 25 of the SPA/BD Protocol.

95. The SAP BIO specifies the policy of, and provides the operational basis for actions by, the Contracting Parties to protect marine and coastal biodiversity through an extensive platform for collaboration with international and national organizations, NGOs, donors, and all other stakeholders. In this respect, the SPA/RAC's main fields of action are as follows:

- facilitating and encouraging the development of research to complete the knowledge base and fill in knowledge gaps on marine and coastal biodiversity in the Mediterranean region;
- facilitating and contributing to inventorying, mapping and monitoring Mediterranean marine and coastal biodiversity and Specially Protected Areas;
- facilitating and contributing to the assessment and mitigation of the impact of threats on marine and coastal biodiversity, including from unsustainable fisheries practices;
- contributing to and assisting countries in the conservation of sensitive habitats, species and sites;
- promoting the establishment of Specially Protected Areas (SPAs) and Specially Protected Areas of Mediterranean Importance in the Mediterranean (SPAMIs) including areas beyond national jurisdiction in conformity with the international legal framework, ensuring their networking and synergies with all relevant regional networks, particularly with the Natura 2000 network, with the aim of preventing and reducing the loss of marine and coastal biodiversity; and
- contributing to capacity-building and technical support and assisting the countries to mobilize additional financial resources to implement the SPA/ Biodiversity Protocol.

96. In this regard, taking fully into account of the objectives identified by the Johannesburg World Summit on Sustainable Development (2002), within the context of the principles and approaches identified in the introductory section covering all MAP components, particular emphasis is placed by SPA/RAC in its work on the responsible fisheries principle.

97. The Specially Protected Areas and Biological Diversity Protocol and its SAP-BIO have sub-programmes or action plans on specific topics that are usually time-bound. These include the:

- Regional Working Programme for the Coastal and Marine Protected Areas in the Mediterranean Sea including the High Sea;
- Action Plan for the conservation of marine vegetation in the Mediterranean Sea for the period 2012-2017;
- Action Plan for the conservation of Mediterranean Marine Turtles in the Mediterranean Sea for the period 2014-2019;
- Action Plan for the conservation of Bird species listed in Annex II to the SPA/BD Protocol in the Mediterranean for the period 2014-2019;
- Action Plan for the conservation of Cartilaginous Fishes in the Mediterranean Sea for the period 2014-2019;
- Action Plan for the conservation of Habitats and Species associated with seamounts, underwater caves and canyons, aphotic engineering benthic invertebrates and chemo-synthetic phenomena, in the Mediterranean Sea; and the
- Roadmap towards a comprehensive, ecologically representative, effectively connected and efficiently managed network of Mediterranean Marine Protected Areas by 2020

98. The Specially Protected Areas and Biological Diversity Protocol and its SAP-BIO are accompanied by other programmes or action plans that address drivers of biodiversity loss (threats) including on pollution (Mediterranean Offshore Protocol Action Plan; National Action Plans to reduce pollution for 2016-2025; Plan on reduction of input of BOD by 50% by 2010 from industrial sources for the Mediterranean region; Strategic framework on marine litter management; Plan for the reduction by 20% by 2010 of the generation of hazardous wastes from industrial installations for the Mediterranean region; Plan for the management of hazardous waste, including inventory of hazardous waste in the Mediterranean region; Plan for the management PCBs waste and nine pesticides for the Mediterranean Region); the Action Plan for the implementation of the ICZM Protocol 2012-2019; the Action Plan on Sustainable Consumption and Production; and, the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas.

3.2.2. Caspian Sea - Tehran Convention

99. The overarching framework is the Action Plan for the Protection and Sustainable Development of the Marine Environment of the Caspian Sea. Several protocols under the Tehran Convention have been adopted including:

- The Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents ("Aktau Protocol");
- The Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities ("Moscow Protocol");
- The Protocol on Environmental Impact Assessment in a Transboundary Context; and
- The Protocol for the Conservation of Biological Diversity ("Ashgabat Protocol")

100. The full text of the Protocol for the Conservation of Biological Diversity, or "Ashgabat Protocol", is provided in Annex 1. The Ashgabat Protocol contains the following key elements:

- A list of ***definitions***, or guidance, for the use of terms;
- The ***objectives***, that are:
    - To protect, preserve, and restore the health and integrity of the biological diversity and the ecosystem of the Caspian Sea as well as to ensure the sustainable use of biological resources and in that context:
    - To safeguard threatened species, and vulnerable ecosystems, to ensure their long–term viability and diversity;
    - To prevent decline, degradation and damage to species, habitats and ecological systems, directed by the precautionary principle; and
    - To protect and conserve those areas that best represent the high range of species, special habitats, ecological systems and natural and related cultural heritage.
- General ***measures for implementation***, including:
    - Individually or jointly taking all appropriate measures to protect, preserve and restore the marine environment of the Caspian Sea;
    - Using natural resources so as not to cause harm;
    - Protect, preserve and restore biological diversity with particular emphasis on threatened species;
    - Protect, preserve and restore areas that are unique, highly sensitive or regionally representative in an environmentally sound and sustainable manner, notably by the establishment of protected areas;
    - Adopt national and, as appropriate, regional strategies, action plans and programmes and develop and implement appropriate legislation for the conservation of biological diversity and the sustainable use and management of biological resources including their habitats;
    - Undertake monitoring measures related to the biological diversity of the Caspian Sea;
    - Identify and compile inventories of biological diversity and habitats for the purpose of conservation of biological diversity and sustainable and rational use of biological resources;
    - Ensure that sectoral strategies and action plans are consistent with the principles of conservation of biological diversity and sustainable and rational use of biological resources;
    - Apply national integrated management of coastal areas, taking into account the need for sustainable and rational use of biological resources and conservation of biological diversity;
    - Control sources of pollution and any activity that cause or may cause a significant negative impact on habitats and species; and
    - Cooperate with each other and with competent international organizations in the field of biological diversity conservation and management of threatened species and ecosystems.
- ***Measures for the Protection and Conservation of Species***, including:
    - Comprehensive inventories of threatened species of flora and fauna based on specified criteria;

- Regulate activities having adverse effects on protected species and their habitats, and other measures to ensure a favourable state of conservation of such species;
- Control and where appropriate prohibit the transport and use for commercial purposes of protected species of flora and fauna, their parts and derivatives thereof;
- Control and, where appropriate, prohibit the disturbance of fauna;
- Regulate all forms of destruction and disturbance of protected species;
- Cooperate for the protection and recovery of migratory species;
- Undertake long-term monitoring of the status of threatened species as well as the nature and magnitude of threats;
- Exchange information on measures being and conduct an assessment of the effectiveness of such measures;
- Elaborate and implement national and, as appropriate, regional action plans for the species for their in-situ and ex-situ conservation and recovery;
- Cooperate to ensure the protection, conservation and, if necessary, restoration of threatened species (listed under an Annex I of the Protocol); and
- Grant exemptions to the prohibitions prescribed for the protection of the species listed for scientific and reproductive purposes providing that those exemptions do not harm the survival of the population of the target species or of any other species.

- ***Alien Species***
  - Regulate the introduction of alien species and prohibit those that may have harmful impacts on the ecosystems, habitats or species and regulate those already introduced which are causing or may cause damage; and
  - Review the status of all alien species introduced into the Caspian Sea, the risks posed by them and prepare and implement a regional Plan of Action for those identified as invasive species.

- ***Genetically Modified Species***
  - Regulate the introduction of genetically modified species and prohibit those that may have harmful impacts.

- ***Protected areas:***
  - Designation of Protected Areas including criteria for designation/prioritisation;
  - Management measures for protected areas; and
  - Procedures for the establishment and listing of protected areas.

- Conservation of Biological Diversity in the Framework ***of Coastal Zone Management***: measures to develop and adopt national coastal area management strategies and plans to provide a mechanism for biological diversity conservation, including: integration of biological diversity conservation and environmental protection provisions in national and/or regional development planning; analysis of natural dynamics of coastal ecosystems connected with sea-level fluctuations.
- ***Environmental Impact Assessment*** within the Framework of Conservation of Biological Diversity: as a tool for preventing and minimizing adverse impacts on biological diversity.
- ***Access to Genetic Resources*** (probably now superseded by the Nagoya Protocol on Access and Benefit Sharing).
- ***Access to and Transfer of Technology.***

- ***Scientific and Technical Cooperation and Assistance***
- ***Exchange of Information***
- ***Environmental Education and Public Awareness***
- ***Reporting*** *on the implementation of provisions of the Protocol.*

3.2.3. Red Sea and Gulf of Aden

101. PERSGA is the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden and administers the Regional Convention for the Conservation of the Red Sea and Gulf of Aden (the Jeddah Convention, 1982). The Convention has a *Protocol Concerning the Conservation of Biodiversity and the Establishment of Network of Protected Areas in the Red Sea and Gulf of Aden* (the full text is provided in Annex 2). The protocol was signed in 2005 to maintain the safety and integrity of ecosystems to conserve biodiversity and protect threatened species, critical habitats and sites of importance in the region.

102. The Protocol includes the following provisions regarding biodiversity and protected areas:

- Listing of Threatened Species;
- Listing of Species Whose Exploitation is Regulated;
- Maintenance of Threatened Species and Species of Economic/cultural importance;
- Procedures for Alien Species and Genotypes;
- Establishment of the List of Protected Areas of Importance to the PERSGA Region;
- Procedure for Inclusion of Proposed Protected Areas in the PERSGA protected area list;
- Management of Protected Areas;
- Inventories of Areas of Special Importance;
- Management of Special Habitats;
- Integrated Coastal Areas Management (to support PA management);
- Environmental Impact Assessment;
- Restoration of Ecosystems and Populations of Species;
- Guidelines and Common Criteria for terms (mostly referring to the IUCN PA criteria and definitions);
- Access to Genetic Resources;
- Access to, and Transfer of Technology and Distribution of its Benefits;
- Scientific and Technical Cooperation;
- Information Exchange; and
- Environmental Awareness

103. The *Programme of Biodiversity and Marine Protected Areas* implements the protocol. The programme builds regional capacities and implements plans related to the management of important natural habitat such as coral reefs, mangroves and sea grasses and key species such as turtles, birds and marine mammals. Previously, PERSGA developed of a *Regional Master Plan for MPAs* in the Red Sea and Gulf of Aden so as to be consistent with the objectives of the Convention on Biological

Diversity (1992) and also parallels developments in a number of other regional sea areas (e.g. the Caribbean and Mediterranean) where similar regional networks of MPAs have been established. Marine protected areas (MPAs) have been established in many parts of the Red Sea and Gulf of Aden as tools to provide for sustainable resource use, economic development and conservation. Of particular importance is the need to conserve areas that represent the range of the region's unique habitats and biodiversity and to support national development. This has been initiated through the integration of 12 MPAs from throughout the region into a Regional Network of MPAs for the Red Sea and Gulf of Aden. These 12 MPAs are: Iles des Sept Frères and Ras Siyan (Djibouti); Ras Mohammed National Park; Giftun Islands and Straits of Gubal (Egypt); Aqaba coral reefs (Jordan); Straits of Tiran; Wajh Bank, Sharm Habban and Sharm Munaybirah; Farasan Islands (Saudi Arabia); Aibat and Saad ad-Din Islands, Saba Wanak (Somalia); Sanganeb Marine National Park; Mukkawar Island and Dungonab Bay (Sudan); Socotra Islands; Belhaf and Bir Ali area (Yemen).

104. The objectives of the Regional Master Plan for MPAs are:

- to develop regional capacity in all aspects of MPA planning and management to provide for the sustainable use of living marine resources to support local and national economic and social development;
- to involve local communities and stakeholders as partners in MPA management;
- to conserve representative and prime examples of the biodiversity of the Red Sea and Gulf of Aden to conduct research and monitoring programmes for the benefit of MPA management;
- to enhance public awareness of the marine resources and biodiversity of the Red Sea and Gulf of Aden and the principles of sustainable use; and
- to protect the unique cultural heritage of the marine and coastal environments of the Red Sea and Gulf of Aden to implement a regional legal framework for protected areas and biodiversity.

105. The Regional Master Plan includes guidelines based on currently accepted best practice in the planning and management of MPAs that have been adapted to suit the specific situations found in the Red Sea and Gulf of Aden. These guidelines include:

- the planning process;
- the development of zoning plans;
- research and monitoring;
- public awareness;
- stakeholder consultation and participation;
- sustainable financing;
- capacity building; and
- personnel requirements.

106. There are significant differences between the countries surrounding the Red Sea and Gulf of Aden in their level of technical and scientific capacity for planning and managing MPAs. This is due in part to differences in economic development and assistance from the international donor community. This Regional Master Plan outlines the strengthening required in national legal and institutional mechanisms, as well as the need for a regional protocol on MPAs to guide the

development of national MPA legislation where it is lacking. The establishment of a Regional Activity Centre for MPAs will allow for the effective coordination of the Regional Network. Additional mechanisms are described for coordination among the MPAs in the Network, information exchange, capacity building, institutional strengthening and the establishment of linkages with other regional networks. It is envisaged that the development of a strong Regional Network of MPAs, and growth of national capacity in the planning and management of MPAs, will foster the establishment of other MPAs in each country of the region. To further support this process, this Regional Master Plan includes guidelines for the identification and selection of other MPAs.

3.2.4. The Regional Organization for the Protection of the Marine Environment (ROPME)

107. The Regional Organization for the Protection of the Marine Environment (ROPME) was initially established in 1979 as a result of the Article XVI of the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution in the Coastal Areas of Bahrain, I.R. Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The Convention has adopted a Protocol concerning the conservation of biological diversity and the establishment of protected areas.

108. The Kuwait Convention Protocol on Biological Diversity provides for special conservation measures to species and Special Habitats, in particular mangroves, coral reefs, brackish and salt marshes, khores and estuaries, seagrass and algal beds, inter-tidal mud/sand flats. Its objectives are to conserve, protect and restore the health and integrity of biological diversity and ecosystems in the ROPME Sea Area and to safeguard threatened species, protected areas, special habitats, sensitive areas, sites of particular natural, ecological or cultural significance, as well as representative types of coastal and marine ecosystems, their biodiversity and their sustainable use and management. General provisions relating to biodiversity include:

- All appropriate measures to prevent, control or mitigate the harmful impacts of the development projects/activities on salt marshes, estuaries, khores, mangroves, seagrass and algal beds, coral reefs, kelp forests, pearl oyster beds, inter-tidal mud/sand flats, rocky shores, sandy beaches, supra-tidal areas, marine turtle nesting grounds, and all other Special Habitats;
- Conserve, protect and manage natural biological diversity with particular emphasis on threatened species;
- Protect, preserve and manage, in an environmentally sound and sustainable manner, areas that are unique, highly sensitive or regionally representative, notably by the establishment of protected areas;
- Adopt policies, strategies, plans and programmes for the conservation of biodiversity and the sustainable use and management of coastal and marine biological resources and their habitats;
- Assess the consequences of mariculture on biological diversity and promote the principles of ICAM and sustainable development;
- Regulate the introduction of alien species and/or living modified organisms and prohibit those that may have harmful impacts on the ecosystems, habitats or species;
- Control land-based and sea-based sources of pollution that pose a significant impact on habitats and species;
- Ensure that sea-use and/or land-use are consistent with the principles of conservation and sustainable use and management of biological diversity;

- Develop cooperation on bilateral and multilateral bases in the field of conservation and management of natural sites and notably through the establishment of transboundary ROPME SPAs;
- Special conservation measures in Special Habitats, inter alia should:
    - Develop and apply national regulations dealing with coastal land use practices and other human activities, such as dredging and land filling, construction of mega structures, artificial islands, harbours, roads, piers, wharves and bridge abutments, in particular, those applicable to Special Habitats containing mangroves, coral reefs, brackish and salt marshes, khores and estuaries, seagrass and algal beds;
    - Regulate fishing activities, especially bottom-trawling practices in seagrass beds and other Special Habitats;
    - Regulate fishing in dugong feeding and breeding areas, and marine turtle feeding areas;
    - Regulate fishing practices in order to prevent or minimize the by-catch of marine turtles and marine mammals;
    - Preserve marine turtle nesting beaches;
    - Apply management measures for the longstanding use of mangroves for fuel or fodder;
    - Regulate land filling and dredging in Special Habitats and adopt best available and economically feasible technologies wherever applicable;
    - Undertake all necessary measures to prevent, control and mitigate oil pollution and/ or other pollution;
    - Stop sewage disposal to the Special Habitats;
    - Regulate discharge of any runoff; thermal and brine effluents to the Special Habitats;
    - Stop harvesting of corals, prevent any activities causing damage such as anchoring, and regulate fishing and recreational activities in reef areas; and
    - Prevent mariculture activities in the vicinity of coral reefs and other Special Habitats.

3.2.5. South-Asia Seas

109. The overall objective of the South Asian Seas Action Plan (SASAP) is to protect and manage the marine environment and related coastal ecosystems of the region in an environmentally sound and sustainable manner. The specific objectives are:

- Establish and enhance consultations and technical co-operation among states within the region;
- Highlight the economic and social importance of the resources of the marine and coastal environment; and
- Establish a regional co-operative network of activities concerning subjects/projects of mutual interest for the whole region.

110. South Asia Co-operative Environment Programme (SACEP) serves as the secretariat of South Asian Seas Programme (SASP). SACEP is an inter-governmental organization, established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region. SACEP has a programme on Biodiversity Conservation but it is not specific to the regional seas (i.e. also covers terrestrial biodiversity).

111. The South Asian Seas Programme of SACEP, together with UNEP, have initiated an activity to develop a *South Asia Regional Marine and Coastal Biodiversity Strategy* in partnership with various other stakeholders. The Strategy was prepared, in parallel with the National Biodiversity Strategies and Action Plans (NBSAPs), and it will assist the five maritime countries of South Asia to achieve Aichi Biodiversity targets relevant to coastal and marine biodiversity on national as well as regional level. This process will support and guide future revision of the South Asian Seas Action Plan. As of 2016, the following activities were carried out:

- Conducted a desk review by a consultation of IUCN Sri Lanka to provide a knowledge base for the Regional Marine and Coastal Biodiversity Strategy;
- Prepared draft Strategy based on desk review and consultation with countries;
- Organized regional workshop to validate and fine-tune the Strategy; and
- Finalize the Strategy to be presented for endorsement at the IMM-SASP.

112. Based on these desk reviews the Initial draft of the *First Order Draft of the Marine and Coastal Biodiversity Strategy for the South Asian Seas Region* was prepared. The draft was discussed and further developed during the First Regional Workshop that took place in Colombo, Sri Lanka on 8-10 July 2014. In total 52 participants including national experts from the key relevant competent national authorities of the countries (India, Maldives, Pakistan and Sri Lanka) were presented in the regional meeting. This report was circulated among the member countries for comments and the 2nd workshop was to be arranged to finalize the report in the last Quarter of 2015 prior to its adoption at the 6-IMM/SASP.

113. The *First Order Draft of the Marine and Coastal Biodiversity Strategy for the South Asian Seas Region* provides a very useful example of a similar undertaking to that of the development of the NOWPAP RAP BIO. The main contents and structure of the report are provided in Annex 3.

3.2.6. North-East Atlantic - OSPAR

114. OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic. OSPAR started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources of marine pollution and the offshore industry by the Paris Convention of 1974. These two conventions were unified, updated and extended by the 1992 OSPAR Convention. An annex to the Convention on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea. OSPAR has a work area specifically on Biological Diversity and Ecosystems, with a Committee on Biodiversity along with its subsidiary Inter-sessional Correspondence Groups (ICG) on: Coordination of Biodiversity Assessment and Monitoring (ICG COBAM); Protection & Conservation of Species and Habitats (ICG POSH); and Marine Protected Areas (ICG MPA). The OSPAR Committee on Biodiversity has a regularly updated work programme. The current work programme is provided in Annex 4.

115. OSPAR has a Thematic Strategy on Biological Diversity and Ecosystems (the full text is provided in Annex 5). The key elements of the strategy are as follows:

- Close alignment with the Strategic Plan for Biodiversity 2011-2020, including, where relevant, targets framed upon and consistent with the Aichi Biodiversity Targets;

- The strategic objective is to halt and prevent by 2020 further loss of biodiversity in the OSPAR maritime area, to protect and conserve ecosystems and to restore, where practicable, marine areas which have been adversely affected;
- This is done by:
    - improving the status of threatened and/or declining species and habitats, in particular of those on the OSPAR List, and ensure that they are effectively conserved, working, where appropriate, with other competent authorities;
    - furthering OSPAR's work on marine protected areas with the view of achieving a network of marine protected areas which:
        - by 2012 is ecologically coherent, includes sites representative of all biogeographic regions in the OSPAR maritime area, and is consistent with the CBD target for effectively conserved marine and coastal ecological regions;
        - by 2016 is well managed (i.e. coherent management measures have been set up and are being implemented for such MPAs that have been designated up to 2012);
    - aiming to ensure that the effects of human activities and pressures on the marine environment, individually or cumulatively, do not adversely affect species, habitats and ecosystems, in particular those on the OSPAR List of Threatened and/or Declining Species and Habitats;
    - substantially reducing marine litter in the OSPAR maritime area to levels where properties and quantities of marine litter do not cause harm to the coastal and marine environment;
    - endeavouring to keep the introduction of energy, including underwater noise, at levels that do not adversely affect the marine environment in the OSPAR maritime area;
    - endeavouring to limit the introduction of non-indigenous species by human activities to levels that do not adversely alter the ecosystems;
- Main strategic directions
    - To achieve its objectives and in accordance with the findings of the Quality Status Report 2010, the OSPAR Commission will focus on the following main strategic directions in the period up to 2020:
        - ensuring the protection and conservation of biodiversity and ecosystem functioning throughout the OSPAR maritime area and, when practicable, restoring marine areas which have been adversely affected through the further development and implementation of appropriate programmes and measures;
        - further developing the OSPAR network of marine protected areas, including in areas beyond national jurisdiction, ensuring that the network is ecologically coherent in the OSPAR maritime area and that effective management is in place at all sites;
        - integrated management of human activities, though, among other measures, the further development and implementation of tools such as marine spatial planning, impact assessment and socio-economic assessment, in order to achieve the reduction in pressures which are adversely affecting the marine environment, and the sustainable use of ecosystem goods and services;
        - regional, coordinated development of monitoring and assessment of marine biodiversity and ecosystem functioning, including the individual and

cumulative pressures and environmental impacts from human activities and climate change and ocean acidification;

- Time frame and implementation
    - The Biodiversity and Ecosystems Strategy will be implemented and further developed in line with the OSPAR Commission's commitments to an Ecosystem Approach;
    - The Joint Assessment and Monitoring Programme and the periodic Programmes of Work will establish priorities, assign tasks, and set appropriate deadlines for completing these tasks, consistent with the EU Marine Strategy Framework Directive;
- For the implementation of this Strategy the OSPAR Commission will:
    - *Monitoring and assessment*
        - continue to monitor and assess the effects of human activities and pressures, individually and cumulatively, on the marine environment, biodiversity and ecosystem functioning;
        - by 2013, agree on an overall assessment process for marine biodiversity and ecosystem functioning, and develop and agree by 2014 a coordinated monitoring programme for the ongoing assessment of the environmental status with regard to biodiversity and ecosystem functioning in the OSPAR maritime area;
        - assess, based on monitoring data, the current and future impacts of climate change and ocean acidification on species, habitats and ecosystem functioning; establish the timescale(s) for such impacts to take effect and their possible extent; and consider management options suitable for mitigation of, and adaptation to, such impacts;
    - *Targeted actions for the protection and conservation of species, habitats and ecosystem processes*
        - undertake the following actions in further developing appropriate measures for the protection of threatened and/or declining species and habitats on the OSPAR List of Threatened and/or Declining Species and Habitats (“the OSPAR List”), in order to improve their status and to ensure they are effectively conserved:
            - identify targeted protective measures for species and habitats included in the OSPAR List on the basis of information contained in the OSPAR background documents for species and habitats, the report of the OSPAR Workshop on defining actions and measures for the threatened and/or declining species listed by OSPAR (Paris, 2009), and any other sources considered relevant;
            - develop and adopt as soon as possible, but no later than by 2013, OSPAR programmes and measures (Decisions or Recommendations and guidance) aimed at improving the protection of the species and habitats on the OSPAR List, or groups thereof, outlining those targeted actions that should be taken by Contracting Parties and the OSPAR Commission;
            - bring to the attention of relevant competent authorities and international bodies those protective measures that the OSPAR Commission considers necessary and which fall within the competence of those authorities and international bodies;

- evaluate by 2016 whether actions and measures being taken are adequate to achieve the objective set out above, taking into account those being taken by the OSPAR Commission and other competent authorities and international bodies;
- review the OSPAR List with a view to removing any species or habitats that no longer meet the criteria for listing and adding new species and habitats that fulfill the criteria. Identify any new programmes or measures required to ensure improved conservations status of species and habitats contained within such a revised list;
- strengthen knowledge of ecosystem integrity and resilience of the components of marine biodiversity;

- *Marine protected areas (MPAs)*
  - undertake the following actions in further developing an ecologically coherent OSPAR network of well-managed marine protected areas ("the OSPAR Network") to complement the actions of Contracting Parties under the revised OSPAR Recommendation on a Network of Marine Protected Areas:
    - identify, on the basis of reports from Contracting Parties and observer organisations, further possible components of the OSPAR Network in areas beyond national jurisdiction in order to achieve the purposes of the network;
    - in accordance with UNCLOS, and in consultation with the relevant competent international organisations, develop and implement the management framework adopted by the OSPAR Commission for those MPAs in areas beyond national jurisdiction already included in the OSPAR Network and, if appropriate, consider how such protection could be achieved for any further areas identified under (i) and how to integrate such areas into the network;
    - evaluate in 2012 whether the components of the OSPAR Network that have been selected by that date fulfil the OSPAR target at the commitment of the World Summit on Sustainable Development (WSSD) of representative networks, and the target of the Convention on Biological Diversity to have at least 10 per cent of each of the world's marine and coastal ecological regions effectively conserved;
    - identify any gaps which need to be filled, especially in offshore areas and areas beyond national jurisdiction, in order to achieve, by 2012, an ecologically coherent OSPAR Network and maintain it thereafter, and take steps towards filling any such gaps in areas beyond national jurisdiction as soon as possible;
    - evaluate by 2016, whether OSPAR MPAs are well-managed, working, where relevant, in cooperation with competent authorities;
    - if so requested by a Contracting Party concerned, consider whether any action by the OSPAR Commission, or concerted action by the Contracting Parties, is needed to support efforts by Contracting Parties to achieve the institution of management measures by an international organization for any component of the OSPAR Network.

- *Management of human activities*
  - on the basis of continued monitoring and assessment of human activities, keep under review, and, if necessary, draw up, programmes and measures for the management of human activities with a view to:
    - controlling the effects of human activities and pressures, individually and cumulatively, on the marine environment, and;
    - restoring, where practicable, marine areas which have been adversely affected;
  - collaborate and exchange information (e.g. on vulnerable marine ecosystems) with fisheries management authorities, advisory organisations, the fishing industry and other relevant stakeholders, so as to promote and support the integration of fisheries management with ecosystem-based management of the North-East Atlantic, the sustainable management of fisheries consistent with OSPAR Ecological Quality Objectives, and an improved assessment of fisheries which supports measures to achieve good environmental status;
  - encourage the ratification, implementation and enforcement of relevant instruments of the IMO, and collaborate with the IMO and other competent organisations and relevant stakeholders (e.g. Bonn Agreement and North Sea Network of Prosecutors and Investigators) on actions addressing impacts of maritime transport on the marine environment.
- *Management of specific human pressures*
  - develop appropriate programmes and measures to reduce amounts of litter in the marine environment and to stop litter entering the marine environment, both from sea-based and land- based sources, to complement the actions of Contracting Parties such as under OSPAR Recommendation 2010-XX on the reduction of marine litter through the implementation of 'Fishing for Litter' initiatives, including:
    - by 2012, based on an evaluation of progress made and available data, establish regionally coordinated targets for marine litter;
    - by 2014, a coordinated monitoring programme for marine litter;
  - promotion of research to improve the evidence base with respect to impact of litter, including micro-particles, on the marine environment;
  - foster, in cooperation with the North Sea Network of Investigators and Prosecutors, enforcement and prosecution of offences under Annex V on garbage to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78 Convention);
  - consider, identify and implement appropriate measures for the reduction of the adverse effects of underwater noise on the marine environment.
- *Integrating management actions*
  - further develop appropriate measures, in line with the Ecosystem Approach to facilitate marine spatial planning in the OSPAR maritime area, including:
    - cooperation on transboundary issues that are arising from marine spatial planning;
    - where necessary, additional mechanisms for transnational consultations on marine spatial plans and issues arising from them;
    - region-specific, tailor-made approaches to applying marine spatial planning to support the Ecosystem Approach;

- exchange of best practices and experiences with regard to marine spatial planning.

- further develop cumulative effect assessment methodologies to support the implementation of the Ecosystem Approach and facilitate the fulfilment of requirements under the EU Marine Strategy Framework Directive, particularly in relation to the assessment of biodiversity and ecosystem functioning;
- by 2012, prepare an economic and social analysis of the uses of the OSPAR maritime area and of the cost of degradation of the marine environment, consistent with the requirements of the EU Marine Strategy Framework Directive;

- The implementation of the Biodiversity and Ecosystems Strategy will take place within the framework of the obligations and commitments of the various Contracting Parties, individually or jointly, in this field, in particular the obligations of EU Member States and, in some cases, the states of the European Economic Area (EEA) to implement measures under the EU Marine Strategy Framework Directive (2008/56/EC), the Water Framework Directive (2000/60/EC), the Habitats Directive (92/43/EEC), the Birds Directive (2009/147/EC) and the Port Waste Reception Facilities Directive (2000/59/EC);
- To promote consistency, other relevant measures that have been agreed or are being negotiated by some or all Contracting Parties in other forums are taken into account in the light of their applicability to different geographical areas. Such measures are taken under the Bern Convention, the Bonn Convention (including its regional agreements) and the Ramsar Convention, the Convention on Biological Diversity, the Helsinki Convention, the Barcelona Convention, the International Commission for the Conservation of Atlantic Tunas, the North Atlantic Salmon Conservation Organisation, the Bucharest Convention, the Bonn Agreement, the Lisbon Agreement when entered into force, the Arctic Council, the Trilateral Wadden Sea Cooperation and the International Conferences on the Protection of the North Sea;
- The OSPAR Commission will cooperate:
  - with other competent authorities, as stipulated in the Memorandum of Understanding between the OSPAR Commission and the North-East Atlantic Fisheries Commission, the Memorandum of Understanding between the OSPAR Commission and the International Seabed Authority, and the Agreement of Cooperation between the International Maritime Organization and the OSPAR Commission, and will endeavour to establish further cooperation arrangements with other relevant international organisations, as appropriate; and
  - with relevant scientific institutions including the International Council for the Exploration of the Sea (ICES) and the European Environment Agency (EEA).

3.3. Other relevant action plans

3.3.1. The NOWPAP Regional Action Plan on Marine Litter (RAP MALI)

116. Although not dealing specifically with biodiversity, the NOWPAP Regional Action Plan on Marine Litter (RAP MALI) represents a model that can usefully inform the development and ultimate form of the RAP BIO.

117. The NOWPAP RAP MALI is based on an action plan on marine litter formulated in 2008 (NOWPAP 2008) that includes a description of the background, the goal and objectives and key areas of implementation (prevention of the marine litter input to the marine and coastal environment; monitoring of marine litter quantities and distribution; and, removing existing marine litter and its disposal). Subsequently there was a process of revising and updating the terms of reference of the

various institutions of the NOWPAP infrastructure, as periodically approved by the NOWPAP governing mechanism (the Intergovernmental Meeting, IGM), to reflect implementation arrangements for the NOWPAP RAP MALI.

118. The origin of the NOWPAP RAP MALI is that new directions for the NOWPAP Regional Activity Centers (RACs) and Regional Coordinating Unit (RCU) were approved in 2005. These included new activities addressing marine litter pollution in the framework of the Marine Litter Activity (MALITA) project. The project was implemented from November 2005 until December 2007 by the RACs and coordinated by the RCU. The overall objective of the MALITA project was to develop a NOWPAP Regional Action Plan on Marine Litter (RAP MALI). In 2006, the Terms of Reference of NOWPAP CEARAC, MERRAC, and POMRAC were reviewed and approved to incorporate activities addressing marine litter issues and the implementation of RAP MALI that was finally approved in 2008 (NOWPAP 2008).

119. Responding to global and regional needs to increase public awareness and engagement, in 2014, Northwest Pacific Environmental Cooperation Center (NPEC), host organization of the NOWPAP CEARAC, together with NOWPAP RCU has established the Northwest Pacific Regional Node of the Global Partnership on Marine Litter (GPML). The 22nd NOWPAP (2017) requested transfer of the Regional Node from NPEC to NOWPAP DINRAC. The 22nd NOWPAP IGM also requested development of Terms of Reference of RAP MALI Focal Points Meeting to reflect upon their strengthened role in overseeing all NOWPAP marine litter, including micro-plastics, activities and the further development of the Northwest Pacific Regional Node of the GPML, while respecting existing responsibilities of NOWPAP RACs Focal Points. The draft ToR of RAP MALI Focal Points Meeting was prepared by NOWPAP RCU in early 2018 and circulated to NOWPAP member states for comment. The comments received from NOWPAP member states have been incorporated in the current ToR. The 2018 RAP MALI ToR meeting further reviewed the ToR. This was adopted at the 23rd NOWPAP IGM (2018).

120. The main implications of the NOWPAP RAP MALI for the development of the NOWPAP RAP BIO is its principle of identification of the goals, objectives and key activity areas (the actual original published RAP MALI in 2008) - with subsequent identification of activities (etc.) to be undertaken being developed and reflected through adjustments to the Terms of Reference (and work plans) of the NOWPAP institutions (RACs, RCU, etc.) and subsequent endorsement by the IGM.

3.4. Conclusions relevant to the NOWPAP RAP BIO

121. All four Member States of NOWPAP place a high level of importance on the Convention on Biological Diversity and each has a recent and detailed national biodiversity strategy and action plan developed in response to, and each framed around, the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. Three Member States have held, or will hold, the Presidency of the Conference of the Parties, meaning they have hosted a CBD COP. Japan hosted COP-10 in 2010, at which the Strategic Plan for Biodiversity was adopted. The Republic of Korea hosted COP-12 in 2014. China will host COP-15 in 2020, at which the new strategy beyond 2020 will be adopted. This reflects strong support for the conservation and sustainable use of biodiversity and bodes well for the development of a NOWPAP RAP BIO. It also suggests that Member States will be keen to see a NOWPAP RAP BIO that is coherent with, if not directly supporting, the CBD, the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets and its successor to be adopted in 2020. All four Member States of NOWPAP have also tried to establish national targets for their national

biodiversity strategies and actions around contributions to the Aichi Biodiversity Targets. Likewise, the NOWPAP RAP BIO should consider the inclusion of targets relating to the Aichi Targets (as well as the SDGs and Targets) and/or the revised targets post 2020.

122. There need not be any debate around whether it is more important for the NOWPAP RAP BIO to contribute to the SDGs or the Aichi Biodiversity Targets (or their successor) because the biodiversity-related targets in the SDGs were based upon the Aichi Biodiversity Targets. In practice they are the same thing. Targets for the NOWPAP RAP BIO are discussed further below.

123. The existing regional strategies and action plans on marine and coastal biodiversity differ in the extent to which they identify targets. Many do not have time-bound targets. Where they exist, most are process related targets (e.g. do XX by year XXXX) and few, if any, have targets for improved outcomes for biodiversity (e.g. improved conservation status). The most advanced use of targets in that by OSPAR.

124. One means to increase visibility and support for the NOWPAP RAP BIO will be to highlight how it can assist Member States to improve implementation of the existing (and future) national biodiversity strategies and action plans (and the SDGs). This can be achieved through, inter alia: (i) addressing agreements for international cooperation (as listed in national plans and through the CBD and the SDGs); (ii) addressing transboundary issues; and (iii) demonstrating added value and efficiency gains in cooperation between Member States (e.g. sharing of information).

125. Most Regional Seas Programmes do not have a specific and comprehensive action plan or strategy on marine and coastal biodiversity, although they each undertake important biodiversity-relevant work, notably on addressing drivers. Those that do have a specific strategy or plan present useful experience and models for the development of the NOWPAP RAP BIO. The form they take varies somewhat between them. The Mediterranean Action Plan has an overall marine and coastal biodiversity strategy under which it has "action plans" on specific priority areas such as for individual species or species groups. Others have more comprehensive action plans that set out major areas of work. To some extent these differences in terminology and preferences for implementation arrangements.

126. Marine Protected Areas is a universal and prominent theme among all of the Regional Seas Programmes that have specific actions on biodiversity.

127. The Draft South Asia Seas Regional Marine and Coastal Biodiversity Strategy is a very useful model for developing the NOWPAP RAP BIO, particularly because of the background detail it contains to inform its Member States on its rationale. Currently, it focuses more on explaining the rational and background information for the strategy and is not necessarily a strategy as a finished product. That is, the draft presents a potential blueprint for the Roadmap to the NOWPAP RAP BIO in terms of content to be covered to support the eventual RAP BIO.

128. The NOWPAP Regional Action Pan on Marine Litter (RAP MALI) suggests that under NOWPAP the RAP BIO might well develop more as a statement of overall strategy with specific activities to be undertaken (actual actions) specified and delivered through modifications of the Terms of Reference of the NOWPAP Regional Activity Centers. Such nuances relate more to how a strategy or action plans might be delivered in a NOWPAP setting. The first thing that needs to be identified, of course, is what actually needs to be done.

4. Other Major Policy Frameworks, Projects and Programmes Addressing Marine and Coastal Biodiversity in the Four NOWPAP Member States and at NOWPAP Regional Level

129. There are a number of major regional policy frameworks (or forums), projects and programmes that address or are relevant to marine and coastal biodiversity in the NOWPAP region.

4.1. Coordinating Body on the Seas of East Asia (COBSEA)

130. The Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region (the East Asian Seas Action Plan) was approved in 1981 stimulated by concerns on the effects and sources of marine pollution. Initially, the action plan involved five countries (Indonesia, Malaysia, Philippines, Singapore and Thailand). In 1994, it was revised to involve another five countries (Australia, Cambodia, People's Republic of China, Republic of Korea and Vietnam) and up to this date the action plan has nine participating countries (Australia is no longer a participating country). As mentioned in Section 3.2, COBSEA is one of the 18 Regional Seas Programmes but it does not have a comprehensive action plan or programme on marine and coastal biodiversity (https://www.unenvironment.org/cobsea/who-we-are).

131. The COBSEA Secretariat is hosted by Thailand and administered by UN Environment. It provides overall technical coordination and supervision of the implementation of the Action Plan (paragraph 55), including:

- coordinating the activities of governments, non-governmental organizations, UN and donor agencies, and individuals for a healthy marine environment in the region;
- acting as a supervisory body in the implementation and assessment of projects and activities carried out under the purview of the COBSEA; and
- serving as a focus for collection and dissemination of information amongst member countries and between the EAS region and other regional seas and relevant international organizations

132. The New Strategic Direction for COBSEA (2008-2022) are focused on addressing regional priorities and priorities expressed in the 2030 Sustainable Development Agenda and Sustainable Development Goals. There are three core areas of work: land-based marine pollution, marine and coastal planning and management and governance, resource mobilization and partnerships.

4.1.1. Land-based Marine Pollution

133. The East Asian Seas Action Plan identifies ‘Scientific activities leading towards management’, including quality assurance for pollution monitoring, effects of pollution and pollution prevention. To address these regional and global threats, COBSEA adopted a Regional Action Plan on Marine Litter (RAP MALI) in 2008 which is periodically revised to reflect regional needs and priorities. Relevant UN Environment Assembly Resolutions also provide guidance for additional actions. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) is a key mechanism for action to achieve SDG target 14.1, to prevent and significantly reduce marine pollution of all kinds and in particular from land-based activities. Three priority source categories of land-based marine pollution were identified in the 2012 Manila Declaration: nutrients, marine litter and wastewater.

4.1.2. Marine and Coastal Planning and Management

134. The East Asian Seas Action Plan envisages implementation of integrated marine and coastal management, including the establishment of a viable network of Marine Protected Areas (MPAs), in order to conserve biodiversity and maintain productivity. Marine Spatial Planning (MSP) provides a means to achieve integration across economic sectors and ecosystems and enable embedding of MPAs and MPA networks within broader development plans. This embodies an ecosystem-based approach based on the best available scientific evidence. While significant progress has been made in the region in terms of establishment of Marine Protected Areas, there are still gaps in relation to, for example, MPA coverage, networking, and integration of MPAs within broader spatial planning efforts. COBSEA has contributed to the resource base for ecosystem-based marine and coastal planning and management. This includes technical tools as well as a network of national institutions and resource persons, such as the working groups on coral reefs, mangroves, seagrass, coastal wetlands and fishery refugia established in the context of developing and implementing the Strategic Action Programme for the South China Sea.

4.1.3. Governance, Resource Mobilization and Partnerships

135. COBSEA aims to provide an effective regional policy mechanism for the coastal and marine environment. COBSEA serves as a forum for exchange of experiences, policy and practice related to the above two substantive themes and has value to participating countries as a sustainability mechanism for project activities and policy uptake as well as in terms of legacy activities related to data and knowledge outputs and networks of experts and institutions.

4.2. The UN Economic and Social Commission for Asia Pacific (UN ESCAP)

136. The Economic and Social Commission for Asia and the Pacific (ESCAP) serves as the United Nations' regional hub promoting cooperation among countries to achieve inclusive and sustainable development. All four NOWPAP Member States are Members of ESCAP. The Commission's strategic focus is to deliver on the 2030 Agenda for Sustainable Development, which is reinforced and deepened by promoting regional cooperation and integration to advance responses to shared vulnerabilities, connectivity, financial cooperation and market integration. ESCAP's research and analysis coupled with its policy advisory services, capacity building and technical assistance to governments aims to support countries' sustainable and inclusive development ambitions.

137. ESCAP pursues a development agenda that focuses on integrating environmental sustainability into development policy making, in particular by turning resource constraints and the climate crisis into an economic opportunity that generates a double dividend of higher economic growth necessary to reduce poverty with lower environmental impact by improving the efficiency of resource use and increasing investments in human and natural capital. The secretariat supports building capacity, implementing pilot projects, facilitating the sharing of best practices and forging new approaches that can enable Member States to better cope with emerging developmental challenges through the strengthening of regional cooperation.

138. ESCAP does not have a comprehensive action plan or programme specific to biodiversity, and therefore nor to marine and coastal biodiversity.

4.3. The North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC)

139. The North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC) is a comprehensive intergovernmental cooperation framework addressing environmental challenges in North-East Asia. As a follow-up to the United Nations Conference on Environment and Development held in 1992, NEASPEC was established in 1993 by six Member States - China, Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea, the Russian Federation, to promote environmental cooperation in the subregion. UN-ESCAP (as above) provides the secretariat service for NEASPEC through the UNESCAP East and North-East Asia Office in Incheon, Republic of Korea.

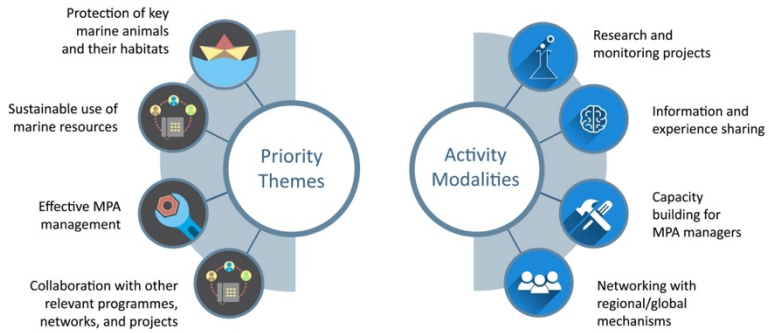
140. NEASPEC aims to achieve its objectives by:

- Promoting a step-by-step and practical approach towards subregional cooperation based on consensus, capacity building, information sharing, technology transfer and collaborative financing;
- Providing a multilateral cooperation platform for governments, national, subregional and international institutions, private sectors and civil societies to mitigate environmental impacts;
- Strengthening the technological and managerial capabilities of the national institutions;
- Identifying common policy approaches and objectives of member States and linking national strategies with subregional and global initiatives; and
- Periodically reviewing environmental trends and the implementation of priority projects with a view to identifying additional priority areas for cooperation

141. The Senior Officials Meeting acts as the governing body of NEASPEC to provide overall policy guidance and project coordination to NEASPEC by making policy decisions concerning all substantive and financial matters. SOM meets once a year in a member State on a rotational basis.

142. NEASPEC does not have an action plan or programme specifically on marine and coastal biodiversity but has relevant strategies and activities on nature conservation and marine protected area networks. The NEASPEC Nature Conservation Strategy (http://neaspec.org/sites/default/files//Publication_SavingNatureConservation_1.pdf) covers flagship terrestrial biodiversity (tiger and leopard) but also three species of waterbirds with populations in the NOWPAP region: Black-Faced Spoonbill, White-Naped Crane and Hooded Crane.

143. The NEASPEC North-East Asian Marine Protected Areas Network (NEAMPAN) was established as the most effective way to further improve the management of various MPAs in North-East Asia. This subregional MPA network acts as a key subregional platform for information sharing, joint assessment, and monitoring as well as partnership with other regional and global MPA networks. The objective of the NEAMPAN is to establish an effective, functional representative network of MPAs in North-East Asia for the conservation of marine and coastal biodiversity and more efficient MPA management. It promotes the following activities:



144. Currently member States have nominated a total of eleven sites as NEAMPAN member sites, including six sites from China, one from Japan, two from ROK, and two from the Russian Federation:

China: Nanji Islands National Marine Nature Reserve; Shankou Mangrove National Marine Nature Reserve; Beilun Estuary National Marine Nature Reserve; National Nature Reserve of Dazhou Island Marine Ecosystems; Sanya Coral Reef National Nature Reserve; Changyi National Marine Ecology Special Protected Area

Japan: Shiretoko National Park

Republic of Korea: Muan Wetland Protected Area; Suncheon Bay Wetland Protected Area

Russian Federation: Far-Eastern State Marine Biosphere Reserve; Sikhote-Alin State Natural Biosphere Reserve

4.4. The IOC Sub-Commission for the Western Pacific (WESTPAC)

145. The IOC Sub-Commission for the Western Pacific (WESTPAC) (http://iocwestpac.org/aboutus/2.html) was established in 1989 by the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC/UNESCO) to promote international cooperation and to coordinate programmes in marine research, ocean observations and services, as well as capacity building in the Western Pacific and adjacent seas, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of governance, sustainable development and protection of the marine environment.

146. All four NOWPAP Member States are Member States of WESTPAC. WESTPAC defines its strategic direction based on priority interests of the Member States in the region and implements its programmes and activities through strong partnerships with national competent agencies, marine scientific institutes, universities and other international organizations or programmes in the region. UNESCO established the IOC Regional Secretariat for WESTPAC (WESTPAC Office) in Bangkok, Thailand.

147. WESTPAC Priority Areas are: Ocean Processes and Climate Change; Marine Biodiversity, Sea-food safety and Security; Health and Ocean Ecosystems; Emerging Ocean and Science Issues. In its Marine Biodiversity, Sea-food safety and Security Priority area, WESTPAC strives to assist countries in knowing their biodiversity status and associated stressors, provides scientific advice for informed decision on marine biodiversity conservation through the following work areas:

148. *Coral Reef Conservation* (Formerly named as the Marine and Coastal Biodiversity and Conservation). Objectives: To understand and provide the scientific basis for biodiversity

management by articulating the state of the science with respect to current and emerging stressors; to establish the effective management plan and monitoring programs for marine biodiversity among WESTPAC country members; and, to encourage research collaboration and to exchange knowledge among WESTPAC countries.

149. *Coral Reef Resilience to Climate Change and Human Impacts* (Formerly named as Coral Reef under Climate and Anthropogenic Perturbations). Objectives: To understand the biogeochemical and ecological nature of coral reefs in WESTPAC in different geographic, physical and environmental settings, as well as different types of human interventions; to evaluate the consequence of impact of climate change and other human activities on the health of coral reefs and their sustainable use; and to promote capacity building in areas related to research on coral reefs through sharing scientific knowledge and training activities, as well as collaboration within research networks in WESTPAC. The project is implemented through scientific workshops, training courses and summer schools, hand-on practice, exchange of research scientists and students, as well as transfer of techniques and/or methodologies, with outcomes including: Establishment of a net-work for research on coral reefs and collaborative coordination with other projects in the region; Increase in the ability of capacity building in WESTPAC through exchange of experts, transferring of techniques and training through research; Issue of an assessment report on status of coral reefs in WESTPAC in accordance to IOC Medium-Term Strategy; Joint publication of research results as monograph and/or special issue in international media.

150. *DNA Taxonomy and Recruitment Monitoring of the Coral Reef Marine Organisms*. Objectives: To build an inventory of marine organisms living in the Coral Triangle and neighboring coral reefs; to develop a genetic marker called DNA barcode of each species for an objective identification; to monitor the recruitment of marine organisms into the coral reefs by in-situ discrimination of larvae and fries.

151. *Marine Toxins and Seafood Safety*. Since 2010, this project has been carried out mainly through workshops, trainings, as well as other associated activities in between meetings.

152. *Harmful Algal Blooms*. Long term objectives are: Understanding of the biological and chemical nature, population dynamics and environmental effects of harmful algae and their bioactive products; prevention of ill consequences caused by HABs, through providing scientific knowledge useful for establishment of reliable cost- and load-effective management systems including monitoring and research.

153. *Ocean Remote Sensing for Coastal Habitat Mapping*. This project aims to develop mapping methods of coastal habitats suitable for the WESTPAC region to deliver our understanding of habitat distributions at selected areas to local people and stakeholders with the standardized remote sensing methods.

154. *South China Sea Fluvial Sediments and Environment Changes.* Scientific objectives include: to investigate fluvial sediment source-to-sink process in the South China Sea; to reconstruct time series variation of sediment transport and deposition in the past; to evaluate environmental change and human activity influences on fluvial sediments in the South China Sea. Expected outcomes include: synthesizing physical and chemical weathering of lands surrounding the South China Sea and its controlling mechanism; recognizing source-to-sink transport patterns of fluvial sediments from past and current scenarios in the South China Sea in order to predict future

trends; understanding influences of environmental change and human activity on formation, transport, and deposition of fluvial sediments; strengthening collaboration and young talents training on related disciplines of ocean and Earth sciences among participating WESTPAC countries.

Enhancement of Sustainable Harmful Jellyfish Research & Networking in the Western Pacific region
Marine Endangered Species; and
Distribution, Source, Fate and Impacts of Marine Microplastics in the Asia Pacific

4.5. The North Pacific Marine Science Organization (PICES)

155. The North Pacific Marine Science Organization (PICES) is an intergovernmental science organization, was established in 1992 to promote and coordinate marine research in the North Pacific and its adjacent seas. Its present members are Canada, Japan, People's Republic of China, Republic of Korea, the Russian Federation, and the United States of America (https://meetings.pices.int/about). The purpose of PICES is to: Promote and coordinate marine research in the northern North Pacific and adjacent seas especially northward of 30 degrees North; Advance scientific knowledge about the ocean environment, global weather and climate change, living resources and their ecosystems, and the impacts of human activities; and Promote the collection and rapid exchange of scientific information on these issues.

156. The Climate Change and Carrying Capacity Programme (CCCC) was the first major interdisciplinary initiative undertaken by the North Pacific Marine Science Organization. The ultimate goal of CCCC was to forecast the consequences of climate variability on the ecosystems of the subarctic Pacific. Currently, the major programme of PICES is the Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems (FUTURE) - an integrative Scientific Programme undertaken by the member nations and affiliates of PICES to understand how marine ecosystems in the North Pacific respond to climate change and human activities, to forecast ecosystem status based on a contemporary understanding of how nature functions, and to communicate new insights to its members, governments, stakeholders and the public. Projects currently on-going include: Sea turtle ecology in relation to environmental stressors in the North Pacific region; Building capacity for coastal monitoring by local small-scale fishers; the Metadata Federation, a project to build a one-stop utility for public search, access and delivery of international marine ecosystem data through the internet; The Continuous Plankton Recorder Survey of the North Pacific; The North Pacific Ecosystems Status Report. PICES has Advisory Panels for: a Programme in East Asian Marginal Seas (Oct. 2005 - 2019); on North Pacific Coastal Ocean Observing Systems (Oct. 2015 -); and on Marine Non-indigenous Species (June 2016 -).

4.6. The Association of Southeast Asian Nations (or ASEAN)

157. The Association of Southeast Asian Nations, or ASEAN, was established on 8 August 1967 in Bangkok, Thailand. None of the NOWPAP Member States are members of ASEAN although it has external relations with each.

158. The aims and purposes of ASEAN are:

- To accelerate the economic growth, social progress and cultural development in the region through joint endeavors in the spirit of equality and partnership in order to strengthen the foundation for a prosperous and peaceful community of Southeast Asian Nations;
- To promote regional peace and stability through abiding respect for justice and the rule of law in the relationship among countries of the region and adherence to the principles of the United Nations Charter;
- To promote active collaboration and mutual assistance on matters of common interest in the economic, social, cultural, technical, scientific and administrative fields;
- To provide assistance to each other in the form of training and research facilities in the educational, professional, technical and administrative spheres;
- To collaborate more effectively for the greater utilization of their agriculture and industries, the expansion of their trade, including the study of the problems of international commodity trade, the improvement of their transportation and communications facilities and the raising of the living standards of their peoples;
- To promote Southeast Asian studies; and
- To maintain close and beneficial cooperation with existing international and regional organisations with similar aims and purposes and explore all avenues for even closer cooperation among themselves.

159. ASEAN has no official specific programmes on biodiversity although there is an ASEAN Centre for Biodiversity (ACB) based in Manila, Philippines. Current or recent projects undertaken by the ACB include the:

- Institutional Strengthening of the Biodiversity Sector in the ASEAN region;
- ACB-NBA Cooperation: Capacity Building towards Implementing the Nagoya Protocol on Access and Benefit Sharing, the City Biodiversity Index and the Strategic Plan on Biodiversity;
- Protection of Biological Diversity in the ASEAN Member States in Cooperation with the ASEAN Centre for Biodiversity;
- Institutional Strengthening of the Biodiversity Sector in the ASEAN (ISB);
- Biodiversity-based Products (BBP) as an Economic Source for the Improvement of Livelihoods and Biodiversity Protection;
- ASEAN Biodiversity Outlook;
- Biodiversity Conservation and Management of Protected Areas in ASEAN (BCAMP);
- Japan-ASEAN Integration Fund Projects;
- Capacity Building Programme on Protected Area Management and Ecotourism: Experiential Learning Programme;
- ASEAN-Korea Environmental Cooperation Project;
- ASEAN-China Environmental Cooperation Action Plan II;
- Support for Ratification and the Implementation of the Nagoya Protocol on Access and Benefit Sharing in ASEAN Countries; and
- Small Grants Programme.

4.7. Asia-Pacific Economic Cooperation (APEC)

160. Asia-Pacific Economic Cooperation (APEC) is an inter-governmental forum for 21 Pacific Rim member economies that promotes free trade throughout the Asia-Pacific region. All four Member States of NOWPAP are members of APEC.

161. APEC's Oceans and Fisheries Working Group (OFWG) was formed in 2011 as the merger of working groups that focused separately on marine resource conservation and on fisheries. The working group is committed to:

- Facilitating trade and investment opportunities that promote the sustainable use of fisheries, aquaculture, and marine ecosystem resources;
- Ensuring the conservation and sustainable use of marine resources as well as protection of marine ecosystems needed to support fisheries and aquaculture; and
- Promoting a common approach to preventing illegal fishing and related trade.

162. The APEC Ocean and fisheries ministers adopted four priority areas for APEC's Ocean and Fisheries agenda:

- Coastal and marine ecosystem conservation and disaster resilience;
- The role of the ocean on food security and food-related trade;
- Marine science, technology and innovation; and
- Cross fora collaboration to expand the Blue Economy - a focus on coasts and oceans as a sustainable driver of economic growth.

163. The Xiamen Declaration committed the forum to conserve at least ten per cent of coastal and marine areas through managed marine protected areas by 2020.

164. Current activities of the Ocean and Fisheries Working Group include:

- *Assessing the Economic Value of Green Infrastructure in Coastal Ecosystems to Disaster Risk Reduction, Response and Coastal Resilience in the APEC region.* This study aims to increase understanding as to the value of natural infrastructure to support policymakers in better evaluating the impact of policies regarding green infrastructure development and management with respect to disaster risk reduction and response and coastal resiliency. The first phase of this project started in 2015 with a survey of APEC economies. In 2016 the lead economy, the United States, completed the first deliverable of this project—a gap analysis report based on a literature review and the survey of APEC economies. The report was endorsed by the OFWG in February 2017. The second phase consists of undertaking an initial assessment of the economic value of natural coastal infrastructure for disaster risk reduction, response and coastal resilience in the APEC region. This study will help address the gaps identified in the first phase and will provide information to better inform policies in APEC economies.
- *Developing a Best Practice Global Value Chain Framework on Fisheries Micro, Small, and Medium Enterprises (MSMEs).* The global value chain workshop on fisheries MSMES in developing APEC economies looks at analyzing the global value chain for fisheries MSMEs in the APEC region to improve competitiveness, enhance market access, increase trade and investments flows, identify challenges and reduce barriers to trade. The project is aligned with the OFWG Strategic Plan, the PPFS Food security agenda, the Boracay Action Agenda to globalize MSMEs and the APEC Iloilo Initiative on Growing Global MSMEs. It is proposed that a best practice global value chain framework to improve competitiveness of the fisheries MSME into the global food value chain is developed.

- *Capacity Building for Marine Debris Prevention and Management in the APEC Region Phase 2 – Implementation of Advanced Marine Debris Management Policies.* APEC studies show substantial environmental, economic and social costs of marine debris to APEC economies. The OFWG previously endorsed the need for a systematic capacity building program to address marine debris and approved the Capacity Building for Marine Debris Prevention and Management in the APEC Region Project in 2016. Phase I of the programme discussed the diverse fields of the marine debris issue, to the great interest of APEC members, as shown by the attendance of 15 of the 21 APEC economies. Phase II of the program proposes to take the outcomes of Phase I and establish systemic best-practices training on dealing with marine debris in the APEC region, and to develop regionally appropriate marine debris management policies. This project aims to build capacities in the APEC region through sharing best practices of marine debris management policies; and, developing a first draft of marine debris management guideline/manual in the APEC region which could be used as a basis for the regional action plan of marine debris management.
- ***Exchange of Experience to Add Value to Organic Waste from Small-Scale Fisheries and Aquaculture through its Reuse and Conversion into Innovative Products, which Contribute to Enhance Food Security.*** This project aimed to organize a workshop in Chile, which would be carried out in the second semester of 2018.
- *The APEC Marine Sustainable Development Report 2* will be developed on the foundation of the first report and reflect new trends and endeavors of APEC and its member economies in fostering marine sustainable development and in achieving Sustainable Development Goals. A core expert group composed of 11 experts recommended by five economies has been established in 2017 for report development. The final report is supposed to be finished in 2019.
- ***Developing an Action Plan on Illegal, Unreported and Unregulated (IUU) Fishing in APEC.*** It is proposed that a high-level policy dialogue be held for APEC economies to collectively discuss and explore future direction to combat, deter and prevent IUU fishing. It is proposed that an APEC Action Plan on IUU is developed. The project will take three phases: Phase 1: a short study on the impact of IUU fishing in APEC; Phase 2: a two-day experts workshop to be organized during SOM2 in PNG; and Phase 3: the one-day policy dialogue to consider the Action Plan developed
- ***Study on the Origin and Distribution of Microplastics in Typical Marine APEC Region.*** This study aims to investigate the source and distribution of microplastics in within the APEC region. Research will be conducted on the spatial scale, i.e., to investigate where the microplastics come from and where they go, and on the biological scale, to investigate how microplastics transfer and travel through the food chain. The implementation of the project will provide theoretical and practical background information for the pollution control. Initial sampling, extracting and analyzing in water were done in 2017, as well as examinations of sediments and mussels. In the year of 2018, the work focused on the distribution of microplastics in sediment along Chinese coast and among different marine filter-feeding animals. An investigation of microplastics would be conducted in several seas and adjacent areas. An international workshop or an exchange programme is also being considered.

165. APEC provides funding for around 100 projects each year. Around USD 15.4 million was available in 2018 (https://www.apec.org/Projects/Projects-Overview). Most APEC projects are focused on transferring knowledge and skills between members and building capacity so that each APEC member economy can move closer towards the Bogor Goals of free and open trade and investment. This includes by: Promoting and accelerating regional economic integration; Encouraging economic and technical cooperation; Enhancing human security; and, Facilitating a favourable and sustainable business environment. Information about individual APEC projects that are currently

being implemented or have already been completed can be found on the APEC Project Database (https://aimp2.apec.org/sites/PDB/default.aspx).

4.8. Conventions and Agreements on Migratory Species

4.8.1. Convention on the Conservation of Migratory Species of Wild Animals

166. None of the Member States of the NOWPAP are Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Nevertheless, the CMS remains a source of guidance on multilateral agreements and activities regarding migratory species.

4.8.2. The East Asian-Australasian Flyway Partnership (EAAFP)

167. The East Asian-Australasian Flyway Partnership is a network of partners within the East Asian-Australasian Flyway (EAAF). The East Asian-Australasian Flyway Partnership (EAAFP) aims to protect migratory waterbirds, their habitat and the livelihoods of people dependent upon them. The Flyway is one of 9 major migratory routes recognised globally. Partners include National Governments, Inter-Governmental Organisations, International Non-governmental Organisations, and International Private Enterprise, which agree to endorse the text and support the objectives and actions under this Partnership. All four Member States of the NOWPAP are partners in the EAAFP. The EAAFP already covers a number of species whose range overlaps the NOWPAP region such as Black-faced Spoonbills, Red-crowned Crane, White-Naped Crane and Oriental Stork.

168. The main relevance of the EAAFP to the NOWPAP RAP BIO is that it represents an alternative or supplementary mechanism to implement multi-lateral conservation measures for migratory species (or species groups) of waterbirds.

4.9. Conclusions regarding relevance to the NOWPAP RAP BIO

169. The relevance of these activities and programmes to the NOWPAP RAP BIO varies. Some have more limited relevance. Some are undertaking activities that would be likely to also be considered under the NOWPAP RAP- BIO and, therefore, are an alternative mechanism under which to address the needs or are a potential partner in implementation. Some represent activities that the NOWPAP RAP BIO can contribute to. And some represent sources on scientific and technical work that can complement or support the NOWPAP RAP BIO. The NOWPAP RAP BIO should be developed based on regional priorities and at least initially irrespective of these other programmes and activities. But once the details of the potential areas of work of the RAP BIO are identified these other existing projects and programmes should be considered with regards to avoiding duplication of effort and building synergies among existing activities in the area of marine and coastal biodiversity in the NOWPAP region. Consideration of other relevant projects or programmes should also be made as details of these emerge as the NOWPAP RAP BIO develops.

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ANNEXES

Copies of these annexes are provided on request as separate files in order to reduce file size of the main document.

Annex 1: Protocol for the Conservation of Biological Diversity to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Ashgabat Convention)

Annex 2: Protocol for the Conservation of Biological Diversity and the Establishment of a Network of Protected Areas in the Red Sea and Gulf of Aden

Annex 3: First Order Draft of the Marine and Coastal Biodiversity Strategy for the South Asian Seas Region: Living in Harmony with our Oceans and Coasts

Annex 4: Programme of Work for the Biodiversity Committee of the OSPAR Convention 2018-2019

Annex 5: Biodiversity Strategy of the OSPAR Convention