

# **Regional report on measures and best practices for prevention of marine litter input from land-based sources in the NOWPAP region**



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Activity Centre (NOWPAP CEARAC),  
established within the Northwest Pacific Region Environmental Cooperation Center (NPEC)  
5-5 Ushijimashin-machi, Toyama City, Toyama, 930-0856, Japan  
Tel: +81-76-445-1571, Fax: +81-76-445-1581  
Email: [webmaster@cearac.nowpap.org](mailto:webmaster@cearac.nowpap.org)  
Website: <http://cearac.nowpap.org/>

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## **Preface**

The Northwest Pacific Action Plan (NOWPAP) was established in 1994 as part of the UNEP Regional Seas Programme aiming at “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.” (NOWPAP 1994)

Marine litter is one of the most serious marine environmental problems in the Northwest Pacific region, and is an issue faced by most of the world’s oceans. Marine litter is defined as any persistent, manufactured, or processed solid material discharged, disposed of, or abandoned in the marine and coastal environment. Marine litter creates negative impacts on the marine and coastal environment, including living organisms, some sectors of economy and even human health and safety. Marine litter is also a transboundary issue, as it is transported by currents and winds from one country to another.

In order to deal with the marine litter problem, NOWPAP implemented the marine litter activity (MALITA) in the 2006-2007 biennium, and developed the Regional Action Plan on Marine Litter (RAP MALI) in 2007. Following its approval in 2008, the NOWPAP member states, the NOWPAP Regional Coordinating Unit (RCU) and Regional Activity Centres (RACs) have been implementing various activities in order to achieve the goal of RAP MALI, to improve the quality of the marine and coastal environment of the Northwest Pacific region by addressing the marine litter problem through cooperation and partnerships (NOWPAP 2008).

CEARAC, as one of the four RACs of NOWPAP, is committed to addressing issues of marine litter generated from land-based sources. Most marine litter, such as plastic bottles, various kinds of packaging, and smoking-related garbage, is originally generated from land. Therefore, the prevention of marine litter generation requires realistic and effective measures on land. Since each NOWPAP member state is taking various measures to monitor and prevent marine litter generation, there is significant value in sharing information and best practices among the NOWPAP member states and with other regions.

CEARAC expects this report will assist practitioners and decision-makers working for national and local government agencies and NGOs/NPOs in promoting measures against marine litter. CEARAC would like to thank the national experts who prepared the national reports, and NOWPAP Marine Litter Focal Points for their contribution to this publication.

## **National Experts**

Dr. Lei KUN

Professor

Water Research Institute, Chinese  
Research Academy of Environmental  
Science, China

Ms. Sunwook HONG

President

Our Sea of East Asia Network, Korea

Dr. Yana BLINOVSKAYA

Maritime State University named after G.I.  
Nevelskoi, Russia

## **NOWPAP Marine Litter Focal Points**

### China

Dr. Hao CHEN

Institute of Water Environment  
Chinese Research Academy of  
Environmental Sciences, China

### Japan

Mr. Junichiro NOGUCHI

Office of Marine Environment,  
Water Environment Division, Environmental  
Management Bureau, Ministry of the  
Environment, Japan

### Korea

Mr. Jin-Yong JUNG

Marine Conservation Division  
Marine Policy Bureau, Ministry of Land,  
Transport and Maritime Affairs, Korea

### Russia

Dr. Sergei MONINETS

Sea Protection Institute  
Maritime State University named after G. I.  
Nevelskoi, Russia

## Executive Summary

### Marine litter in the NOWPAP region (Chapter 1)

During the three year period between 2008–2010, 500,000 marine litter items were collected in the NOWPAP national monitoring areas of each member state, totaling about 36 tons. NOWPAP national monitoring has been conducted frequently at many monitoring sites in the member states (250 times per year on average), however, the results only reflect part of the situation in the entirety of the NOWPAP region.

It has been reported that 73% of marine litter in the NOWPAP region is plastic, including 16.5% is polystyrene (NOWPAP 2011). These materials are used widely as daily necessities such as beverage containers, and as fishing gear like buoys and nets. Huge numbers of plastic bottles and pieces of plastic and polystyrene have been found along the coastlines of the member states. A difference in the composition of marine litter items is observed among the member states. In Japan, there were small broken pieces of plastic and polystyrene. On the other hand, in Korea, large, heavy plastic and polystyrene items such as fishing buoys and nets were collected. To understand the current situation and trends of marine litter, it is necessary to continue the monitoring surveys in each member state. In addition to understanding the issue, preventing the generation of such marine litter should be promoted.



Situation of marine litter in Ishikawa Prefecture, Japan

### Measures and polices for preventing marine litter generation (Chapter 2)

An overview of the measures taken and policies adopted by the central and local governments in each NOWPAP member state for preventing marine litter is shown in Table 1, covering legislations, policies, institutional arrangements, and monitoring surveys.

### Best practices for preventing marine litter generation (Chapter 3)

In the NOWPAP member states, various effective measures have been implemented by central and local governments, as well as by other entities. These are classified into the following four categories:

## 1. Establishment of national and local strategies

China, Japan, and Korea have established national strategies and/or basic policies on marine litter issues. Implementation of the strategies and policies varies in the communities. For example, in Japan, following the basic policies set by the central government, municipalities (prefectural governments) have developed their own regional plans to suit their current marine litter situations and geographical and/or socio-economical characteristics. Visions and goals are clearly stated in the regional plans, and practical measures are developed. To prevent the generation of marine litter on land, implementation of effective measures is crucial, and the approach of Japanese local governments is considered to be a good example for other states to apply.

## 2. Establishment of a cooperation network among relevant agencies and organizations

In China, Japan, and Korea, a network has been established among the central and local governments and NGOs/NPOs to collaborate in cleaning beaches, collecting and disposing of marine litter, and implementing public awareness programs. In Korea, cooperation on river basin management covering five major rivers, as well as a network of relevant organizations in the Clean Masan Bay project in Korea, are innovative approaches. As rivers are one of the major transport routes of litter from land to the sea, river basin management partnerships should be considered in other countries. Moreover, the Clean Masan Bay project facilitates involvement of the private and public sectors, an aspect that should also be considered in other countries. In Russia, the NOWPAP area is rather far away from Moscow, the Russian capital, and there is a concern that there may be insufficient management by local governments, as the central government holds responsibility for the all coastal areas in the country. On the other hand, cooperation between local governments and private and public entities has been facilitated. Such bottom-up networking can be a key component to promote marine litter prevention in the NOWPAP region.



River basin management for prevention of marine litter input in Korea



**Table 1.** Overview of measures taken and policies adopted by the central and local governments in each NOWPAP member state for preventing marine litter.

	China	Japan	Korea	Russia
Laws and Regulations	Marine Environment Protection Law Law on Control of Ocean Waste Dumping Environmental Protection Law and others	Waste Management and Public Cleansing Law Basic Environment Law The Law for the Promotion of Marine Litter Disposal and others	Environmental Policy Basic Law Waste Management Act Marine Environment Management Act and others	Regulations on Waste Disposal and Other Kinds of Abuse Production and Consumption Waste Law Water Code and others
National Plans for Prevention of Marine Litter	China's National Program of Action for the Protection of the Marine Environment from Land-based Activities The 12 <sup>th</sup> 5-year Plan	Basic Policy for Comprehensively and Effectively Promoting Measures against Marine Litter	The First Basic Plan for the Management of Marine Litter Korean National Marine Debris Monitoring Program	Not available
Relevant Ministries and Agencies	Ministry of Environmental Protection Ministry of Transport Ministry of Agriculture State Oceanic Administration Maritime Safety Administration Fishery Bureau People's Liberation Army Navy	Cabinet Secretariat Cabinet Office Ministry of Internal Affairs and Communications Ministry of Foreign Affairs Fisheries Agency Ministry of Economy, Trade and Transport Ministry of Land, Infrastructure, Transport and Tourism Meteorological Agency Japan Coast Guard Ministry of Environment	Ministry of Land, Transport and Marine Affairs Ministry of Environment Korean Ocean Research and Development Institute (presently named Korea Institute of Ocean Science and Technology) Korea Marine Environment Management Corporation	Ministry of Natural Resources and Environment
Measures by ministries and local governments	Cooperation Framework of relevant ministries	Model Survey for Reduction of Marine Litter Meeting on promoting measures to cope with marine litter Regional plans by local governments	Cleanup of Land-based Litter in the Five Major River Basins Cooperation for Clean Masan Bay	Clean Port Program

### 3. Implementation of effective collection/clean-up measures

Efficiently and effectively collecting litter at the place where it is generated and/or in estuaries is necessary to prevent it from entering the sea. In Japan, the Model Survey on Domestic Methodology for Reduction of Marine Litter was conducted in 2007–2008 and 2009–2010 in order to obtain general information on the situation of marine litter and consider efficient and effective measures for dealing with marine litter. In Korea, trash booms are installed in some estuaries in the rainy season to prevent litter from entering the sea — a measure that is considered efficient. This approach is more cost-effective when compared to traditional beach/river cleaning.

In addition, a cost-sharing system for disposal of marine litter has been established among local governments for the first time in Korea. Japan has a similar system in which coastal local governments cooperate and provide financial support to clean up litter on beaches. As funding for disposal is an essential matter, such a cost-sharing system is necessary for reducing marine litter collectively. In the case of Russia, drainage systems are installed or repaired, and new waste processing complexes have been introduced in Vladivostok and Sakhalin, where waste is efficiently collected and separated by type. Thereafter, useful materials are recycled and used by local companies.

### 4. Enhancing public awareness

To help reducing the amount of marine litter, it is necessary for citizens and the private sector to understand the problem and change their consumption and production patterns, which can contribute to reducing the generation of marine litter. All NOWPAP member states have implemented various programs to raise public awareness of marine litter. The public (including those who have not been previously involved in environmental activities) is educated about the 3R's initiative: Reduction, Reuse, and Recycling. Japan has



Works in progress of marine litter art

implemented marine litter art and the concept of “beach currency”, whereas Korea conducted a photo exhibition to promote clean ocean awareness. If this type of approach can be integrated into a wider network, such as the Clean Masan Bay project, the overall number of environmental friendly people will be increased and greater involvement can be expected.

## **Recommendations for preventing marine litter input from land-based sources in the NOWPAP region (Chapter 4)**

There are various measures being taken by the member states of NOWPAP in a cooperative manner among the central and local governments, NGOs/NPOs and other major players. Some of them may be applied in other countries and areas with some modifications according to national/local circumstances. Therefore, information sharing on such measures and best practices for their wider application can strengthen actions taken against marine litter in the entire region. The following elements are specifically recommended for consideration and introduction in areas where marine litter is an environmental concern.

1. Development and enhancement of cooperation among stakeholders
  - Expanding understanding of the current situation: conducting/expanding monitoring with the participation of stakeholders
  - Establishing a system for information sharing among related governmental agencies and other entities
  - Developing national strategies and local action plans
  
2. Promotion of effective measures for the prevention, collection and disposal of marine litter
  - Implementing/expanding cost-effective measures for preventing litter generation on land and outflow to the sea
  - Sharing the costs for collection and disposal: establishing a sustainable mechanism of litter collection
  
3. Promotion of effective public awareness programs
  - Activities/events e.g. marine litter art, “beach currency” and photo exhibitions: increasing public awareness of marine litter issues
  - Awareness raising: media involvement and education for school children
  
4. Strengthening international cooperation and collaboration
  - Utilizing the NOWPAP framework: strengthening cooperation at a national level
  - Promoting cooperation and communication at the level of municipalities and communities: promoting/expanding communication on grass-roots activities among regions

## **Chapter 1: Marine litter in the NOWPAP region**

The NOWPAP region is a marginal sea area that is surrounded by the Eurasian continent and the Japanese archipelago. The Tsushima Current, which is derived from the Kuroshio Current, flows into this region through the Tsushima Strait. Marine litter, transported by this ocean current, drifts up to the beaches with the force of the monsoon, the southeasterly wind in the summer season, and with the northwesterly wind in the winter season. In recent years, marine litter drifting up to beaches in the NOWPAP member states has caused serious concern.

Based on the NOWPAP Regional Action Plan on Marine Litter (RAP MALI), the four NOWPAP member states (China, Japan, Korea, and Russia) started monitoring the number and volume of marine litter on beaches and shorelines in order to understand the marine litter situation in this region. The details of the data are available from the NOWPAP Marine Litter Database

([http://dinrac.nowpap.org/MarineLitter.php?page=marine\\_litter\\_monitoring\\_data](http://dinrac.nowpap.org/MarineLitter.php?page=marine_litter_monitoring_data)).

In 2010, a monitoring survey was conducted at a total of 43 sites within the NOWPAP member states. There was a total of 112,000 collected marine litter items, with a combined weight of 10 metric tons. These numbers illustrate that marine litter is a problem common among the member states.

In all NOWPAP member states, the most common types of material found among marine litter are plastic and polystyrene. The proportion of these materials has increased in recent years, currently accounting for 50% of all marine litter in China, 92% of that in Japan, 60% of that in Korea, and 60% of that in Russia (NOWPAP 2011). Such plastic and polystyrene litter is broken into small pieces by degradation caused by ultraviolet light and the impact of waves. The amount of marine litter items is increased due to these natural phenomena. Bottles and containers made of such convenient (i.e., disposable) plastic and polystyrene materials are produced in large quantities, not only in the NOWPAP member states but also in many other areas around the world. People use, then throw away such items without much thought. To prevent such plastic marine litter from being generated in the first place, people need to actively refrain from this environmentally unfriendly habit. Also, it should be noted that most marine litter is generated in inland areas and flows into the ocean through rivers.

In order to prevent the generation of marine litter from land-based sources, comprehensive measures are required: it is necessary not only to collect marine litter at beaches, but also to prevent the generation of marine litter in drainage basins and inland areas. In the NOWPAP

member states, central and local governments and other entities have been making efforts to prevent litter from entering the sea by establishing new laws, regulations, plans, and frameworks. Sharing information on such measures is very useful in implementing effective measures in the NOWPAP member states.

In this report, various effective measures implemented by central and local governments and other entities, including NGOs and NPOs, are summarized based on the information reported by experts from the NOWPAP member states.



Marine litter in the NOWPAP member states, clockwise, in Tsushima Island in Nagasaki Prefecture, Japan, in Shiretoko in Hokkaido Prefecture, Japan, in Ishikawa Prefecture, Japan, in Busan, Korea and in Vladivostok, Russia

## Chapter 2: Measures and polices for preventing marine litter generation

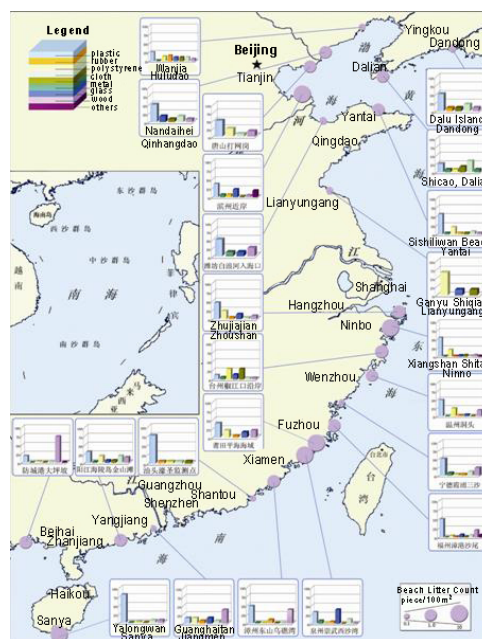
All NOWPAP member states have their own laws and regulations on marine litter. The details are summarized in a regional report named “Marine Litter in the NOWPAP Region”, prepared by the NOWPAP Regional Coordinating Unit in 2011 (NOWPAP 2011) and in “A Regional Overview of Legal Aspects Related to the NOWPAP Regional Action Plan on Marine Litter,” prepared by NOWPAP Data and Information Network Regional Activity Centre in 2010 (NOWPAP DINRAC 2010). Thus, this report mainly focuses on concrete measures and best practices for prevention of marine litter input from land-based sources implemented by the four member states.

### China

#### Central government measures and polices for preventing marine litter

##### - **Monitoring of marine litter**

Understanding the current situation is very important for implementing effective measures to deal with said situation. In China, the central government has started a nationwide monitoring survey to understand the marine environment. In 2006, Guidelines for Marine Debris Monitoring and Assessment were prepared, and the Marine Debris Monitoring and Assessment program has been carried out by the State Oceanic Administration (SOA) since 2007. The SOA has established 50 marine litter monitoring sites, including coastal tourism areas, bathing beaches, aquaculture areas and ports (Fig.1). This monitoring program investigates washed-up, floating, and seafloor litter. The collected litter is classified into 9 categories (plastic, metal, cloth, Styrofoam, wood, paper, glass, rubber, and others). The National Marine Environmental Monitoring Center summarizes the monitoring results and publishes in the Marine Environment Report annually.



**Figure 1.** Location of monitoring sites along the coastline in China

### - **Establishment of a cooperation framework of relevant ministries**

The Ministry of Environmental Protection (MEP) encourages prevention of marine litter in cooperation with the Ministry of Transport, the Ministry of Agriculture, the SOA and the environmental protection departments of coastal local governments through seminars and beach clean-up activities. To prevent and treat marine litter input from land-based sources, China has established a garbage collection and disposal system, a medical waste disposal system, and a port solid waste recycling and treatment system. It has also built an environmental supervision and management system for the whole process of hazardous waste and medical waste collection, transportation, and disposal. It plays an important role in the control of marine litter pollution from land-based sources through environmental pollution treatment projects such as the installation of urban garbage treatment plants.

To prevent marine litter generation, the first Inter-Department Experience-Sharing Meeting on marine litter was held in 2008 with participation of 5 key ministries and agencies: the MEP, Maritime Safety Administration, Fishery Bureau, the SOA and the People's Liberation Army Navy. The meeting aimed to exchange experiences in marine litter control and prevention.

### - **National Program of Action for Protection of the Marine Environment from land-based Activities (NPA)**

The China's National Program of Action for Protection of the Marine Environment from land-based Activities (NPA) was started to be prepared in April 2006, and its first draft was announced in October 2009, finalized in December 2010 and updated in 2011. The strategy of the NPA prioritizes marine litter control. The action strategy aims to improve marine litter prevention with a focus on pollution prevention at its source, controlling, and cleaning up. The strategy includes strengthening marine litter monitoring and analysis of the main sources of beach and floating litter, strengthening pollution prevention at its source and controlling marine litter, regularly cleaning up such litter, improving supervision and management of it, and raising public awareness.

### - **The 12<sup>th</sup> 5-year plan**

Marine litter issues are reflected in the 12<sup>th</sup> 5-year plan (2011–2015), including monitoring activities being implemented by relevant organizations, and provincial/municipal and sectoral (ministerial) sub-plans being developed. China's 12<sup>th</sup> 5-year environmental protection plan, which focuses on waste dumping, oil spills, shipping waste, fishing and

mariculture pollution in the Bohai Sea, the Yellow River Estuary, the Yangtze River Estuary, and the Pearl River Estuary, was approved together with the 12<sup>th</sup> 5-year plan on urban household waste disposal. This plan deals with disposal of solid waste before it enters bodies of water and the marine environment, and the plan encourages incineration of solid waste rather than disposing of it as landfill. Currently, the 12<sup>th</sup> 5-year plan on near-shore marine pollution control is being prepared. This plan includes 1) waste disposal in urban areas in near-shore regions, 2) waste disposal in rural near-shore regions, 3) control of shipping, coastal tourism and marine aquaculture-related marine litter, 4) beach cleanups on a regular basis.

#### **- Other activities**

In addition, the offering of free plastic bags in shops has been prohibited since June 2008, and this prevents the use of about 40 billion plastic bags per year. People have recognized the impact of marine litter on the coastal environment, and some NGOs have organized volunteer actions to clean up beaches and the sea floor within swimming zones of coastal areas. The Fishery Bureau of the Ministry of Agriculture implemented several campaigns to keep fishery ports clean and recycle water in fishery facilities.

### **Cooperation among the central government, local governments, and other entities**

#### **- Measures by local governments based on the 12<sup>th</sup> 5-year plan**

Based on the Chinese central government's 12<sup>th</sup> 5-year plan on marine environmental protection, Zhejiang Province established provincial/local plans to invest US\$11.1 million to build one to two waste disposal stations in every coastal city and one mandatory waste treatment facility in every shipping port, and to establish regulations to collect and treat marine litter on a regular basis.

#### **- Communication with NGOs**

The central government has instituted a regular communication scheme with NGOs in several cities in order to coordinate activities for prevention of marine litter, and has supported coastal cleanup and public awareness activities by NGOs in Dalian, Yantai, Qingdao, and Weihai.



## **Japan**

### **Central government measures and policies for preventing marine litter**

#### **- High-level inter-ministry committee**

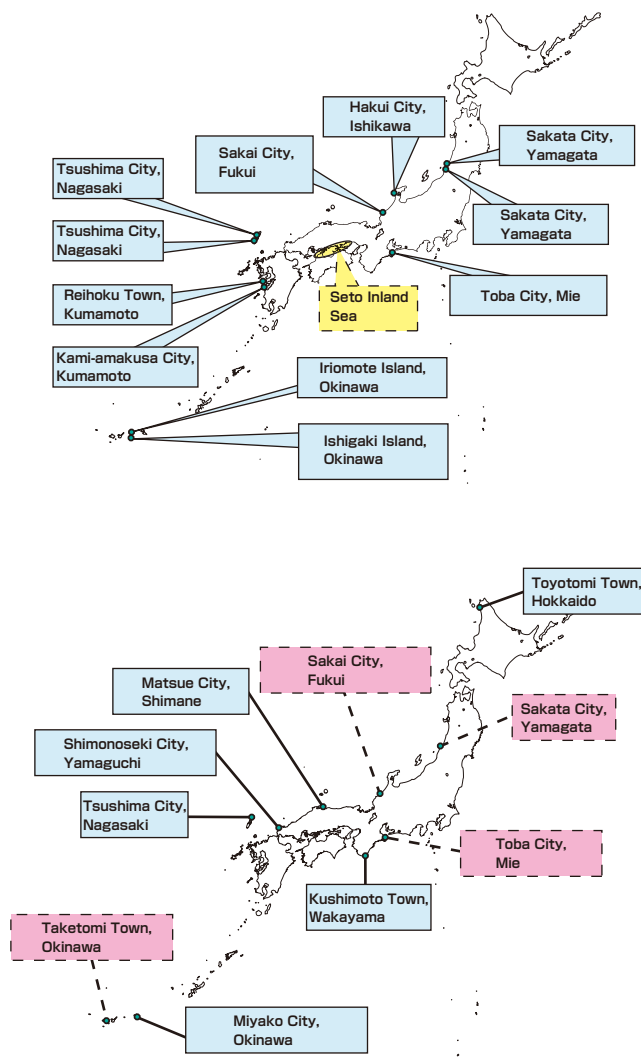
The high-level inter-ministry committee on marine litter was established in April 2006. Ten relevant ministries and agencies (the Cabinet Secretariat; Cabinet Office; the Ministry of Internal Affairs and Communications; the Ministry of Foreign Affairs; the Fisheries Agency; the Ministry of Economy, Trade and Industry; the Ministry of Land, Infrastructure, Transport and Tourism; the Meteorological Agency; the Japan Coast Guard; and the Ministry of the Environment) participated in it. The Committee published a report in March 2007 summarizing the role of the central government in marine litter issues. Policies and measures to be implemented by the central government are related to 1) monitoring the situation of marine litter, 2) controlling sources of marine litter, 3) recovery of coastal areas severely damaged by marine litter.

#### **- Monitoring and model survey**

To monitor the situation of marine litter along the entire coastline of Japan, the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Land, Infrastructure and Transport conducted an Integrated Marine Litter Survey in 2006. In this survey, the coastline was divided into 8 levels by the amount of marine litter, excluding driftwood and seaweed. This survey showed the distribution of marine litter in Japan. However, to collect and treat marine litter effectively, more detailed information, such as composition and/or sources of marine litter, is necessary.

In 2007–2008 and 2009–2010, the Ministry of the Environment conducted the Model Survey on Domestic Methodology for Reduction of Marine Litter (Fig. 2), which consisted of three types of investigations. A broad investigation was conducted to obtain general information on the situation of marine litter, its sources, and disposal facilities in coastal areas. The second type of investigation was a clean-up activity that aimed to find out the composition of marine litter and to consider efficient and effective measures to deal with said litter. The last investigation was a data analysis to understand the situation of marine litter after carrying out clean-up activities using regularly collected monitoring data. Within this model survey, 11 and 6 areas with severe marine litter were selected for 2007–2008 and 2009–2010, respectively. The results of the first model survey were compiled and published in March 2009 by the Ministry of the Environment. The report, entitled “Model Survey for Reduction of

Marine Litter -Summary- Current State of Marine Litter in the Model Areas and Appropriate Countermeasures” (NOWPAP CEARAC 2009), can be downloaded from [http://www.cearac-project.org/MALITA/Model\\_Survey.pdf](http://www.cearac-project.org/MALITA/Model_Survey.pdf).



**Figure 2.** Location of Model Survey Sites in 2007–2008 (upper) and 2009–2010 (lower)  
(Dotted-line boxes indicate the sites as in 2007–2008)

### - Measures by ministries

In addition to monitoring, several ministries and agencies implemented various measures for cleaning up, disposing of and reducing the generation of marine litter. Details are shown in Table 2, below.

**Table 2.** Measures against marine litter taken by different ministries and agencies

Type of Measure	Action	Ministry/Agency
Monitoring	Monitoring plastic litter floating in the Northwest Pacific	Ministry of Land, Infrastructure and Transport (MLIT)
	Developing and implementing a method to estimate the annual amount of marine litter washed ashore on Japan's coast line	Ministry of the Environment (MOE)
	Identifying sources of specific marine litter (e.g., fishing equipment and driftwood)	MOE
Cleanup and Disposal	Conducting periodical cleanup and disposal of marine litter	Local governments
	Providing financial support to local governments for clean-up and disposal of marine litter	MOE, MLIT and Cabinet Office
	Preparing a manual on how to effectively clean up the coastline	MOE
	Encouraging innovation on disposal facilities for waste containing salt	MOE
Reduction	Protecting forests against disasters to prevent outflow of wood	Ministry of Agriculture, Forestry and Fisheries (MAFF)
	Cleaning up litter and raising public awareness in river basins	MLIT
	Establishing a recycling system for fishery materials (polystyrene foam and plastic materials)	MAFF
	Enhancement of environmental education	Ministry of Education, Culture, Sports, Science and Technology
	Communicating with countries on large quantities of waste drifting ashore in Japan, such as medical waste and plastic container waste	Ministry of Foreign Affairs (MOFA) and MOE
	Joint implementation and/or support for NOWPAP activities	MOFA and MOE

### - **Law for the promotion of marine litter disposal**

Financial support is necessary to fund marine litter removal and treatment projects meant to recover severely polluted coastal areas. However, the responsibilities of stakeholders for removing and treating marine litter were not clearly defined. Thus, the Law for the Promotion of Marine Litter Disposal was proposed and enacted in July 2009. This law aims to reduce the amount of marine litter generated and to achieve efficient disposal of the remainder, in order to conserve the natural beauty of the coastal landscape and the environment. This law requires the central government to formulate a basic policy for comprehensively and effectively promoting measures, from which local (prefectural) governments can formulate regional plans. The law also clearly states the responsibilities of relevant bodies and requires financial support for effective reduction of marine litter. In accordance with this law, the central government established the Regional Green New Deal Fund for providing financial support to local governments in order to formulate their regional plans, clean up and dispose of marine litter, and to raise public awareness. The provided budget was US\$70 million for FY 2009–2011.

### - **Basic policy for comprehensive and effective measures against marine litter**

The central government of Japan developed the basic policy for promoting actions to deal with marine litter in a comprehensive and effective manner, in accordance with the Law for the Promotion of Marine Litter Disposal. The basic policy clarifies the rationale for promoting marine litter disposal, and offers fundamental ideas for the development of a regional plan in each prefecture, as well as basic characteristics of the Council for Promoting Marine Litter Disposal, issues to be considered in addressing marine litter, and other important aspects of measures for dealing with marine litter.

Efforts in promoting marine litter proposals include setting responsibilities of beach managers, accommodating requests from local governments, and implementing cooperative actions for dealing with marine litter. Efficient disposal is enabled by facilitating the 3R's (Reduce, Reuse, and Recycle) initiative, understanding of the generation of marine litter and its causes, promoting the implementation of appropriate disposal methods, preventing illegal discharge, preventing litter from entering the water system, and collecting marine litter. The basic plan also suggests ensuring that the responsibilities of stakeholders are fulfilled and that relevant parties cooperate, as well as encouraging international cooperation and the raising of public awareness.

The issues to be considered in regional plans are identified in the basic policy, and each local government is developing their own plan following the central government's proposals.

#### **- The Committee on Implementing Measures to Deal with Marine Litter**

As stipulated by the Law, the Committee on Implementing Measures to Deal with Marine Litter has met at least once a year since 2009. The Committee aims to set up comprehensive, effective, and efficient measures to deal with marine litter issues in coordination with relevant ministries. This Committee consists of the Cabinet Secretary; members of the Cabinet Office; the Ministry of Internal Affairs and Communications; the Ministry of Foreign Affairs; the Ministry of Education, Culture, Sports, Science and Technology; the Ministry of Agriculture, Forestry and Fisheries; the Forestry Agency; the Fisheries Agency; the Ministry of Economy, Trade and Industry; the Ministry of Land, Infrastructure, Transport and Tourism; the Meteorological Agency; the Coast Guard; and the Ministry of the Environment. An expert sub-committee has also been set up to provide advice to the Committee on promoting measures. The sub-committee consists of scientists, NGOs, and relevant authorities.

### **Cooperation among the central government, local governments and other entities**

#### **- Regional Green New Deal Fund**

The central government provided financial support through the Green New Deal Fund for the disposal and prevention of marine litter by local governments. The total budget was about US\$70 million for three years (2009–2011). The Green New Deal Fund supported activities on formulating regional plans, cleanup activities and disposal of marine litter, and raising public awareness on marine litter. A total of 5 billion Japanese Yen (about US\$63 million) was spent on collection and disposal of marine litter by 34 local governments.

### **Korea**

#### **Measures and policies of the central government for preventing marine litter**

#### **- Korean National Marine Debris Monitoring Program**

In order to analyze the quantity, types, and sources of marine litter in Korea, as well as its accumulation and trends over time, the Korean central government implemented the Korean National Marine Debris Monitoring Program since 2008. This program selected 20

monitoring sites and conducted a survey on the quantity, weight, and volume of marine litter bimonthly every year (Fig. 3). The results have been provided to NOWPAP as the official Korean national marine litter monitoring data.



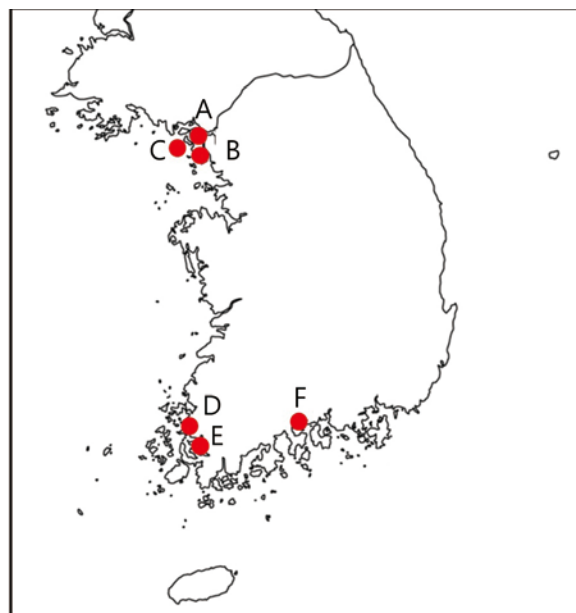
**Figure 3.** Location of monitoring sites in Korea

#### - **Trash booms**

In addition to analyzing the current situation of marine litter, the central government has taken various measures to prevent litter from entering the sea from land-based sources. Most marine litter is generated in inland areas and flows into the ocean via rivers. Therefore, collecting and removing litter at the mouth of rivers is a very effective method of collection. The Ministry of Maritime Affairs and Fisheries (MOMAF, presently named the Ministry of Land, Transport and Marine Affairs, MLTM) started to install trash booms in estuary areas in 1999, in order to prevent litter from entering the marine environment. The Korean Ocean Research and Development Institute (presently named Korean Institute of Ocean Science and Technology, KIOST) began to develop trash booms in 1999, and demonstrated their effectiveness in 2001 at the river mouth near Incheon City (Fig. 4). In 2010, trash booms were installed in 6 sites to prevent litter from entering the sea from land-based sources (Fig. 5).



**Figure 4.** Removal of marine litter collected by a trash boom in Incheon City



**Figure 5.** Location of trash booms in Korea

The MLTM provided financial support to Incheon City for development, construction, and installation of the trash boom at site A in Fig. 5. The trash booms were installed at the other sites (site B-F in Fig. 5) through collaborations between local governments and the Ministry of Environment (MOE). The financial support for their construction and operation was provided by the Watershed Management Fund.

### - **The First Basic Plan for the Management of Marine Litter**

The First Basic Plan for the Management of Marine Litter (2009–2013) was established in 2009. This plan has four main implementation strategies, 1) prevention and minimization of marine litter generation, 2) improvement of marine litter treatment, 3) development of a framework for marine litter management, 4) increasing public awareness and international cooperation. The plan aims to reduce annual marine litter generation by 20% (from 160,000 tons in 2007 to 130,000 tons in 2013) and to increase the proportion of annual marine litter collected by 11% (34% in 2007 to 45% in 2013). Based on the four main implementation strategies, 28 actions have been taken, including the installation of trash booms.

### - **Cleanup of land-based litter in the five major river basins**

The Ministry of the Environment (MOE) reported that a total of 131,000 tons of litter entered the Korean seas from 15 rivers in 2007. To reduce outflow of litter via rivers, an integrated river basin management scheme is needed as well as collecting litter using trash booms. In order to reduce the amount of litter entering the sea, the MOE formulated the Basic Plan for Management of Litter in Five Major Rivers and Estuaries in 2008. It adopted a drainage basin management approach to deal with the litter problem in rivers, emphasizing cooperation and collaboration among upstream and downstream areas (Fig. 6). It also includes a plan to increase the number of collection and disposal facilities, such as trash booms, in rivers and estuaries. The basic plan calls for clean-up activities to be undertaken before the rainy season, to minimize the amount of litter being brought into rivers and seas. Clean-up projects are carried out at various sites from upstream areas down to estuaries, including dams, forests, cities, rural areas, construction sites, midstream areas, and estuaries. The Watershed Management Fund provides financial support for the projects to collect litter in areas upstream of dams used to supply drinking water.

The MOE also supports local governments in river basins that are willing to make agreements on cost-sharing. Research was conducted to establish the principles of cost-sharing among local governments for the Han, Nakdong, Geum, Youngsan, and Seomjin rivers in 2008. With the support of the MOE, local governments in five major river basins signed agreements by 2009. The MOE also has plans to provide a total of 8 billion won (about US\$7 million) for projects to collect litter in estuaries. The quantity of litter removed from rivers doubled after implementation of the basic plan, from 21,000 tons in 2007 to over 40,000 tons after 2009. A total of 150,000 tons of litter was collected at a cost of 24,523 million won (about US\$21 million) during the period 2009–2011 (Table 3).





**Figure 6.** River basin management partnership in the five major rivers in Korea

**Table 3.** Amount of litter collected in rivers and estuaries in Korea from 2009 to 2011

	2009		2010		2011	
	Budget (Central Gov.) (million won/yr)	Amount collected (ton/yr)	Budget	Amount	Budget	Amount
Han River	2,865	16,507	2,188	11,683	1,099	6,954
Nakdong River	1,710	6,975	1,573	6,543	1,616	26,067
Geum River	560	4,814	674	4,543	585	7,725
Youngsan River	1,328	11,288	1,299	7,538	1,080	2,288
Seomjin River	1,395	3,650	1,197	6,513	1,452	7,573
Other rivers	1,032	6,717	1,086	6,976	1,784	6,167
<b>Total</b>	<b>8,890</b>	<b>49,951</b>	<b>8,017</b>	<b>43,796</b>	<b>7,616</b>	<b>56,774</b>

**- Establishment of the marine litter management framework**

The Marine Litter Management Center and Marine Litter Integrated Information System (<http://info.malic.or.kr>) were established in 2011 by MLTM and the Korea Marine Environment Management Corporation (KOEM). To understand and share information on the current distribution of marine litter, an investigation was carried out at 46 sites in 2012. The monitoring results of this investigation are provided through the Marine Litter Integrated Information System.

**Cooperation among the central government, local governments, and other entities**

**- River basin management of marine litter**

Considering the current situation of marine litter pollution and the amount of litter that enters into the marine environment through rivers, there is a need for effective marine litter management in river basins. Thus, river basin management of marine litter was introduced in the following five major river basins to enhance the responsibility of local governments in waste collection and disposal on land, and to reduce the amount of litter entering the marine environment through rivers. By 2009, cost-sharing agreements were signed for the five major rivers. Ratios of cost sharing among the central and local governments are shown in Table 4.

**Table 4.** Cost-sharing agreements between the central government and local governments in the five major river basins in Korea

River	Date of agreement	Cost sharing ratio
Han	Feb. 28, 2007	Seoul City (22.8%), Incheon City (50.2%), Gyeonggi Province (27%)
Geum	Mar. 11, 2009	MOE (50%), Daejeon City (7.2%), Chungbuk Province (7.6%), Chungnam Province (30.2%), Jeonbuk Province (5%)
Nakdong	Apr. 3, 2009	MOE (50%), Busan City (25.46%), Daegu City (6.17%), Gyeongbuk Province (8.69%), Gyeongnam Province (9.68%)
Youngsan	May 18, 2009	MOE (50%), Gwangju City (31.55%), Jeonnam Province (18.45%)
Seomjin	May 18, 2009	MOE (50%), Jeonbuk Province (11.25%), Jeonnam Province (24.25%), Gyeongnam Province (14.5%)

## **Russia**

### **Central government measures and policies for preventing marine litter**

Article 71 of the Water Code declares that “State control in the domain of water-body use and protection is to be carried out by the Government of the Russian Federation”, and all near-shore water areas are owned by the state. Thus, the Ministry of Natural Resources and Environment is primarily responsible for marine litter issues.

However, there are no special laws regulating marine litter management, and there is also no pollution-prevention policy in Russia. There are several federal laws concerning marine environmental problems, including litter pollution: Constitution of the Russian Federation (articles 42 and 58), Russian Federation Water Code, Russian Federation Continental Shelf Law, and others.

The central government has only recently begun taking measures in this area.

### **Cooperation among the central government, local governments and other entities**

#### **- Waste management**

There are two obstacles in preventing marine litter from being generated by land-based sources in Russia. One is the existence of coastal waste dumps; the other is that insufficient allowances are given to enterprises for waste disposal. One of the largest coastal waste dumps in Russia was situated in Gornostay Bay in Primorsky Kray until 2010. This dumping site was located on the coastline and recognized as a source of marine litter. However, in preparation for the APEC summit in September 2012, the dumping site was closed and rehabilitated, resulting in a significant decrease in the volume of litter entering the Peter the Great Gulf (Fig. 7).

In Russia, waste generation limits are estimated for every production, activity, and waste type based on the Production and Consumption Waste Law, and waste disposal allowances are provided according to the estimates. However, in many cases, the real amount of waste generated exceeds the allowance, which gives rise to unorganized dumps along roads in woods and in ravines. About 150 such illegal dumps were liquidated in 2010 in Primorsky Kray. According to the Administrative Offenses Law, the fine for illegal waste disposal is 3,000 Russian rubles, equivalent to the monthly amount spent for collection, disposal, and utilization of waste by specialized waste collection companies. Nevertheless, this fact does

not prevent illegal dumping. To solve this problem, ecological organizations, together with big companies and interested members of the public, regularly liquidate illegal dumps and clean up coastal areas near settlements, including beaches and recreation sites.



**Figure 7.** Gornostay Bay dumping site in 2009 (left) and the renovated dumping site in 2011 (right)

#### - **Clean Port program**

The Clean Port program has been developed in Vladivostok, with the aim of establishing and running the Cleanup and Surface Water Pollution Prevention System in the waters around the port of Vladivostok. This program also aims to coordinate activities by the Primorsky Kray Administration, business entities (major water users, companies such as those carrying out litter collection, treatment, and disposal) and research organizations. In this program, a monitoring system was developed to obtain a wide range of timely information on the overall level of, and change in, marine litter in the Golden Horn Bay. Unfortunately, this system is not yet being used.

## **Chapter 3: Best practices for preventing marine litter generation**

### **China**

#### **Best practices by local governments**

- Xiamen, Fujian Province

In 2007, the Oceans and Fisheries Bureau of Fujian Province set up the Floating Debris Remediation Project of Xiamen-Jinmen Coastal Areas, which removed 2,179.3 tons of floating debris (including seaweed) from along the coast from May to October 2009.

- Dandong, Liaoning Province

In 2007, the Liaoning Fisheries Research Institute, Dandong Ocean & Fisheries Bureau and Liaoning Province Ocean & Fisheries Bureau jointly organized a Youth Environmental Awareness Action & Marine Ecosystem Protection program in the Yellow Sea in Dandong for middle school students, including a marine litter cleanup campaign.

- Sanya, Hainan Province

In 2009, the Sanya Ocean and Fisheries Bureau implemented the Ocean Clean - Sanya Underwater Federation in Action program, together with 13 diving companies. The program aimed to clean up seafloor debris and protect the coral reef ecosystem.

- Jinzhou, Liaoning Province

In 2010, the Jinzhou Ocean and Fisheries Bureau implemented a coastal clean-up campaign to advertise marine conservation and to celebrate World Ocean Day. More than 30 publicity boards were put up, and over 15,000 cards for marine environmental protection were distributed.

- Dalian, Liaoning Province

The Dalian government's measures for controlling marine litter from land-based sources are the following:

#### 1) Strengthening pollutant-emission outlet management

In order to control sources of marine pollution, the Environmental Protection Bureau controls the total quantity of pollutants using target management.

#### 2) Recycling waste at port

Shipping service companies and terminal operators play active role in accepting garbage

from ships. There are almost 7,800 ships discharging waste at Dalian Port every year, and more than 6,000 tons of garbage is recycled. This means that pollution discharged from ships is being effectively controlled. In addition, Dalian Port Group spends hundreds of thousands of dollars to collect floating debris and clean the waterway.

### 3) Implementing environmental protection and coastal clean-up activities

Since 2003, environmental protection volunteers in Dalian City have organized various activities such as diving and collecting underwater garbage, cleaning up and surveying the main areas affected by floating garbage in order to create a favorable marine environment for shipping. In 2006–2007, the City Environmental Protection Volunteers Association collected over 4,000 kilograms of floating garbage in cooperation with other organizations.

## **Japan**

### **Best practices by local governments**

#### **- Regional plans**

A total of 29 prefectural governments have developed regional plans based on the basic policy formulated by the central government. Each prefecture has established its specific regional plan based on their situation and that of the marine litter in their region. The central government provided financial support (through the Green New Deal Fund) to prefectural governments to prepare these regional plans.

The details of each regional plan are shown below. Most of the regional plans clarify the role of stakeholders (e.g., the central government, prefectural governments, and municipalities) and have developed a framework of cooperation in collecting and treating marine litter. In addition, in some regional plans, several priority areas are selected in order to deal with specific marine litter problems. Some prefectures started river basin management to prevent marine litter generation, with cooperation between upstream and downstream areas.

#### **Outline of the regional plan (Toyama Prefecture)**

- Context
- Regional features
- Status of marine litter
- Challenges
- Vision
- Principles of measures
- Actions
- Priority areas
- Implementation Considerations



- **Non-smoking beaches**

Kanagawa Prefecture developed a new code on non-smoking beaches in 2010. This was the first such regulation at a prefectural level. Atami City in Shizuoka Prefecture, Amino Town in Kyoto Prefecture, and Shirahama Town in Wakayama Prefecture currently have the same regulation in effect.

- **Measures for prevention of marine litter generation**

Several prefectures and cities conduct patrols of rivers and coastal areas to prevent illegal dumping. Thanks to the hard work of these patrols, 6,274 kilograms of illegally dumped waste were collected in Sakata City, Yamagata Prefecture in 2007. In addition to patrols, in 2002, Okinawa Prefecture developed the Chura Islands Ordinance on Conservation of the Environment, which stipulates that citizens must not dispose of empty drinking bottles, cans, or cigarette butts in public spaces.

- **Public awareness**

Marine litter is a transboundary environmental issue. To understand the situation of marine litter, Tsushima City, Nagasaki Prefecture, and Tottori Prefecture have supported joint coastal clean-up efforts between a Korean university and universities in Japan for some time. Many other local governments have prepared educational materials on marine litter and provided environmental education to elementary and junior high school students.

- **Kanagawa Coastal Environmental Foundation (KCEF)**

This organization was established in 1991, funded by the Kanagawa prefectural government and 13 local governments in order to keep beaches beautiful, to contribute to conservation of the natural environment, and to create a suitable environment for beach usage through beach cleaning activities. Additionally, KCEF seeks to raise public awareness and provides environmental education to local people, supports clean-up activities, and conducts relevant research. KCEF also studies and develops new cleaning machines for efficient beach clean-up.

## - **The Association of North East Asia Regional Governments (NEAR)**

The Association of North East Asia Regional Governments (NEAR) is an international organization founded in 1996 on a far-reaching vision of seeking joint development of the region, as well as contributing to world peace. This vision will be achieved by promoting exchanges and cooperation in the spirit of reciprocity and equity among the regional governments located in Northeast Asia. Their environment subcommittee started monitoring marine litter in the year 2000 in order to protect the marine environment. This monitoring has been implemented over the 10 years and has accumulated valuable data on marine litter in the northwest Pacific region. The subcommittee has also promoted public awareness and environmental education programs.



NEAR meeting held in Toyama, Japan

## **Best practices by NGOs and other entities**

### - **Marine litter summit**

The Japan Environmental Action Network (JEAN) is one of the leading NGOs involved in the issue of marine litter. JEAN has conducted coastal clean-up activities as a national International Coastal Cleanup coordinator for more than two decades. JEAN has been holding the Marine Litter Summit annually since 2003 to discuss various marine litter issues, such as collection and treatment of marine litter, funding, etc. Participants in this summit are officials from the central government and local governments, NGOs/NPOs, and scientists from universities and research institutes. The summits are held in places where there have been serious marine litter problems. The 2012 summit was held in an upstream area for the first time, and how to prevent marine litter generation from drainage basins was discussed. Two declarations on the management of two rivers were presented based on the discussion.

### - **Beach currency (Beach glass)**

The Shonan area, facing the Pacific Ocean in Kanagawa Prefecture, has adopted a unique approach: using pieces of glass found on beaches as local currency. Local shops have cooperated in this scheme, and pieces of glass have different values according to their color. Rare-colored glass has a higher value than ordinary-colored glass. This approach aims to promote public awareness of marine litter. Through this approach, it is



Beach glasses found in coastline



expected that local people will feel an attachment to their local area and will positively change their attitudes towards environmental problems.

- **Marine litter art**

The aim of this activity is also to promote public awareness. By collecting materials (marine litter) to use in art works, people will understand the seriousness of the marine litter problem. The Northwest Pacific Region Environmental Cooperation Center started this marine litter art exhibition in 2007, and occasionally holds sessions for school children.



Marine litter art and works in progress in Toyama, Japan

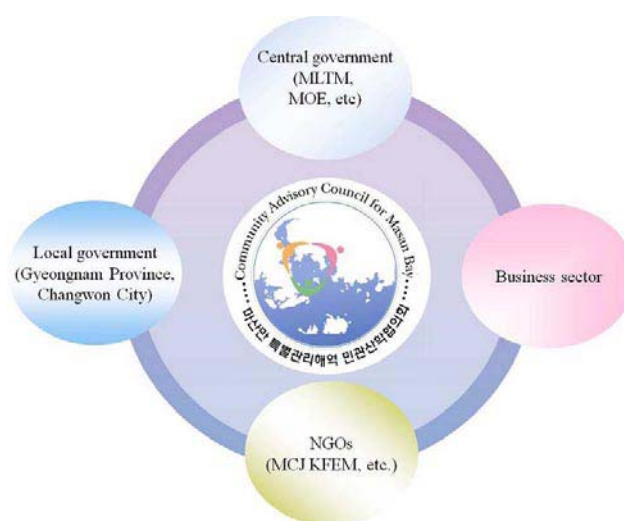
**Korea**

- **Cooperation on cleaning up Masan Bay**

Masan Bay is a semi-enclosed bay located on the south coast of Korea. Due to heavy pollution, Masan Bay was designated as a Special Management Area in 2000 by the Korean government. A Total Pollution Load Management System has been introduced in Masan Bay, the first time in Korea. The Community Advisory Council for the Masan Bay (CACMB), which includes participation by the central and local governments, businesses, universities, and NGOs, has been a key player in the management of the environment of the bay. Masan Bay is one of twenty national marine debris monitoring sites, and a local NGO,

Masan-Changwon-Jinhae Korea Federation for Environment Movement (MCJ KFEM), collects marine litter at the Bongam Tidal Flat every two months. MCJ KFEM and CACMB organize large-scale clean-up events to celebrate Ocean Day annually on May 31. About one thousand volunteers from local governments, businesses, NGOs, and local schools participate in the clean-up. Local television stations have been featuring the campaign to save Masan Bay, with financial support from a local department store. Many other activities have been organized to enhance local people’s environmental awareness, such as a student environmental picture contest and a contest soliciting user-created content.

Masan Bay is an excellent example illustrating the importance of active participation and cooperation among various local stakeholders sharing a vision of a better marine environment (Fig. 8). The case of Masan Bay has shown that the issue of marine litter can act as a catalyst to start and accelerate cooperation between diverse interest groups. Even though they differ significantly in their opinions of urban development and reclamation projects, these diverse interest groups have overcome their differences and come together to clean up marine litter.



**Figure 8.** Network of related organizations in the clean Masan Bay program

## **Russia**

### **Best practices by other entities**

#### **- Maintenance of ports and their environment**

Based on the requirements of the Compulsory Sea Port Regulations, all vessels staying within port are obliged to maintain the natural environment and prevent pollution, together with the Harbor Master. Warf managers or berth operators should clean berths as well as adjacent land and water. RosMorPort, a company with branches in Vladivostok, Vanino, Vostochny, and Sakhalin, plays an important role in this. This company carries out work on preventing and disposing of marine litter in ports using their facilities and state licenses.

- **Reconstruction of the drainage system of Vladivostok districts**

Rainwater disposal and rivers flowing into the sea are two sources of land-generated marine litter. During the spring flooding and rainy season, they have an increased impact, so local administrations (particularly the Natural Resources and Environmental Protection Department) have initiated a program called the Reconstruction of the Drainage System of Vladivostok District. Within this program, drainage systems are installed or repaired, so that litter can be caught before flowing into the sea. New waste utilization facilities have also been established in several places. Systems of waste separation have been introduced in Primorsky Krai and on Sakhalin Island. These facilities separate plastic, paper, glass, and metal from other litter (Fig. 9). Useful materials are separated and recycled by specialized waste collection companies. This recycling system, involving the private sector, contributes to the reduction of plastic waste in these areas.



Figure 9. A waste separation facility

- **Public awareness**

Some companies realize the need for ecological programs and projects. Coca-Cola, VostokStroyService, and PrimVodoKanal started a cooperative program on ecological education for preventing marine litter from land-based sources.



Cleanup event in Aniva Gulf, Sakhalin, Russia

- **“Svalkam Net!”**

Vladivostok became one of the first among eco-friendly Russian cities to implement a project to minimize environmental pollution by recycling used car tires. Within the ecology project, named “Svalkam Net!,” (“No to dumps!” in Russian), the company EcoStarTechnology, with the support of the local government of Primorsky Krai, developed a system for tire collection. This project may result in a significant decrease in the number of unorganized tire dumps in coastal areas and adjoining waters.

## **Chapter 4: Recommendations for preventing marine litter input from land-based sources in the NOWPAP region**

Central and local governments, NGOs and NPOs, and other entities in the NOWPAP member states have taken various measures for prevention of marine litter generation by land-based sources. Central governments have set up domestic laws and regulations, as well as provided financial support to study the current situation of marine litter and prevent it from being generated. Local governments and other entities collaborate and support each other to take effective, concrete measures and actions. Some of the measures and best practices contained in this report may be applied in other countries and areas with some modifications to adapt to national/local circumstances. Therefore, sharing information on such measures and best practices, for their wider application, can strengthen actions taken against marine litter in the entire region. The following elements are specifically recommended for consideration and implementation in areas where marine litter is a serious environmental concern.

### **1. Development and enhancement of cooperation among stakeholders**

Relevant government agencies and NGOs/NPOs have implemented monitoring of marine litter independently or in a cooperative manner. However, such monitoring has been insufficient to accurately understand the current situation and trends. Although limited budgets for marine litter monitoring have been a constraint in many countries, monitoring should be continued with the participation of the widest possible range of stakeholders as a necessary foundation to enable evaluation of the effects of measures implemented.

A system for information sharing and/or encouraging cooperative actions among relevant governmental agencies and other relevant entities has been established in some NOWPAP member states. This system will enable regular information sharing about comprehensive implementation of prevention measures.

China, Japan, and Korea have developed national strategies on marine litter; i.e., the 12<sup>th</sup> 5-year Plan in China, the Basic Policy for the Promotion of Marine Litter Disposal in Japan, and the Basic Plan for the Management of Marine Litter in Korea. With such national strategies, it is expected that there will be a high-level commitment to continuously implement the planned actions with sustainable financial support.

On the other hand, in Russia, the Ministry of Natural Resources and Environment takes sole responsibility for dealing with marine litter and there is no framework of cooperation with other ministries. For multiple reasons, practical national measures have not been taken in

the Far East region. Taking into consideration these limitations, it is recommended that a regional network among the local governments and relevant regional organizations be established by the central government of Russia, and, under this network, actions may be initiated towards solving marine litter issues in the Far East region of the country.

In the case of Japan, in order to implement effective measures against marine litter, local governments have established their own plans based on the national strategy, reflecting their own circumstances. Another good example of municipal cooperation can be seen in the river basins in Korea. It is expected that a similar type of framework could be established in China and Russia. Korea has decided to clearly demarcate the costs of litter removal operations, despite being a difficult issue among the parties involved. Intervention by the central government may be one way to promote coordination.

Generation of marine litter cannot be controlled by the efforts of central and local governments alone. Active involvement of all stakeholders, including local citizens, corporations, and relevant organizations/agencies, is necessary. The Clean Masan Bay project is an innovative example of regional cooperation intent on solving marine litter problems at local level, and there is a need to establish similar types of frameworks and programs in other countries.

## **2. Promotion of effective measures for the prevention, collection, and disposal of marine litter**

In order to control marine litter generated from land-based sources, effective measures to prevent litter from entering marine areas are essential. In Korea, trash booms installed at estuaries have proved to be a cost-effective measure, meaning that this could also be a promising option to be adopted in other countries. Another issue to be considered is the proper disposal of collected litter. A well-developed mechanism to ensure sustainable funding for disposal and maintenance of facilities is necessary.

Beach owners and managers are primarily responsible for collecting marine litter on beaches in the member states; however, in most cases, collection depends on voluntary actions by NGOs/NPOs and local citizens. Thus, in order to maintain and/or enhance regular collection activities, full consideration should be given on to how to secure continuous public participation, as well as how to provide necessary equipment, dispose of collected litter properly, and provide financial support for such activities. In Japan, there are several local efforts being taken to keep beaches clean. One of them is by the Kanagawa Coastal Environmental Foundation, which has been provided with collective financial

support by neighboring municipalities. In Korea, cost-sharing agreements for waste collection and disposal in river basins were signed among local governments. In order to maintain such mechanisms for collecting marine litter, it is expected that the central government, local governments, and other entities will provide continued funding.

### **3. Promotion of effective public awareness programs**

Enhancing public awareness is crucial in addressing marine litter issues, and many NGOs/NPOs have developed strategies to do so. In Japan, “beach currency”, marine litter art, and, in Korea, photo exhibitions are used as a publicly approachable means of raising awareness. Exhibitions should not be limited to local areas. Another approach is to include similar activities at other events in which a great number of people participate, such as the Masan Bay project.

Advertising in the media and providing environmental education programs for school children can also be effective.

### **4. Strengthening international cooperation and collaboration**

NOWPAP developed the Regional Action Plan on Marine Litter in 2007, and since then it has implemented several activities for prevention, monitoring, and disposal of marine litter in cooperation with the member states. The environmental ministers of China, Japan, and Korea recognized marine litter as a threat in this region at their annual tripartite meeting.

Such programs, initiatives, and collaborative actions have been implemented for the purpose of resolving marine litter issues in this region. Among them is the marine litter workshop, held in one of the NOWPAP member states on an annual rotation basis. This workshop serves as an opportunity to share information on the latest actions being taken by stakeholders in the member states, and these workshops are expected to be continued to be held in the future. The International Coastal Cleanup is held back-to-back with the workshop, and participants learn about the current marine litter situation through participation in beach clean-up. This is an activity for local citizens to participate easily, and it, therefore, can be one of the best tools for raising public awareness.

Additionally, Korea has held the Experts Forum on Building Collaborative Network of NGOs for Addressing Marine Litter in the East Asian Region in November 2012. This forum allowed NGOs from the region to discuss collaborative efforts to tackle the problem of marine litter. The next discussion among NGOs is scheduled to take place during the 2013 NOWPAP marine litter workshop.

In the same way as with cooperation at a national level, cooperation at a local level is also important. A good example of such cooperation includes the collaborative actions of the Association of North East Asia Regional Governments (NEAR), in which 22 local governments from China, Japan, Korea, Russia, and Mongolia are participating. NEAR has been implementing marine litter monitoring since 2000. In 2011, for example, 18 local governments and 1,254 people participated in NEAR marine litter monitoring surveys in China, Japan, Korea, and Russia. Another example is found in the Japanese prefectures of Nagasaki and Tottori, where joint beach cleanups with Korean students have been found to be effective for all participants in improving their understanding and attitudes towards the situation of marine litter in both countries.

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ANNEX Overview of Regional Plans of 24 Prefectures (As of Nov. 2012)  
 \* Does not include regional Plans of 5 Prefectures (Miyagi, Fukui, Tottori, Tokushima and Kumamoto)

Prefecture	Establishment/Revision	Title	Context	Duration	Vision	Objectives	Principles of measures against marine litter	Characteristics	Source
Aichi	Aug. 2011	Regional Implementation Plan For Aichi Prefecture For Dealing With Marine Litter	Aichi Prefecture has developed a regional plan in accordance with Article 14 of the Law for Implementing Marine Litter Disposal, and conserves the beach environment (e.g. land- and sea-scapes, biological diversity, and environmental health) by implementing measures against marine litter, taking into consideration the current regional situation and other aspects.	Not specified	To protect/conserv the good condition of local beaches, such as good land- and sea-scapes, productive ecosystems and public hygiene, so as to ensure that present and future generations enjoy services provided by the beaches, recognizing that local beaches are a common asset of local citizens and that they take an important role in ensuring their healthy and cultural lives	<ul style="list-style-type: none"> <li>• Appropriate role-sharing and cooperation among various parties.</li> <li>• Implementing efficient disposal of marine litter</li> <li>• Effective prevention of marine litter</li> </ul>	<ul style="list-style-type: none"> <li>• Setting up priority areas (clarification of criteria, the volume of marine litter and the situation of coastal clean-up, geographical features of the beach/land- and sea-scapes, the ecosystem, the state of use of the area, and economic activities)</li> <li>• Setting goals/objectives and ensuring cooperation in each priority area</li> </ul>	Website of Aichi Pref.	
Akita	Mar. 2011	Regional Implementation Plan For Akita Prefecture For Dealing With Marine Litter	Akita Prefecture has developed a regional plan, in accordance with the Law for the Implementation of Marine Litter Disposal, to comprehensively and effectively implement measures against marine litter with role-sharing and cooperation among stakeholders. <ul style="list-style-type: none"> <li>• A council for making progress with measures against marine litter has been established to collect opinions from stakeholders and to develop and evaluate the regional plan</li> </ul>	2011-2015	To comprehensively and effectively implement measures against marine litter by ensuring role-sharing and cooperation and coordination among stakeholders	<ul style="list-style-type: none"> <li>• Selecting priority areas for collection and disposal and implementing measures</li> <li>• Taking measures by role-sharing and cooperation among stakeholders, including private sector ones</li> <li>• Implementing not only collection and disposal of marine litter but also prevention and public awareness of it</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly stating the situation, measures, and role-sharing of each priority area</li> </ul>	Website of Akita Pref.	
Aomori	Mar. 2011	Regional Implementation Plan For Aomori Prefecture For Dealing With Marine Litter	Aomori Prefecture has developed a regional plan to set up priority areas and issues on cooperation and role-sharing among stakeholders and to present principles for the regional measures against marine litter, in accordance with the national basic policies stated in Article 14 of the Law for the Implementation of Marine Litter Disposal and with the Principles for Comprehensively and Effectively Taking Measures Against Marine Litter. By implementing the regional plan, Aomori Prefecture comprehensively protects/conserves the beach environment (e.g. good land- and sea-scapes, biologically diverse ecosystem, improvement of the environmental health and conservation of fishery resources).	Not specified	To set up priority areas and issues on cooperation and role-sharing among stakeholders and to present principles on ocean by keeping the regional measures against marine litter	<ul style="list-style-type: none"> <li>• Efficient disposal of marine litter</li> <li>• Effective prevention of marine litter</li> <li>• Providing environmental education and raising public awareness</li> <li>• Ensuring appropriate role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>• Estimating the volume of marine litter on the coast of Aomori Pref.</li> <li>• Considering cooperative approaches, with the local community such as providing questionnaires</li> </ul>	Website of Aomori Pref.	
Chiba	Feb. 2011	Regional Implementation Plan For Chiba Prefecture For Dealing With Marine Litter	<ul style="list-style-type: none"> <li>• Chiba Prefecture has developed a regional plan to comprehensively and effectively implement measures against marine litter, in accordance with the Law for the Implementation of Marine Litter Disposal and with the Principles for Comprehensively and Effectively Taking Measures Against Marine Litter, in order to protect/conserv the beach environment (e.g. good land- and sea-scapes, biologically diverse ecosystem, improvement of environmental health, and conservation of fishery resources).</li> <li>• The regional plan is in line with the provisions stated in Article 14 of the Law for the Implementation of Marine Litter Disposal.</li> </ul>	Not specified	<ul style="list-style-type: none"> <li>• To share roles appropriately and to ensure cooperation and coordination among various parties</li> <li>• To effectively dispose of marine litter</li> <li>• To prevent generation of marine litter</li> </ul>	<ul style="list-style-type: none"> <li>• Efficient disposal of marine litter</li> <li>• Effective prevention of marine litter</li> <li>• Appropriate role-sharing and cooperation among various parties</li> <li>• Other measures against marine litter (e.g. Providing environmental education and raising public awareness, developing necessary techniques, utilizing and disseminating research results)</li> </ul>	<ul style="list-style-type: none"> <li>• Setting up clearer selection criteria of priority areas than in other regions</li> </ul>	Website of Chiba Pref.	
Ehime	Jan. 2012	Regional Implementation Plan For Ehime Prefecture For Dealing With Marine Litter	Not specified	Protecting/conserving the beautiful beaches in Ehime with the help of local citizens, providing people with peace of mind	To provide basic policies on regional measures against marine litter and to clarify the details of each actions by setting up priority areas, and through role-sharing and cooperation among stakeholders	<ul style="list-style-type: none"> <li>• Clarifying responsibilities of managers, as well as creating a system of cooperation and disposal methods for efficient collection and disposal of marine litter</li> <li>• Understanding the situation and causes of marine litter, raising public awareness of it, and preventing it from being dumped and drifting, with the aim of effective prevention of marine litter generation</li> <li>• Clarifying role-sharing and cooperation among stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Preparing a flow chart for marine litter disposal</li> <li>• Selecting up priority areas</li> <li>• Using the "Ai" ("love") beach supporter program</li> </ul>	Website of Ehime Pref.	

Prefecture	Establishment/ Revision	Title	Context	Duration	Vision	Objectives	Principles of measures against marine litter	Characteristics	Source
Fukuoka	Mar. 2012	Regional Implementation Plan For Fukuoka Prefecture For Dealing With Marine Litter	Fukuoka Prefecture has developed a regional plan in accordance with Article 14 of the Law for Implementing Marine Litter Proposals.	Not specified	To comprehensively protect/conservate the beach environment (e.g. ensuring good land- and sea-scapes and biological diversity, and a good living environment for people)	Comprehensively protecting/conserving and restoring the beach environment (e.g. good land- and sea-scapes, productive ecosystem, and public hygiene) for the present and current generations so that they can have the benefits provided by the beaches.			Website of Fukuoka Pref.
Hokkaido	Feb. 2011	Regional Implementation Plan For Hokkaido Prefecture For Dealing With Marine Litter	<ul style="list-style-type: none"> <li>The national law on marine litter (the Law for the Implementation of Marine Litter Disposal) was passed in 2009.</li> <li>There has been a concern over the negative effects of marine litter on land- and sea-scapes, as well as over use of coastal land and fisheries at some beaches in Hokkaido.</li> <li>Considering these problems, Hokkaido has developed a regional plan to comprehensively and effectively implement measures against marine litter.</li> </ul>	2010-2011	<ul style="list-style-type: none"> <li>The regional plan provides guidance on how to address marine litter on beaches in Hokkaido, including selection of priority areas, and principles and orientations of measures in the chosen areas.</li> <li>The regional plan helps in understanding the current situation and challenges in affected areas. <ul style="list-style-type: none"> <li>This plan is being implemented in cooperation and coordination with national laws (the Coast Act and Waste Disposal and Public Cleansing Act) as well as relevant regulations of local governments (e.g. regulations on preventing empty garbage bottles and cans)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Policies on efficient disposal of marine litter</li> <li>Policies on effective prevention of marine litter</li> <li>Appropriate role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>Conducting an interview survey</li> <li>Considering recycling of drift wood as a way of marine litter disposal</li> </ul>	Website of Hokkaido Pref.	
Hyogo	Mar. 2011	Regional Implementation Plan For Dealing With Marine Litter at local beaches in Hyogo Prefecture	<ul style="list-style-type: none"> <li>Hyogo Prefecture has developed a regional plan in accordance with Article 14 of the Law for the Implementation of Marine Litter Disposal and is taking measures against marine litter by setting up area-based measures for collection, disposal and prevention of marine litter and role-sharing of stakeholders.</li> <li>Hyogo Prefecture protects/conserves good land- and sea-scapes and the environment of beaches by taking measures for efficient disposal and prevention of marine litter.</li> </ul>	Not specified	To set up priority areas and measures, role-sharing and cooperation among stakeholders and to set principles of regional measures against marine litter	<ul style="list-style-type: none"> <li>Efficient disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Appropriate role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>Considering practical on-site measures such as removal of marine litter</li> </ul>	Website of Hyogo Pref.	
Ibaraki	Mar. 2011	Regional Implementation Plan For Ibaraki Prefecture For Dealing With Marine Litter	Ibaraki Prefecture has developed a regional plan to set up priority areas and measures, role-sharing and cooperation among stakeholders and to set principles of the regional measures against marine litter, in accordance with the national basic policies stated in Paragraph 1, Article 14 of the Law for the Implementation of Marine Litter Disposal. Ibaraki Prefecture protects/conserves good land- and sea-scapes and the environment of the beaches by implementing measures against marine litter.	Not specified	To protect/conservate good land- and sea-scapes and the environment at beaches by taking measures on efficient disposal and prevention of marine litter	<ul style="list-style-type: none"> <li>Implementing efficient collection and disposal of marine litter</li> <li>Implementing effective prevention of marine litter</li> <li>Providing environmental education and raising public awareness</li> <li>Ensuring appropriate role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>Estimating the volume of marine litter on the coast of Ibaraki Pref.</li> <li>Discussing measures against artificial litter generated domestically, e.g. inputs from A-class rivers, and waste at fishing ports and recreation areas.</li> <li>Considering prevention measures at each source</li> </ul>	Website of Ibaraki Pref.	
Ishikawa	Mar. 2011	Regional Implementation Plan For Ishikawa Prefecture For Dealing With Marine Litter	Ishikawa Prefecture has developed a regional plan to comprehensively and effectively implement measures against marine litter, in accordance with the basic policies stated in the Law for the Implementation of Marine Litter Disposal, and specifies: <ul style="list-style-type: none"> <li>priority areas and measures in given areas,</li> <li>issues in role-sharing and cooperation among stakeholders,</li> <li>and other issues which need to be considered to implement/ make progress with the measures</li> </ul>	Not specified	To protect/conservate good land- and sea-scapes and the environment at beaches by taking measures on efficient disposal and prevention of marine litter	<ul style="list-style-type: none"> <li>Efficient disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Ensuring appropriate role-sharing and cooperation among various parties</li> <li>Implementing international cooperation and coordination</li> <li>Other necessary measures against marine litter</li> </ul>	<ul style="list-style-type: none"> <li>Selecting priority areas through a scoring system</li> <li>Volume of marine litter, conservation of the environment, economic activities, the state of use of areas, and conservation of land-/sea-scapes)</li> </ul>	Website of Ishikawa Pref.	
Kagawa	2010	Regional Implementation Plan For Kagawa Prefecture For Dealing With Marine Litter (draft)	Kagawa Prefecture has developed a regional plan in accordance with Paragraph 1, Article 17 of the Law for the Implementation of Marine Litter Disposal (July 2009), to comprehensively and effectively implement measures against marine litter.	2011-2015	To protect/conservate good land- and sea-scapes and the environment at beaches by taking measures on efficient disposal and prevention of marine litter	<ul style="list-style-type: none"> <li>The regional plan systematically presents policies and measures to deal with marine litter at local beaches and sea areas, including priority areas in Kagawa Pref.</li> <li>The regional plan aims to understand the current situation and challenges on marine litter in Kagawa Pref.</li> <li>The regional plan presents shared roles among stakeholders on marine litter.</li> <li>The regional plan provides guidelines on the selection of priority areas and measures applied in the selected areas.</li> </ul>	<ul style="list-style-type: none"> <li>Paying attention to sea-floor marine litter in the Seto Inland Sea, and setting up measures against it</li> </ul>	Website of Kagawa Pref.	

Prefecture	Establishment/ Revision	Title	Context	Duration	Vision	Objectives	Principles of measures against marine litter	Characteristics	Source
Kagoshima	Mar. 2012	Regional Implementation Plan For Kagoshima Prefecture For Dealing With Marine Litter	Kagoshima Prefecture has developed a regional plan in accordance with Article 14 of the Law for Implementing Marine Litter Proposals.	2012-2021		To comprehensively protect/conservse the beach environment (e.g. good land- and sea-scapes, biological diversity improved public hygiene and conservation of marine resources) by taking comprehensive and effective measures against marine litter (e.g. setting up priority areas, collection and/or disposal methods based on regional features, prevention measures, and roles among stakeholders)	<ul style="list-style-type: none"> <li>Understanding the current situation of and challenges with marine litter</li> <li>Implementing disposal and prevention of marine litter, raising public awareness and providing environmental education</li> <li>Establishing role-sharing and cooperative system(s) among stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Selecting priority areas</li> <li>Addressing marine litter on remote islands</li> </ul>	Website of Kagoshima Pref.
Kanagawa	Mar. 2011	Regional Implementation Plan For Kanagawa Prefecture For Dealing With Marine Litter	<ul style="list-style-type: none"> <li>The Law for the Implementation of Marine Litter Disposal was passed in July 2009.</li> <li>The Law clarifies the principles and responsibilities of relevant parties for efficient disposal and prevention of marine litter, and encourages comprehensive and effective implementation of measures by developing a regional plan for each prefecture.</li> <li>If a prefecture deems it necessary to establish a regional plan, it is to be developed in accordance with the basic policies stated in Paragraph 1, Article 14 of the Law for the Implementation of Marine Litter Disposal.</li> <li>Following the past and current efforts, Kanagawa Prefecture has developed a regional plan to implement measures which strengthen cooperation among the state, municipalities and relevant groups.</li> </ul>	Not specified			<ul style="list-style-type: none"> <li>Selecting priority areas</li> <li>Issues with disposal of marine litter</li> <li>Issues with prevention of marine litter</li> <li>Measures to raise public awareness and provide environmental education</li> </ul>	<ul style="list-style-type: none"> <li>Emphasizing the selection of priority areas</li> <li>Stating each issue in detail in the regional plan</li> </ul>	Website of Kanagawa Pref.
Kochi	Feb. 2011	Regional Implementation Plan For Kochi Prefecture For Dealing With Marine Litter	Kochi Prefecture has developed a regional plan in accordance with the basic policies stated in the Law for the Implementation of Marine Litter Disposal. Measures on prevention, collection and disposal of marine litter are important; however, the current efforts by beach managers are not sufficient. There is also a concern over funding. Therefore, the regional plan needs to be developed in a way so that measures against marine litter are implemented systematically.	Not specified		To protect/conservse good land- and sea-scapes and the environment at local beaches by taking measures on efficient disposal and prevention of marine litter	<ul style="list-style-type: none"> <li>Efficient disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Appropriate role-sharing and cooperation among various parties</li> <li>Other issues to implement measures against marine litter</li> <li>Measures for disposal and prevention of marine litter should be taken with other parties</li> <li>Appropriate role-sharing and cooperation among various parties should be ensured by developing a cooperative system with actual cooperation, collaboration and support from the private sector.</li> <li>Cooperation and coordination with neighboring prefectures should be encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>Priority areas are classified into different types based on their status, and different measures are considered in each area.</li> </ul>	Website of Kochi Pref.

Prefecture	Establishment/Revision	Title	Context	Duration	Vision	Objectives	Principles of measures against marine litter	Characteristics	Source
Kyoto	Dec. 2011	Regional Implementation Plan For Kyoto Prefecture For Dealing With Marine Litter	Kyoto Prefecture has developed a regional plan to comprehensively and effectively implement measures against marine litter, in accordance with the Law for the Implementation of Marine Litter Disposal. Various Kyoto citizens, including beach managers, the Kyoto Prefectural government, municipalities, and local groups cooperate with each other and in implementing the measures, and protect/ conserve the rich and productive sea for the next generation.	Not specified	<ul style="list-style-type: none"> <li>Protecting/conserving and restoring the beach environment comprehensively</li> <li>Clarifying responsibilities and implementing efficient disposal</li> <li>Effectively preventing marine litter</li> </ul> <ul style="list-style-type: none"> <li>Protecting/conserving the beach environment</li> <li>Ensuring appropriate role-sharing and cooperation and coordination among various parties</li> <li>Implementing international cooperation</li> </ul>	<ul style="list-style-type: none"> <li>Beach managers are responsible for taking necessary measures related to the disposal of marine litter, to maintain the clean environment of beaches, taking into consideration the circumstances of the area. A structure should be developed to collect and dispose of marine litter with cooperation among beach managers, Kyoto prefectural government, municipalities, river basin groups and people living near the beaches.</li> <li>Kyoto Prefectural government, municipalities and local groups share roles and make efforts to prevent generation and illegal dumping of litter in inland areas as well as coastal areas to prevent marine litter generation.</li> <li>Taking measures to disseminate information and raise public awareness on the importance of beach conservation and the necessity of measures against marine litter, aiming to involve local citizens</li> <li>Strengthening cooperation with neighboring prefectures and calling for international actions by the central government to prevent foreign and other non-Kyoto waste.</li> </ul>	Selecting priority areas	Website of Kyoto Pref.	
Mie	Mar. 2012	Regional Implementation Plan For Mie Prefecture For Dealing With Marine Litter	Mie Prefecture addresses the issues of marine litter by protecting/conserving the beautiful beaches in the Prefecture, focusing on the linkages between forests, rivers and the sea, in cooperation with various parties.	Not specified	<ul style="list-style-type: none"> <li>To take measures against marine litter in cooperation with various parties to protect/conservise beautiful local beaches by focusing on the linkages among forests, rivers and the sea</li> </ul>	<ul style="list-style-type: none"> <li>Implementing effective measures by setting up priority areas for collection and disposal, based on the results of surveys of the current situation</li> <li>Implementing preventive measures against dumping municipal and industrial waste in the river basin areas by raising public awareness and providing environmental education as well as by disseminating information on the situation of marine litter in Mie Pref.</li> <li>Taking Measures against marine litter by appropriate role-sharing and cooperation among parties, based on the opinions from beach managers, municipalities and companies.</li> </ul>	<ul style="list-style-type: none"> <li>Investigating marine litter transportation routes</li> <li>Selecting priority areas for collection, disposal and prevention</li> <li>Designating heavily-polluted areas as first-priority areas</li> <li>Providing environmental education through eco-tours in first-priority areas</li> <li>Establishing cooperation frameworks among the 3 prefectures and 1 city in the Ise Bay Basin Zone</li> </ul>	Website of Mie Pref.	
Miyazaki	Mar. 2011	Regional Implementation Plan For Miyazaki Prefecture For Dealing With Marine Litter	Miyazaki Prefecture has developed a regional plan to implement measures against marine litter, in accordance with Article 14 Paragraph 1 of the Law for the Implementation of Marine Litter Disposal.	Not specified	<ul style="list-style-type: none"> <li>To implement comprehensive and effective measures against marine litter, taking into consideration of the characteristics of Miyazaki Pref.</li> </ul>	<ul style="list-style-type: none"> <li>Implementing efficient disposal of marine litter</li> <li>Implementing effective prevention of marine litter generation</li> </ul>	<ul style="list-style-type: none"> <li>Considering cooperative approaches with the local community, such as carrying out questionnaires</li> <li>Stating issues in detail e.g. by officials in charge in the regional plan</li> </ul>	Website of Miyazaki Pref.	
Nagasaki	Oct.2010	Regional Implementation Plan For Nagasaki Prefecture For Dealing With beautiful beaches with no litter	Nagasaki Prefecture has developed a regional plan to set up area-based measures for collection, disposal and prevention of marine litter and for role-sharing of and cooperation between stakeholders, in accordance with Article 14 of the Law for the Implementation of Marine Litter Disposal. By implementing the regional plan, Nagasaki Prefecture comprehensively protects/conserves the beach environment (e.g. good land- and sea-scapes, biologically diverse ecosystem, improvement of the environmental health and conservation of fishery resources).	Not specified	<ul style="list-style-type: none"> <li>Achieving beautiful and productive natural beaches with no litter</li> </ul>	<ul style="list-style-type: none"> <li>Implementing efficient disposal of marine litter</li> <li>Implementing effective prevention of marine litter</li> <li>Ensuring appropriate role-sharing and cooperation among various parties</li> <li>Implementing international cooperation and coordination</li> <li>Other measures against marine litter (e.g. providing environmental education and raising public awareness, developing necessary techniques, and utilizing and disseminating research results)</li> </ul>	<ul style="list-style-type: none"> <li>Selecting priority areas separately between in the mainland and in the islands due to a large number of remote islands</li> <li>Designating the entire region to be a priority area due to its large number of estuaries and capes, and the long and indented coastline</li> </ul>	Website of Nagasaki Pref.	
Oita	Dec. 2011	Regional Implementation Plan For Oita Prefecture For Dealing With Marine Litter	Oita Prefecture has developed a regional plan in accordance with Article 14 of the Law for Implementing Marine Litter Proposals. The regional plan is one of the individual plans in the Third Plan of Waste Disposal in Oita Prefecture, and it specifies policies and measures on marine litter to contribute to the reduction and appropriate disposal of waste.	2011-2015	<ul style="list-style-type: none"> <li>Aiming for a beautiful Oita Prefecture, where local communities can coexist with the environment, by achieving beautiful beaches with no litter</li> </ul>	<ul style="list-style-type: none"> <li>To provide basic policies and practical measures against marine litter</li> </ul>	<ul style="list-style-type: none"> <li>Implementing efficient disposal of marine litter</li> <li>Implementing effective prevention of marine litter</li> <li>Creating beautiful beaches together with local citizens</li> <li>Implementing regional cooperation and collaboration</li> </ul>	<ul style="list-style-type: none"> <li>Establishing priority areas</li> <li>Implementing a survey on marine litter sources</li> <li>Collecting marine litter using a cleaning boats</li> </ul>	Website of Oita Pref.

Prefecture	Establishment/ Revision	Title	Context	Duration	Vision	Objectives	Principles of measures against marine litter	Characteristics	Source
Okinawa	Mar. 2012	Regional Implementation Plan For Okinawa Prefecture For Dealing With Marine Litter	Okinawa Prefecture has developed a regional plan, in accordance with the basic policies stated in the Law for the Implementation of Marine Litter Disposal. The principles of the measures on marine litter in Okinawa Prefecture are flexible as to the outcomes of the current efforts and emerging issues, taking into consideration results of consultations with the Council for the Implementation of Marine Litter Disposal and the results of measures taken. Okinawa Prefecture has developed a regional plan in accordance with the provisions in Article 14 of the Law for the Implementation of Marine Litter Disposal, and the principles in the Basic Plan on the Beach Conservation in the Ryukyu Islands (April 2003, Okinawa Pref.), the Basic Plan on the Environment in Okinawa Prefecture (April 2003), and the Basic Plan on Tourism Promotion in Okinawa Prefecture (May, 2002).	Not specified	To protect/conservse good land- and sea-scapes and the environment at local beaches by taking measures on efficient disposal and prevention of marine litter	<ul style="list-style-type: none"> <li>Efficient disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Ensuring appropriate role-sharing and cooperation among various parties</li> <li>Implementing international cooperation and coordination</li> <li>Other necessary issues to implement measures against marine litter</li> </ul>	<ul style="list-style-type: none"> <li>Different evaluation and measures are necessary in the mainland and remote islands</li> <li>Setting clear guidelines on the selection of priority areas (e.g. evaluation and reasons for selection)</li> <li>Preparing manuals in addition to the regional plan</li> </ul>	Website of Okinawa Pref.	
Saga	May, 2012	Regional Implementation Plan For Saga Prefecture For Dealing With Marine Litter	Saga Prefecture has developed a regional plan in accordance with Article 14 of the Law for Implementing Marine Litter Proposals.	Not specified	Local governments shall take measures with experienced volunteer groups and local citizens after clarifying roles of each party	<ul style="list-style-type: none"> <li>Efficient disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>Selecting priority areas</li> <li>Introducing best practices on prevention as well as reducing ineffective practices</li> <li>Integrated basin management for restoration of the Ariake Sea, based on the regional plan</li> </ul>	Website of Saga Pref.	
Toyama	Mar. 2011	Regional Implementation Plan For Toyama Prefecture For Dealing With Marine Litter	<ul style="list-style-type: none"> <li>This is a regional plan for comprehensively and effectively implementing measures against marine litter.</li> <li>The regional plan is in accordance with Paragraph 1, Article 14 of the Law for the Implementation of Marine Litter Disposal.</li> <li>The regional plan is in line with the National Principles for Comprehensively and Effectively Taking Measures Against Marine Litter.</li> <li>The regional plan is harmonized with other relevant regional plans, including the Plan on Waste Disposal in Toyama Prefecture and the Basic Plan on Beach Conservation in Toyama Prefecture.</li> <li>The regional plan has been set up for the prefectural government, beach managers, municipalities, private sector, inland-area communities and local citizens to come together and tackle the problem(s)</li> </ul>	2011-2015	Protecting and nurturing local beautiful and productive beaches so they can be safely and comfortably used. This is to be achieved by all local residents working together.	<ul style="list-style-type: none"> <li>To clarify roles for collecting and disposing of marine litter and to ensure the implementation of the role-sharing system</li> <li>To prevent litter through a unified effort by citizens</li> <li>To implement measures against marine litter in cooperation with the municipalities in the northwest Pacific region</li> </ul>	<ul style="list-style-type: none"> <li>Implementing efficient disposal</li> <li>Implementing effective prevention</li> <li>Providing environmental education and raising public awareness</li> <li>Implementing international cooperation</li> <li>Ensuring role-sharing and cooperation among various parties</li> </ul>	Website of Toyama Pref.	
Yamagata	Mar. 2011	Regional Implementation Plan For Yamagata Prefecture For Dealing With Marine Litter - the Plan for a Beautiful Sea in Yamagata	Considering the volume of marine litter and the natural characteristics and the use of the beaches, Yamagata Prefecture has developed a regional plan in accordance with the Law for the Implementation of Marine Litter Disposal. <ul style="list-style-type: none"> <li>This regional plan (sectoral plan for measures against marine litter) has been set up as part of the Third General Development Plan of Yamagata Prefecture and the Third Environmental Plan of Yamagata Prefecture (tentative).</li> </ul>	2011-2020	Making Shonai Beach litter-free, so that people can walk there barefoot	<ul style="list-style-type: none"> <li>Mid-term Objective: To have local beaches achieve an upper rank (at least one rank above that now) in the Beach Cleanliness Index in spring in 10 years' time</li> <li>Short-term Objective: To have local beaches achieve a Rank 3 or above in the Beach Cleanliness Index in autumn. In heavily-affected areas, the objective is for local beaches to achieve an upper rank (more than 2 ranks above the spring results).</li> </ul>	<ul style="list-style-type: none"> <li>Implementing efficient collection and disposal measures</li> <li>Implementing effective prevention measures, raising public awareness and providing environmental education</li> <li>Ensuring role-sharing and cooperation among stakeholders</li> <li>Managing progress through monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Applying a detailed ranking system because the volume of marine litter is not constant throughout the year</li> <li>Considering the influence of dams</li> <li>Creating a diagram of the plan</li> </ul>	Website of Yamagata Pref.
Yamaguchi	Sep. 2011	Regional Implementation Plan For Yamaguchi Prefecture For Dealing With Marine Litter	Yamaguchi Prefecture has developed a regional plan in accordance with the national policies, taking into consideration serious effects of marine litter on the environment.		Aiming for a healthy and productive Yamaguchi Prefecture through measures against marine litter by involving all local citizens, based on community regulations for creating beautiful Satoyama and a beautiful sea in Yamaguchi.	<ul style="list-style-type: none"> <li>To comprehensively protect/conservse the good condition of local beaches (e.g. good land- and sea-scapes, biological diversity and public hygiene) and to restore the environment polluted by marine litter</li> </ul>	<ul style="list-style-type: none"> <li>Responsibilities of stakeholders (e.g. beach managers) for disposal</li> <li>The necessity of cooperation among municipalities</li> <li>Appropriate disposal of marine litter</li> <li>Effective prevention of marine litter</li> <li>Implementing public awareness and environmental education</li> <li>Appropriate role-sharing and cooperation among various parties</li> </ul>	<ul style="list-style-type: none"> <li>Preparing a manual for marine litter disposal</li> <li>Selecting priority areas</li> <li>Implementing beach cleanup in Japan and Korea Channel</li> <li>Clarifying role-sharing and cooperation among stakeholders</li> </ul>	Website of Yamaguchi Pref.



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Northwest Pacific Action Plan,  
Special Monitoring and Coastal Environmental Assessment Regional Activity  
Centre (NOWPAP CEARAC),

5-5 Ushijimashin-machi, Toyama City, Toyama, 930-0856, Japan

Tel: +81-76-445-1571, Fax: +81-76-445-1581

Email: [webmaster@cearac.nowpap.org](mailto:webmaster@cearac.nowpap.org)

Website: <http://cearac.nowpap.org/>