

Appendix Result of Feasibility Assessments in member states

Potential themes	Japan	China	Korea	Russia
1. Assessment of marine biodiversity	Feasible	Feasible (Lack of sufficient data)		Feasible
Social problems	<ul style="list-style-type: none"> - Impact on marine ecosystem from marine debris including microplastics - Impact on marine life from climate change (rise seawater temperature, acidification of seawater), coral bleaching - Increase of nutrient (N, P) in enclosed sea areas 	<ul style="list-style-type: none"> - The legal and policy system on biodiversity conservation is yet to be completed. - Baseline data on biological resources is far from adequate, therefore work in identification and cataloguing of biodiversity is still quite heavy. - The monitoring and warning system on biodiversity has not been set up. - Insufficient investment in biodiversity, inadequate capacities of management, protection and fundamental scientific research, and insufficient capacities to cope with new problem facing biodiversity conservation. 		Marine biodiversity in the Russian NOWPAP area is an important biological resource. There are some problem with overfishing, poaching and declining of resources.
Relationship to the national strategy, basic plans and laws	<ul style="list-style-type: none"> - Coast Act - Basic Act on Ocean Policy - Basic Act on Biodiversity - Basic Plan on Ocean Policy - Marine Biodiversity Conservation Strategy - Act for the Prevention of Marine Pollution and Maritime Disasters - National Biodiversity Strategy 	<p>National Biodiversity Conservation Strategy and Action Plan 2011-2030</p> <ol style="list-style-type: none"> 1. Yellow Sea was identified as a priority areas of marine and costal biodiversity conservation. [Priority action 3]: Carry out baseline surveys on biological resources and ecosystems. [Priority action 9]: Undertake biodiversity monitoring and pre-warning. [Priority action 11]: Undertake comprehensive biodiversity evolution. <p>The Twelfth Five-Year Plan for the Development of National Marine Undertakings</p> <ol style="list-style-type: none"> 2. Conducting a census of marine biodiversity, focused on survey and assessment of 98 areas of priority marine biodiversity conservation. 		<p>Russian National Strategy on Biodiversity Conservation (2002)</p> <p>Some areas (e.g. Peter the Great Bay) are important areas in terms of marine biodiversity. The Strategy states necessity of reliable biodiversity data, international cooperation. Development of marine biological researches, especially deep-sea, is one of the priority of Russian scientific development.</p>
Data availability	<ul style="list-style-type: none"> - Monitoring Sites 1000: marine-related sites include rocky shores/mud flats (snipes/plovers), zoltera bed/seagrass bed, sea turtles (Pacific side only) - Catalogue of fishes - Assessment of fish stocks by species - List of Endemic Species 	<ul style="list-style-type: none"> - The species number of phytoplankton, zooplankton and macrobenthos in Yellow Sea. - Biomass of phytoplankton, zooplankton and macrobenthos in the Yellow River Estuary and Jiaozhou Bay every year. 		<p>Scientific papers on various selected taxonomic group</p> <p>Full catalogues of animals and entire biota</p> <p>National databases, Red Data Book, Information Retrieval System for Fauna and Flora in Protected Natural Areas</p>
Situation of submission of data to OBIS/CoML/others	OBIS: 611,544 datasets, 7,708 species records	OBIS: 10 data sets and 57,531 records (from the Institute of Oceanography of the Chinese Academy of Sciences)		GBIF: 252,533 occurrence records (including non-marine), 1,411 datasets, 332 publications

				OBIS: 63,608 occurrence records, 5,123 species, 43 datasets WoRMS: 1,915 records
Potential activities	<ul style="list-style-type: none"> - Developing a list of the main marine biological species in the NOWPAP region - Developing a methodology and indicators of marine biodiversity assessment 	- Species number and biomass of phytoplankton, zooplankton and macrobenthos		Conservation of marine and coastal biodiversity strategy Assessing status of marine environment
2. Harmful invasive species	Feasible	Unfeasible (very little data)		Feasible
Social problems	Invasion from ballast water, invasion associated with culture/discharge of fishery products	<p>Fifth National Report on the implementation of the CBD</p> <p>1. China is one of the countries that are most seriously affected by invasive alien species. Invasion of alien species has caused serious negative impacts on agricultural production, the environment and biodiversity.</p> <p>2. In the past decades, the rapid development of China's economy has brought the great development of trade and transport system, as well as the increase of people's entering and leaving the country, which exacerbated the introduction of alien species. In recent years, the spread of alien species are accelerated because of multiple factors such as large scale mariculture, the fish flow as fresh product in the world, ornamental fish in the aquarium husbandry, extensive exchanges of invertebrates and algae, shipping (especially the ship ballast water) and so on.</p>		There is known and documented damage of biofouling including MIS to ports facilities, ships and aquaculture farms; there are some data on biotic changes due to MIS in intertidal and subtidal communities or Peter the Great Bay.
Relationship to the national strategy, basic plans and laws	<ul style="list-style-type: none"> - Laws regarding prevention of ecological damages caused by specific alien species (Invasive Alien Species Act) - National Biodiversity Strategy - List of alien species potentially harmful to the ecosystem 	<p>The Twelfth Five-Year Plan for the Development of National Marine Undertakings</p> <p>Strengthen the management of endangered marine species protection and the prevention of invasive alien species, and build marine nature reserves and aquatic germplasm reserves</p>		<p>On State Strategy of the Russian Federation on the Environmental Protection and Sustainable Development</p> <p>On Specifically Protected Natural Territories</p> <p>National Strategy and Workplan on Conservation of Biodiversity</p>
Data availability	<ul style="list-style-type: none"> - Invasive species database of National Institute for Environmental Studies (very few marine species) - There are several scientific reports/papers M. Otani (2004), K. Iwasaki (2007), K. Iwasaki et al. (2004) - National Report on MIS, Atlas of MIS in the NOWPAP region (DINRAC) 	No data without National Report on MIS, Atlas of MIS in the NOWPAP region (DINRAC)		<p>National Report on MIS, Atlas of MIS in the NOWPAP region (DINRAC)</p> <p>National Databases</p>
Situation of submission of data to OBIS/CoML/others	OBIS : 25 species	OBIS: 16 species		OBIS: 63,608 occurrence records; 5,123 species; 43 datasets including those dealing with invasive species

				WRiMS: 34 records
Potential activities	<ul style="list-style-type: none"> - Preparation of a list of harmful invasive species - Understanding the distribution of harmful invasive species 			<ul style="list-style-type: none"> - Assessment of MIS according to current situation - Updating list of MIS - Identifying harmful MIS
3. Specific migration species	Feasible	Unfeasible (no available data)		Feasible (partly)
Social problems	<ul style="list-style-type: none"> - Management of migration fish species 	<p>The Fifth National Report</p> <p>Despite various measures taken by the Government of China for biodiversity conservation, the biodiversity decline trend has not been fundamentally contained.</p>		<p>Migratory seabirds are important in terms of protection and establishing new MPAs.</p> <p>Migratory subtropical fishes are getting abundant leading to fisheries impact.</p>
Relationship to the national strategy, basic plans and laws	<ul style="list-style-type: none"> - Act for the Conservation of Endangered Species of Wild Fauna and Flora - Convention for Conservation of migrating bird between Japan and Russia - Agreement for Conservation of migrating bird between Japan and China - Cooperation for Conservation of migrating bird between Japan and Korea 	<p>The Fifth National Report</p> <ul style="list-style-type: none"> - Rescuing and breeding of endangered species have been strengthened. A series of measures have been taken to rescue those endangered wild animals and plants, such as development of breeding techniques, increasing populations, strengthening caring in the wild, habitat restoration and re-introduction to nature. 		National Strategy and Workplan on Conservation of Biodiversity
Data availability	<ul style="list-style-type: none"> - Evaluation of fisheries resources by species and subpopulation - Species subject to international fishing resources evaluation - Seabird Colony Database - Monitoring Site 1000 	No data		<p>Scientific publications</p> <p>Databases (partly)</p>
Convention on the Conservation of Migratory Species of Wild Animals	Identified 28 species for mammals, 43 for birds, 5 for reptiles, 4 for bony fish, 16 for chondral fish	No official list of migratory species		Not available
Potential activities	<ul style="list-style-type: none"> - Detecting migratory endangered species in the NOWPAP region - Conducting environmental assessment of sea areas where endangered species migrate 			<ul style="list-style-type: none"> - Literature overview on state of this problem - Regional assessment - Compilation of list of migratory species
4. Conservation of biological habitat including tidal flat, salt-marsh and seagrass/seaweed beds	Feasible	Feasible (lack of available data)		Feasible
Social problems	Decreasing of tidal flats/seagrass bed due to coastal development such as reclamation	<p>National Ecological Protection and Construction Plan (2013-2020)</p> <p>The loss of wetland area and intertidal zone was</p>		

		accelerated, mangrove and coral reef area was greatly reduced compared with that in 1950s. Natural shoreline retention rate is low		
Relationship to the national strategy, basic plans and laws	<ul style="list-style-type: none"> - Basic Act on Ocean Policy - Basic Act on Biodiversity - Ecologically or Biologically Significant Marine Area - Basic Act on Ocean Policy - Marine Biodiversity Conservation Strategy - National Biodiversity Strategy 	<p>National Ecological Protection and Construction Plan (2013-2020)</p> <p>[Priority actions 13]: Strengthen the conservation of the coastal wetland of Bohai Sea and the tidal flat of the Yellow Sea.</p> <p>[Priority actions 15]: Strengthen the conservation and restoration of typical coastal and marine ecosystems of mangrove forest, coral reefs and seagrass bed and improve the ecological environment.</p>		
Data availability	<ul style="list-style-type: none"> - Monitoring Site 1000 - National Survey on Natural Environment - Survey on Coastal Water Ecosystem 	Available		Scientific papers and books
Potential activities	<ul style="list-style-type: none"> - Mapping of seagrass beds using remote sensing - Mapping of tidal flat using remote sensing 	<ul style="list-style-type: none"> - Mapping seaweed beds 		<ul style="list-style-type: none"> - Literature overview on state of this problem - Regional assessment
5. Plankton species related to aquaculture and fisheries	Feasible	Feasible (lack of sufficient data)		Feasible
Social problems	Impact of red tide on the ecosystem and the fisheries industry, shellfish poisoning	<p>Bulletin of China Marine Disaster 2017</p> <p>A total 68 red tides were detected in 2017, with a cumulative area of 3,679 km²</p>		There is known and documented economic impacts of harmful microalgae blooms on fisheries and aquaculture; there are data on monitoring of HABs and biotoxins using innovative techniques.
Relationship to the national strategy, basic plans and laws	Marine Biodiversity Conservation Strategy	<p>The twelfth Five-Year Plan for the Development of National Marine Undertakings</p> <ul style="list-style-type: none"> - Strengthen marine red tide monitoring, and build 20 key ecological monitoring areas. Carry out the application and demonstration of marine ecological disaster prevention and control technology, strengthen the marine ecological disaster prevention and control system 		On State Strategy of the Russian Federation on the Environmental Protection and Sustainable Development Sanitary and epidemiological welfare of the population Charter of the Russian Federal Sanitary Control Service
Data availability	<ul style="list-style-type: none"> - JODC Data Online Service System - Akashio Net 	<p>Frequency and area of red tide events (Yellow Sea)</p> <p>Species number and main species (Yellow River Estuary and Jiaozhou Bay)</p>		<p>Publications in journals and books</p> <p>International databases, such as HAE-DAT</p>
Potential activities	<ul style="list-style-type: none"> - Maintenance of Red Tide/HAB Database - Developing a monitoring system in order to control possible emergence of microalgae which generate toxins 	Biomass of phytoplankton		<ul style="list-style-type: none"> - Assessment of according to current situation - Updating list of HABs species - Developing and implementing monitoring of plankton communities using innovative techniques

6. Environmental DNA	Feasible	Feasible	Feasible
Needs	Need of labor-saving monitoring method New methodology to understand/assess marine biodiversity situation	There is no need of training if a genetic analytical approach is used. If a new approach will be used, training courses are necessary.	Training course is necessary
Experts	E-DNA Society		