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Report on the activities of the NOWPAP Data and Information Network Regional Activity Centre (DINRAC) in 2018–2019 Biennium

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List of Acronyms

ASEAN	Association of Southeast Asian Nations
BOD	Biological Oxygen Demand
CEARAC	Special Monitoring and Coastal Environmental Assessment Regional Activity Centre
COD	Chemical Oxygen Demand
DINRAC	Data and Information Network Regional Activity Center
FECO	Foreign Environmental Cooperation Center
FP	Focal Point
FPM	Focal Points Meeting
IGM	Intergovernmental Meeting
GPML	Global Partnership on Marine Litter
NW	Northwest
MED	Marine Environmental Data
MEE	Ministry of Ecology and Environment of China
MERRAC	Marine Environmental Emergency Preparedness and Response Regional Activity Center
MTS	Medium-Term Strategy
NOWPAP	Northwest Pacific Action Plan
RAP MALI	Regional Action Plan on Marine Litter
POMRAC	Pollution Monitoring Regional Activity Center
PoW	Programme of Work
RAC(s)	Regional Activity Center(s)
RAP MALI	Regional Action Plan on Marine Litter
RCU	Regional Coordination Unit
SDG	Sustainable Development Goal
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNEP RSP	UNEP Regional Seas Programme

1. Introduction

The Fourth NOWPAP Intergovernmental Meeting (Beijing, 6-7 April 1999) decided to establish the NOWPAP Regional Activity Centers (RACs). In December 2000, the NOWPAP Data and Information Network Regional Activity Center (NOWPAP DINRAC) was formally established and hosted by the Environmental Information Centre of the State Environmental Protection Administration of China (renamed as Ministry of Ecology and Environment of China in 2018). In May 2013, the hosting of DINRAC was transferred from the Environmental Information Centre to the China-ASEAN Environmental Cooperation Center, which was then restructured to Foreign Environmental Cooperation Center (FECO) in 2019.

DINRAC was established recognizing that the activities under NOWPAP produce information on different topics from several sources; that there is the need for regional harmonization of data sets and information system, for development of databases and networks for linking relevant institutions in the region and for providing coherent information to serve the needs of the region, as well as the need to develop protocols for data sharing. The development of a comprehensive database and information management system for the region is also coordinated and implemented by DINRAC.

The role of NOWPAP DINRAC is to coordinate regional activities relevant to data and information exchange and to provide reliable and up-to-date information services related to marine and coastal environments in the NOWPAP region. The Centre is currently functioning as the Secretariat for the NOWPAP DINRAC Focal Points Meetings. The Centre also manages the NOWPAP DINRAC Homepage (<http://dinrac.nowpap.org>).

2. Organization, Staff, and Budget

The Ministry of Ecology and Environment of China (MEE) has been providing support towards DINRAC including staff salaries and its facilities. Dr. Feng Yan was appointed by MEE as the Director of DINRAC in 2013. Two staff members have been employed by FECO.

DINRAC activities are funded by NOWPAP Trust Fund as approved by the Twenty-second NOWPAP Intergovernmental Meeting (IGM) with a total amount of USD 194,250 for the 2018-2019 biennium. DINRAC activities include the organization of Focal Points Meetings, specific projects, RAP MALI activities and etc. In addition, the 22nd NOWPAP IGM assigned DINRAC to assist POMRAC to implement two activities with a total budget of US\$ 80,000.

3. Implementation of DINRAC major activities of 2018 and 2019

3.1 DINRAC Website upgraded with WebGIS system

The new DINRAC website has been launched since May 2016. The website makes it easier for visitors to find information. The WebGIS system has also been redesigned in a more intuitive and informative manner. The DINRAC Website (with WebGIS system) has been continuously maintained and developed.

The main work of this activity in 2018 to 2019 was to focus on developing new WebGIS thematic maps and the Northwest Pacific Regional Node of the Global Partnership on Marine Litter (GPML). Routine tasks such as database maintenance and website optimization were also carried out in order that the DINRAC website may better serve the purpose of the establishment of DINRAC.

Table 1. DINRAC Budget in the 2018-2019 Biennium

Activities	Budget (USD)		
	2018	2019	Total
DINRAC Website upgraded with WebGIS	21,500	21,500	43,000
Annual Summary of Major Marine Environmental Data Available in Member States	8,000	15,000	23,000
Sea reclamation sites and management data collected, compiled.	10,000	13,000	23,000
Inventory of pollution sites/human objects collected, compiled.	9,500	1,3500	23,000
Information on Species Filed in the Red Lists of NOWPAP Member States (Third Stage) collected, compiled.	8,000	15,000	23,000
Strengthened regional capacity on data and information sharing; Reports of the 16th and 17th NOWPAP DINRAC Focal Point Meetings prepared.	25,000	25,000	50,000
RAP MALI Data uploaded to NOWPAP DINRAC website; Marine litter related WebGIS system developed.	4,500	4,750	9,250
TOTAL	86,500	107,750	194,250

DINRAC will continue to maintain and update the database on the thematic data collected under the NOWPAP Mechanism. DINRAC will investigate business needs such as data display and statistics, discuss and determine data analysis models, restructure thematic data tables, formulate data entry specifications, and include 17 types of thematic data such as “marine conservation areas”, “oil spill accidents”, “dangerous and hazardous substances accidents” into data collection. Updating work to provide basic data support for data applications: 1) Current content in database 2) Database structure optimization design.

9. The data collected from two stages of the project “Information on Species Filed in the Red Lists of NOWPAP Member States” were compiled and imported into the database. After the necessary process of data collection, a new WebGIS thematic map

to the DINRAC website.

Table 2. Comparison of Water Quality Standards in China (C), Japan (J) and Korea (K)

Class	Indicators																					
	BOD mg/l			Alkane pollutants (Oil) mg/L			DO mg/L			MPN/100mL			COD mg/l			TN mg/l			TP mg/l			pH
	C	J	K	C	J	K	C	J	K	C	J	K	C	J	K	C	J	K	C	J	K	
I	1	≤2		≤0.05	Undetectable	≤0.01	≥6	≥7.5	≥7.5	≤700	≤1000	≤1000	≤2		≤1			≤0.3			≤0.03	7.8≤pH≤8.3
II	3	≤3		≤0.05	Undetectable	≤0.01	≥5	≥5.0	≥5	≤700	≤1000	≤1000	≤3		≤2			≤0.6			≤0.06	7.8≤pH≤8.3
III	4,5	≤8		≤0.3,0.5	Undetectable		≥4,3	≥2.0	≥5	≤700	≤1000	≤1000	≤4,5		≤4			≤1.0			≤0.09	7.0≤pH≤8.3

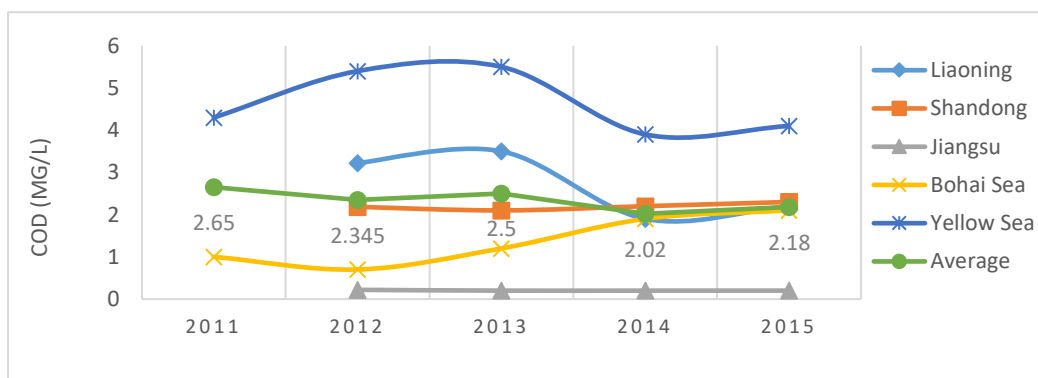


Figure 2. (a) COD Concentration of Monitored Chinese Sites

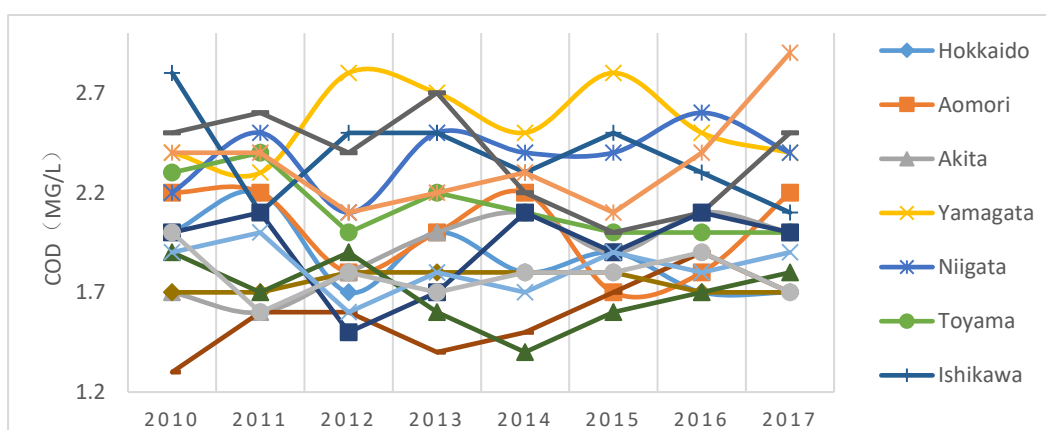


Figure 2. (b) COD Concentration of Monitored Japanese Sites

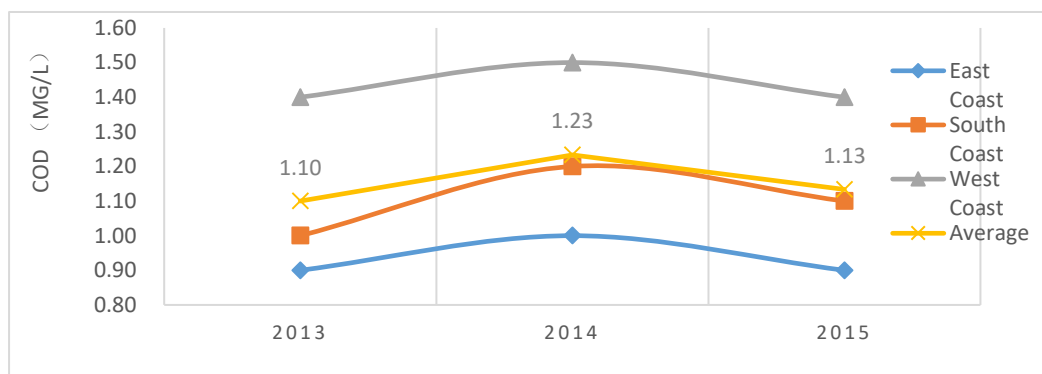


Figure 2. (c) COD Concentration of Monitored Korean Sites

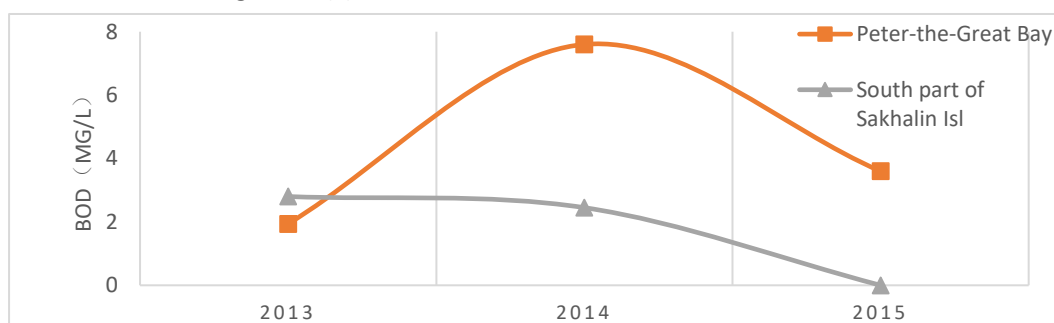


Figure 2. (d) BOD Concentration of Monitored Russian sites

Figure 2. Sample Marine Environment Data (COD/BOD Concentration) Comparison¹

3.3 Human Marine Activity Objects in NOWPAP Region

The implementation plan of this activity was agreed on at the 16th NOWPAP DINRAC FPM. The project aims to survey the quantity and types of objects of human marine activity and assess its impact on the marine environment.

This activity will determine the list of objects of human marine activity to be considered; determine the classification parameters for each object; identify the types of impact on the marine environment for each object; identify the parameters that can be used to assess the quantitative impact on the marine environment; create the collecting forms for national expert; collect the data according to the forms; compile the collected data, and place the data on the Web database.

By the end of November 2019, the implementation plan was completed. The data collection form and specific contents of the project have basically been completed and

¹ No COD data from Russia, and BOD data are used instead. For more details, please refer to "Report on Preliminary Study on Marine Ecological and Environmental Quality for NOWPAP Region"

refined. MoUs have been signed with each national expert respectively and the data is being collected. After compilation of the data by the leading expert, it will be uploaded to the DINRAC website.

Table 3. Sample Data Collecting Table of Sea Ports in NOWPAP Region

No	(1) Name	(6.2) Water area, km ²	(7.1) Number of berths	(7.3) Length of berths, m	(8.1) Total capacity, (thousand tons per year)	(8.5) Passenger \$	(9.1) Draught	(9.2) Length	(9.3) Width
1	De-Kastri	68,48	4	361	12350		15	250	50
2	Kholmok	15,62	27	2469,4	3784	90000	8	130	22
3	Korsakov	44,82	30	2737,3	4394,3	27000	7,5	140	30
4	Nakhodka	127,44	137	19381,45	33786,2	174000	11,5	250	44
5	Olga	57,357	11	1566,2	2377	-	8	200	18
6	Posyet (incl. Slavyanskiy Bay)	22,5	17	2411,23	6236	-	9 15	175 400	26 60
7	Prigorodnoye	57,8	4	951,31	19600	-	17,5	300	any
8	Shakhtyorsk	47,28	28	2113	2300	-	15	200	20
9	Sovetskaya Gavan	24	18	2974	2260,9	-	10	180	25
10	Vanino	16	21	3382	37840	70000	18,5	292	45
11	Vladivostok	131,06	65	12915,75	22694,418	33850	18	400	48,2
12	Vostochny	66,54	26	5464,5	66663	-	17	400	59
13	Zarubino	27	7	841	1202	-	7,5	130	18

3.4 Sea Reclamation State and Management in NOWPAP region

The implementation plan of this activity was agreed on at the 16th NOWPAP DINRAC FPM. The status and situation of coastal reclamation are different among NOWPAP member states. The policy and management on reclamation of each member state have their own characteristics and it is necessary to share related information with each other for better development and utilization of the shoreline.

The project is to display the status and situation of reclamation, to describe the policy and management on reclamation of each member state, to assess impacts of reclamation on the marine ecosystems and to share the data and information on the DINRAC Web Database. The objectives of this activity are:

- To display the status and situation of reclamation

- To describe the policy and management on reclamation of each member state

To assess impacts of reclamation on the marine ecosystems

To share the data and information on the DINRAC Web Database

This activity will collect information on basic status and the situation of reclamation since 2000 of NOWPAP Member States including information on laws, policies, and regulations on reclamation by member states. By the end of November 2019, the data collection form and specific contents of the project have been completed and refined; MoUs have been signed by experts from NOWPAP member states respectively. Data was collected from China and Korea. After data is submitted by experts from Japan and Russia, it will be compiled by the leading expert and uploaded to the DINRAC website.

3.5 Collection of Data and Information on Species Filed in the Red Lists of NOWPAP Member States (the 3rd Stage)

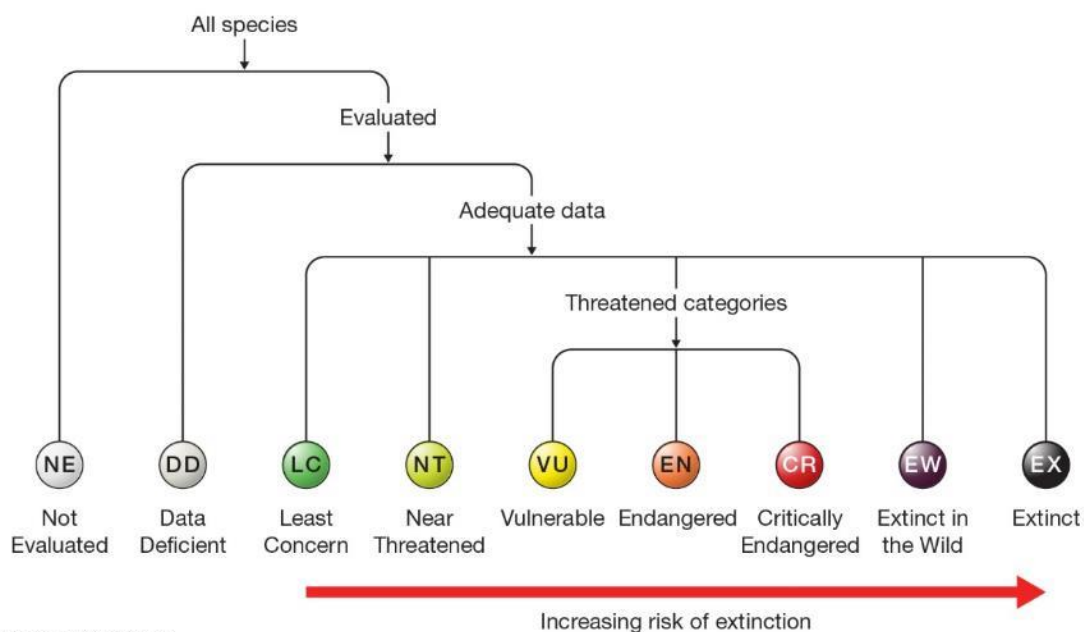
The implementation plan for the Project was agreed on at the 16th NOWPAP DINRAC FPM. After two stages of collecting data and information on species filed in the red lists of NOWPAP Member States, the leading expert found that there are still gaps to be filled between the red lists and the actual endangered species in the region. The third stage of the project is to provide a more comprehensive understanding of the species and enable NOWPAP member states to make a holistic conservation plan.

This activity consists of the following steps, designing and setting the data collection form for those marine species filed as endangered by one of member states. Tentatively, Japanese volunteers to prepare the data collection form; signing MoUs between DINRAC Secretariat and Experts/DINRAC Focal Points; collection of data for the species that are present or absent in each member state and the endangered status in each member state; compilation of the collected data; and uploading the data to the Website.

By the end of November 2019, MoUs have been signed with experts from NOWPAP member states respectively. Data was collected and is being compiled by the leading expert. After compilation, the data will be uploaded to the DINRAC website.

3.6 The further development of GPML NOWPAP Regional Node

The 22nd NOWPAP Intergovernmental Meeting held in Japan in 2017 acknowledged with satisfaction the work undertaken by the Northwest Pacific Environmental Cooperation Center and NOWPAP RCU in establishing and maintaining the NW Pacific Regional Node and after considering a proposal on how to strengthen the Node (UNEP/NOWPAP IG. 22/8), requested NOWPAP DINRAC to provide future hosting services and management of the Regional Node and CEARAC with help from the RCU to facilitate smooth transfer of the available information resources from NPEC to DINRAC. The Regional Node aims to enhance awareness of marine litter prevention actions at the national, local and grass-root levels, strengthen exchange information on best practices and measures for prevention of marine litter input among the NOWPAP member states and beyond through the GPML in support of the NOWPAP Action Plan on Marine Litter (2008).



Source: IUCN Red List

Figure 3. Categorization of Endangered Species

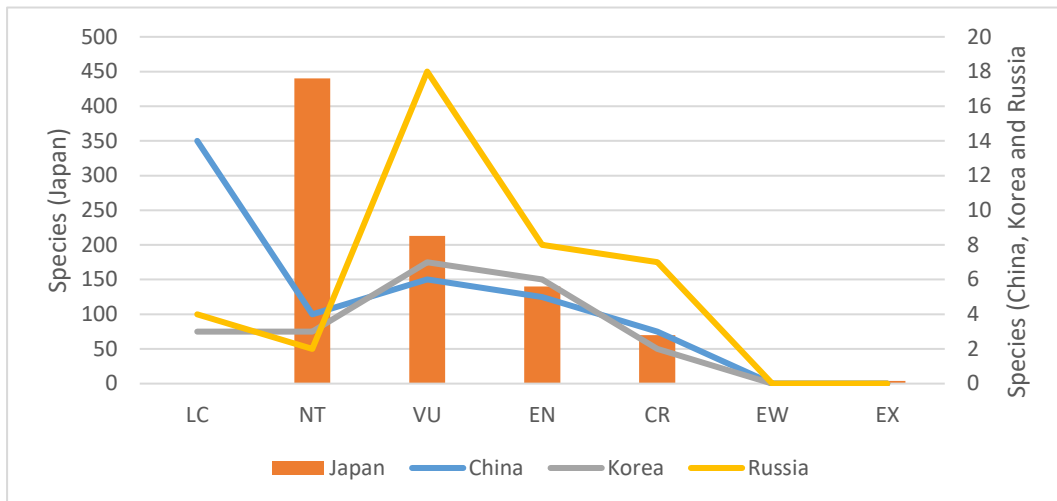


Figure 4. Preliminary Data from the 3rd Stage of Species Filed in the Red Lists of NOWPAP Member States

Overall objectives of the Northwest Pacific Regional Node are as follows:

- Develop regional marine litter networks and maintain communication and coordination across relevant stakeholders in the NOWPAP region

- Convene regional peer learning and collaboration events, including workshops and topic specific events, such as beach cleanup campaigns

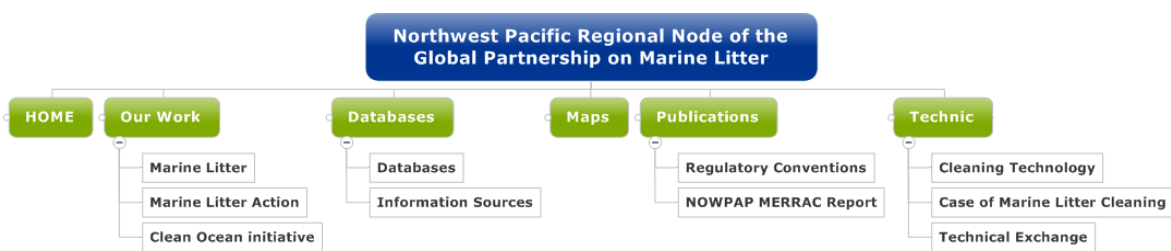


Figure 5. Sitemap of GPML Regional Node

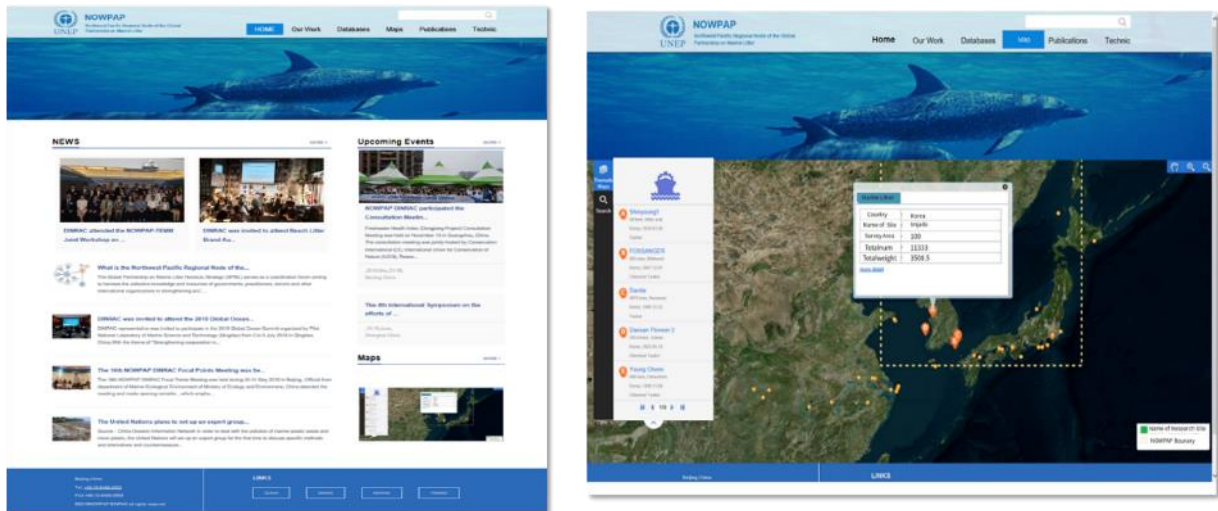


Figure 6. Snapshots of GPML NOWPAP Regional Node

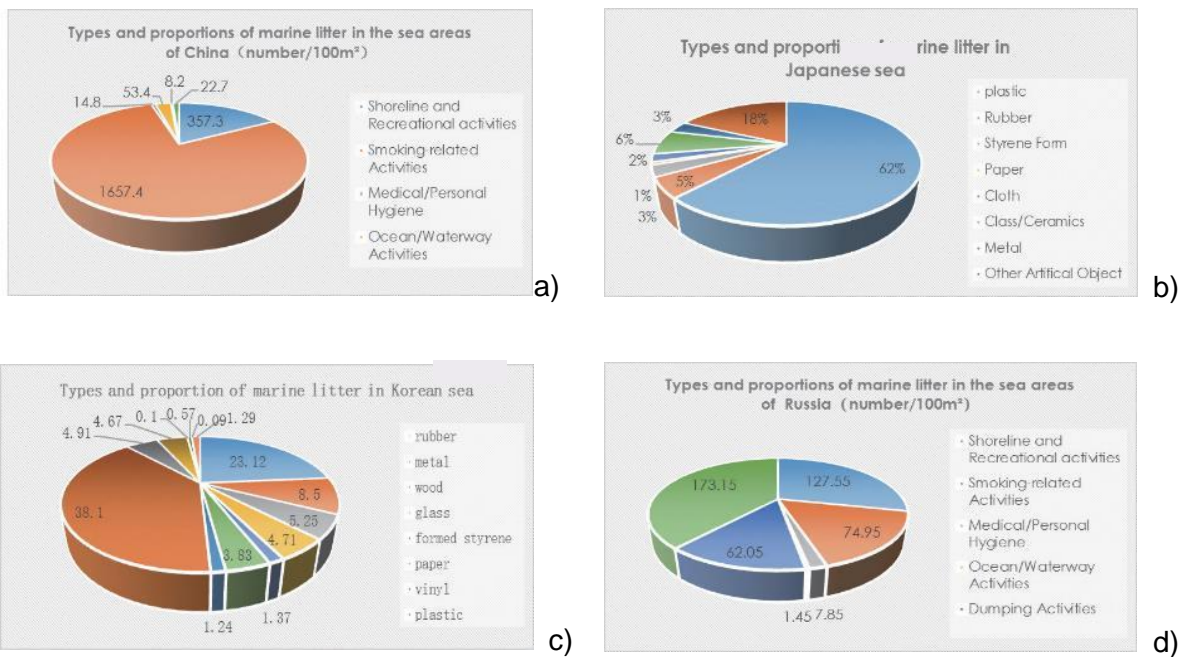


Figure 7. Composition of Marine litter in China (a), Japan (b), Korea (c) and Russia (d)

Provide information to the GPML Secretariat and focal areas leads on regional priorities, interests and needs;

Facilitate delivery of technical collaboration and support activities of key GPML global or regional partners; and

Facilitate coordination of marine litter activities across international programs and

countries at the regional level

In 2019, The Node was further developed (Sitemap and snapshots of the Node was shown in Fig 2 and 3). The Node includes 6 columns: “Home”, “Our Work”, “Databases”, “Maps”, “Publications” and “Technic”. Marine litter data has been received from CEARAC and is being re-categorized.

There are 5 major activities to be facilitated and conducted for the further development of GPML NOWPAP Regional Node as followings:

Activity 1 (completed): Develop a new marine litter information portal of the NW Pacific Regional Node at the DINRAC website by combining information from the existing NW Pacific Regional Node and marine litter related data available at the RCU and all the RAC websites (where applicable).

Activity 2 (completed): Establish news section on the portal with regular updates about actions and measures taken by various stakeholders in the NOWPAP region. Issue regular quarterly newsletter of the NW Regional Node.

Activity 3 (routine task): Collect, update regularly and map marine litter data on NOWPAP RAP MALI as a contribution to the reporting on SDG 14.1.1.

Activity 4 (routine task): Update existing and collect new information about major stakeholders and contact points on marine litter as an initial step to establish NOWPAP marine litter network.

Activity 5 (on going): Systematize and make available relevant NOWPAP marine litter (including microplastics) information from global and regional sources.

3.7 Organization of the 16th and 17th DINRAC Focal Points Meeting

The 16th DINRAC Focal Points Meeting was held on 30-31 May 2018 in Beijing, China with the support of the RCU and active participation of DINRAC Focal Points, other RACs and major NOWPAP partners. The meeting reviewed progress made since the 15th DINRAC Focal Points Meeting and discussed and agreed on the implementation plan and budget for projects in the 2018-2019 biennium. The meeting also discussed the future arrangements of the Northwest Pacific Regional Node of the Global Partnership on Marine Litter and the NOWPAP Mid-Term Strategy (MTS) 2018-2023.

The 17th DINRAC Focal Points Meeting was held on 22-23 August 2019 in Dalian, China, with the support of RCU and active participation of DINRAC Focal Points, other RACs and major NOWPAP partners. The meeting reviewed progress made since the 16th DINRAC Focal Points Meeting and discussed project proposals in the 2020-2021 biennium. The meeting also decided to organize two expert meetings on “Marine Environmental Data and Species Filed in the Red Lists” and on “Brainstorming of Strategy and Development Direction of DINRAC” to further discuss the concrete activities concerning detailed data format and data standardization issues to achieve the DINRAC mandate and duties accordingly.

Table 4. Proposed DINRAC Activities and Budget for the 2020-2021 Biennium

No.	Activities	Budget (USD)		
		2020	2021	Total
1	DINRAC Website upgraded with WebGIS	21,500	21,500	43,000
2	Annual Summary of Major Marine Environmental Data Available in Member States	8,000	15,000	23,000
3	Information on Species Filed in the Red Lists of NOWPAP Member States (3rd Stage) collected, compiled	10,000	13,000	23,000
4	Strengthened regional capacity on data and information share; Reports of the 18th and 19th NOWPAP DINRAC Focal Point Meeting prepared	25,000	25,000	50,000
5	Back to back Expert Meeting with FPM	17,000	17,000	34,000
6	Coordination of international cooperation by DINRAC Secretariat	6,000	6,000	12,000
	TOTAL			185,000

3.8 Participation in the RACs FP Meetings and other Meetings/Workshops

32. DINRAC staff participated in the following meetings in 2018 and 2019:

- 17 March 2018, Conference for Beach Litter Brand Audit Annual Report organized by Ford Motor Company, Ford CEGC, and Shanghai Rendu Ocean NPO Development Center.
- 10-11 May 2018, Toyama, Japan, the 16th CEARAC Focal Points Meeting
- 3-6 June 2018, Busan, South Korea, NOWPAP-TEMM Joint Workshop on Marine Litter Management-NOWPAP Regional Action Plan on Marine Litter Focal Points Meeting
- 3-5 July 2018, Global Ocean Summit organized by Pilot National Laboratory of Marine Science and Technology (Qingdao)
- 4-5 July 2018, Vladivostok, Russian Federation. The 15th NOWPAP POMRAC Focal Points Meeting
- 17-20 July 2018, the 21st MERRAC Focal Points Meeting and the 13th Competent Authorities Meeting
- 26 July 2018, APEC Workshop on Innovative Marine Debris Solutions

- 9-11 October 2018, Moscow, Russian Federation, The 23th Intergovernmental Meeting of NOWPAP
- 1-2 April 2019, Busan, South Korea, 2019 Joint Northwest Pacific Action Plan Regional Coordinating Unit (NOWPAP RCU) and Regional Activity Centers (RACs) Meeting.
- 24-27 September 2019, Dalian, China, 2019 NOWPAP-TEMM Workshop on Marine Litter Management and 2019 International Coastal Cleanup Campaign
- 17-18 October 2019, Lofoten, Norway, Conference on prevention and cleanup of marine litter

4. The DINRAC Activity Expenditures of 2018-2019 Biennium

Table 5. Expenditures of DINRAC Activities in the 2018-2019 Biennium (USD)

Activities	Budget	Expenditures			Balance
		2018	2019	Total	
DINRAC Website upgraded with WebGIS system					
Maintenance of the website	2,000	2,000	0	2,000	
Data transfer	5,000	5,000	0	5,000	
Design of the website	10,000	5,000	5,000	10,000	
Development of the website	14,000	10,000	4,000	14,000	
Development of the WebGIS system	12,000	6,000	6,000	12,000	
Subtotal	43,000	28,000	15,000	43,000	0
Annual summaries of marine environmental data collected, compiled and uploaded to the NOWPAP DINRAC website					
Collection of data	16,000	0	4,000	4,000	
Compilation of the data	3,000	0	3,000	3,000	
Coordination and uploading to the website	4,000	0	4,000	4,000	
Subtotal	23,000	0	11,000	11,000	12,000
Sea reclamation sites and management data collected, compiled and uploaded to NOWPAP DINRAC website					
Collection of data	16,000	0	4,000	4,000	
Plan and Compilation of the data	5,000	0	5,000	5,000	
Coordination and uploading to the website	2,000	0	2,000	2,000	
Subtotal	23,000	0	11,000	11,000	12,000
Inventory of pollution sites/human objects collected, compiled and uploaded to NOWPAP DINRAC website					

Collection of data	16,000	0	4,000	4,000	
Plan and Compilation of the data	5,000	0	5,000	5,000	
Coordination and uploading to the website	2,000	0	2,000	2,000	
Subtotal	2,3000	0	11,000	11,000	12,000
Information on Species Filed in the Red Lists of NOWPAP Member States (Third Stage) collected, compiled and uploaded to NOWPAP DINRAC website					
Collection of data	16,000	0	3,500	3,500	
Plan and Compilation of the data	5,000	0	0	0	
Coordination and uploading to the website	2,000	0	2,000	2,000	
Subtotal	23,000	0	5,500	5,500	17,500
Strengthened regional capacity on data and information sharing evidenced in meeting reports, presentations and other measurable means. Reports of the 16th and 17th NOWPAP DINRAC Focal Point Meetings prepared.					
Strengthened regional capacity on data and information sharing	46,000	23,000	23,000	45,000	
Preparation of meeting reports	4,000	2,000	2,000	4,000	
Subtotal	50,000	25,000	25,000	50,000	0
RAP MALI Data uploaded to NOWPAP DINRAC website; Marine litter related WebGIS system developed. Communication and Cooperation conducted.					
Compilation and update of Marine Litter data and ICC data to the website	2,000	1,000	1,000	2,000	
Development of marine litter WebGIS module	7,250	4,000	3,250	7,250	
Subtotal	9,250	6,000	4,250	9,250	0
Total	194,250	58,000	82,750	140.75	53,500