



Addressing Marine Litter in the Northwest Pacific Region

Liu Ning, Programme Officer
United Nations Environment Programme (UNEP)
Northwest Pacific Action Plan (NOWPAP)

Ning.liu@un.org

www.unenvironment.org/nowpap

25 August 2021



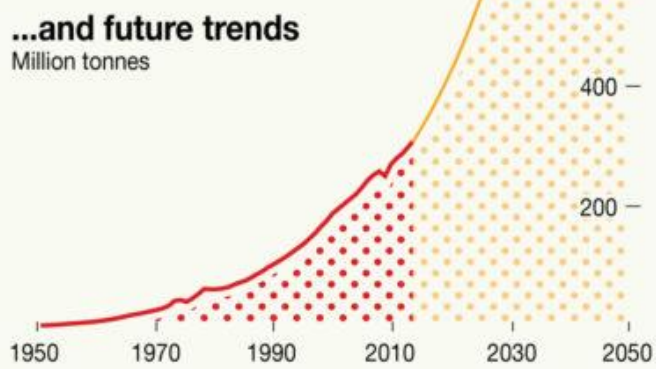
Global plastic production...

Million tonnes, 2013



...and future trends

Million tonnes



Source: Ryan, A Brief History of Marine Litter Research, in M. Bergmann, L. Gutow, M. Klages (Eds.), Marine Anthropogenic Litter, Berlin Springer, 2015; Plastics Europe



Plastics waste

- 9200 million tonnes of plastics produced since 1950
- 7000 million metric tonnes of plastic waste generated
- 5300 million metric tonnes discarded (Geyer 2020)
- 60 and 99 million tonnes of mismanaged plastic waste produced globally in 2015, and that this amount could triple by 2060 (Lebreton and Andrady, 2019)



River inputs & Plastics in Oceans

- The weight of plastic fragments and annual riverine inputs of plastics, ranging from 1.15 up to 12.7 million metric tonnes (Eriksen et al.)
- Potential standing stock of plastics in the oceans estimated at between 75 and 150 million tonnes (Jang et al. 2015).



Impacts

- Wildlife Entanglement
- Ingestion
- Vessel Damage and navigational hazard
- Invasive species
- Economic loss:
 - Tourism
 - Recreation
 - Fisheries
 - Vessel Damage
- Ghost fishing
- Habitat destruction
- Human Health and Sanitation





Impacts (cont.)

- Cumulative hazards and direct impacts contribute to estimated loss of USD 500 to 2500 billion from marine ecosystem services, including climate control and provision of food (Beaumont et al. 2019).
- The fishing sector in the Mediterranean loses close to USD 138 million per year (Kaza et al. 2018).
- In the APEC region, estimated the annual costs at USD 10.8 billion in 2015, a nearly ten-fold increase compared to a 2009 estimate (McIlgorm et al. 2020).



International Efforts

- International Convention for the Prevention of Pollution from Ships (MARPOL) adopted in 1973 and revised in 2012
- Global Partnership on Marine Litter was launched at Rio+20 in June 2012
- Honolulu Strategy – a global framework for prevention and management of marine debris adopted in 2011.



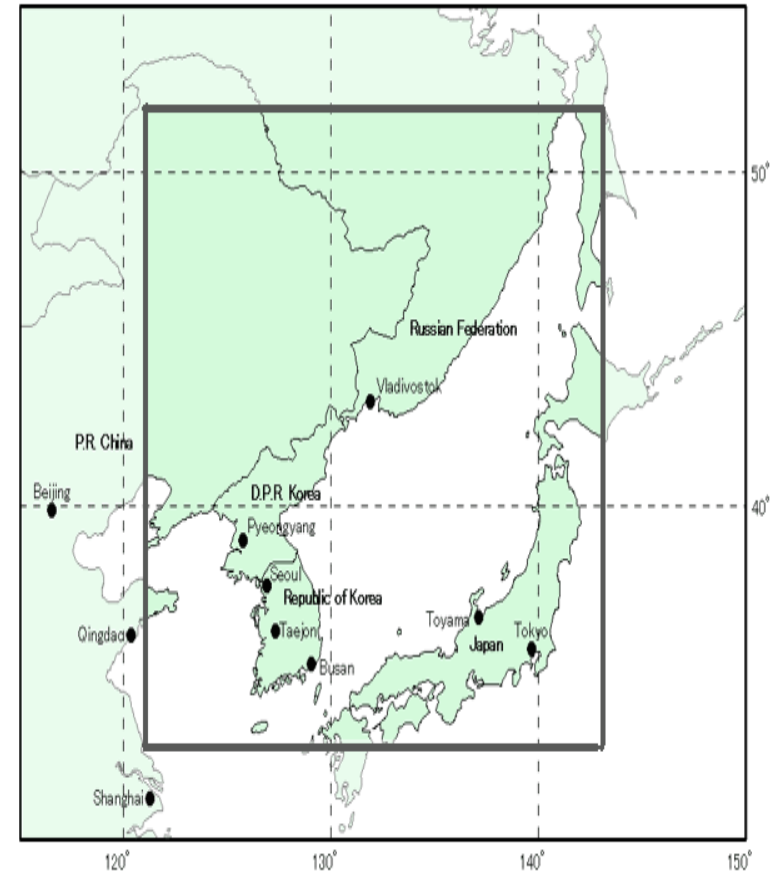
International Efforts (cont.)

- 2030 Agenda on Sustainable Development Goal 14
- United Nations Environment Assembly (UNEA) resolutions on marine litter and microplastics
- Convention on Biological Diversity decision
- FAO Code of Conduct for Responsible Fisheries
- G20 Marine Litter Action Plan



UNEP Northwest Pacific Action Plan (NOWPAP)

- Established in 1994
- Part of UN Environment Programme Regional Seas Programme
- Member states: China, Japan, Korea, Russia
- Overall goal: Protection of the marine and coastal environment in the region



NOWPAP geographic coverage



NOWPAP Mechanism



**Marine Litter
National Focal
Points**

NGOs

**Regional
Activity Center**

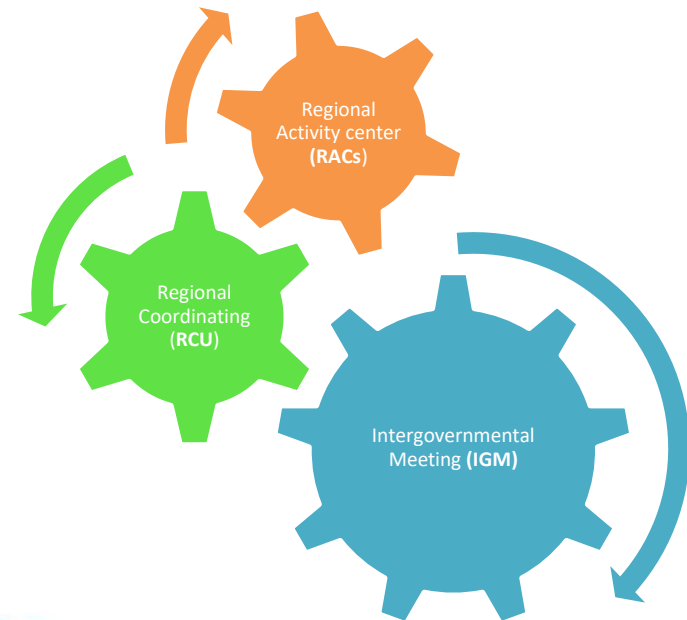
CEARAC

DINRAC

MERRAC

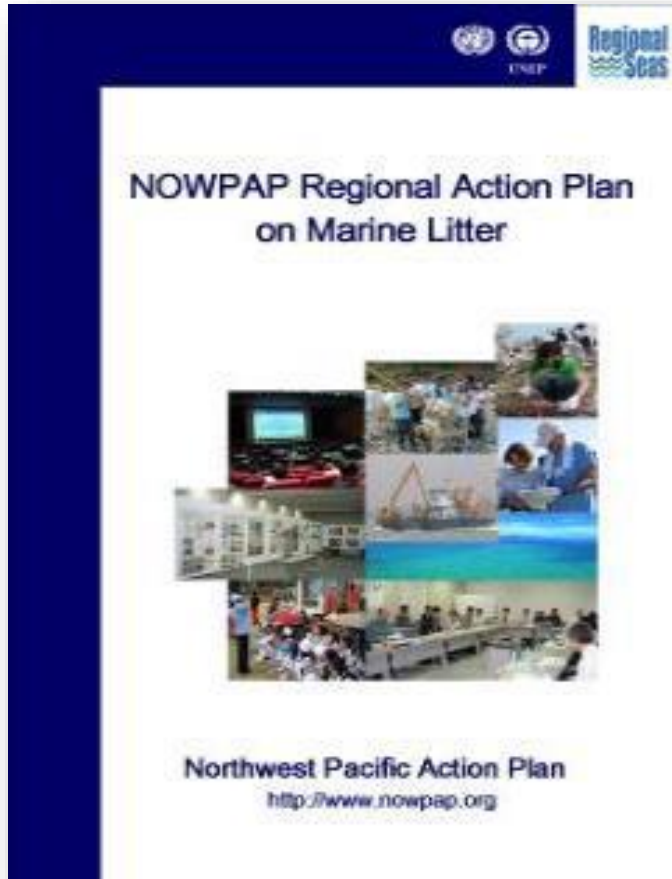
POMRAC

- Special Monitoring and Coastal Assessment
- Data and Information
- Marine Environment Emergency Preparedness and Response
- Pollution Monitoring





NOWPAP Regional Action Plan on Marine Litter (RAP MALI)



Approved in March 2008

3 key elements

**Prevent
Marine Litter
input**

**Monitor
quantities &
distribution
of Marine
Litter**

**Remove
existing
Marine Litter**



Main issues of Marine Litter

- Sustainable production and consumption
- Wise management of solid waste on land and at sea through adequate legal, administrative and financial mechanisms
- Change in the attitude and behaviour of people and corporate



Implementation of NOWPAP RAP MALI

- Marine Litter Management Workshop
 - Update progress in policy development, investment and action
 - Share best practices
 - Promote cooperation
- Enhance research by Regional Activity Centers through biennial work plans
- Cooperate with NGOs
- Raise awareness





NOWPAP Marine Litter Management Workshops



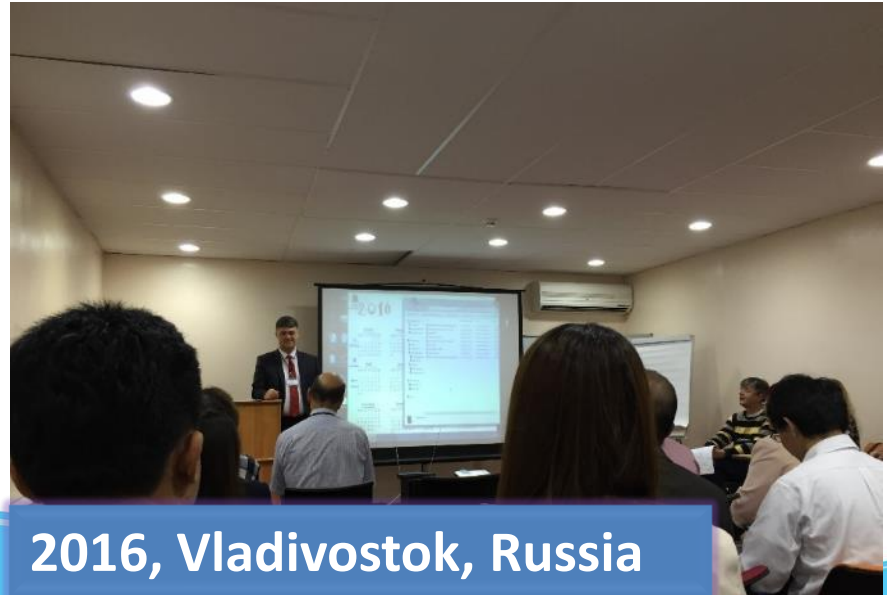
2019, Dalian, China



2018, Busan, Korea



2017, Toyama, Japan



2016, Vladivostok, Russia



1. Prevention of Marine Litter Inputs

National efforts:

- **China** launched the Zero-Waste City initiative in 2019;
- “National Ecological Civilization Pilot Zone (Hainan) Implementation Plan” issued on 12 May 2019
- Restrictions to the free use of plastic bags in markets (from June 2008). It is estimated that 40 billion plastic bags are reduced per year
- China ban or restrict production, sales and use of disposable plastic products via three stages in the next five years--prohibits the production and sale of products including ultra-thin plastic bags with a thickness of less than 0.025 mm and polyethylene agricultural mulch with a thickness of less than 0.01 mm.





1. Prevention of Mare Litter Inputs (cont.)

National efforts:

- **Japan:** Fee-incurring Plastic Checkout Bags Started in July 2020 in all stores across Japan
- Local governments took actions to achieve Osaka Blue Ocean Vision.

● Toyama City Installation of netting



● Wakayama Pref. Installation and operation of surveillance cameras



● Yokkaichi City

- Garbage station management
- Littering prevention measures
- 2R initiatives in collaboration with local communities





1. Prevention of Marine Litter Inputs (cont.)

National efforts:

- **Japan:**

- **Kumamoto Pref.**

Strengthening efforts in collaboration with related organizations such as agriculture and fisheries



- **Tsuyama City**

- Littering prevention measures
- Public awareness by on-site lectures



- **Hakodate City**

Public awareness by posting advertisements on trains and buses





1. Prevention of Marine Litter Input (cont.)

- **Korea:** The 3rd National Marine Debris Management Plan (2019-2023)
- Marine Waste Management Act took effect on 4th of December 2020
- **Russia:** The waste management system in the Russian Far East had been improved drastically. 13 illegal dumps were closed in 2020.





1. Prevention of Marine Litter Input(cont.)

CEARAC

- Marine litter **guidelines** for tourists and tour operators in marine and coastal areas (2011)
- **Best practices** for preventing marine litter from land-based sources (2013)
- National Actions on Marine Microplastics (2020)

DINRAC

- Regional **Overview** with updated information on legal and administrative arrangements (2010)

MERRAC

- Regional **report** on negative impacts of ML (2013)
- **Best practices** of marine litter management in fisheries, aquaculture and shipping sectors (2014)





2. Monitoring of Marine Litter

National efforts

China

- In 2019, marine litter monitoring was carried out in 49 regions across the country
- Marine microplastics monitoring was carried out at 15 offshore sites in the Bohai Sea and the East China Sea



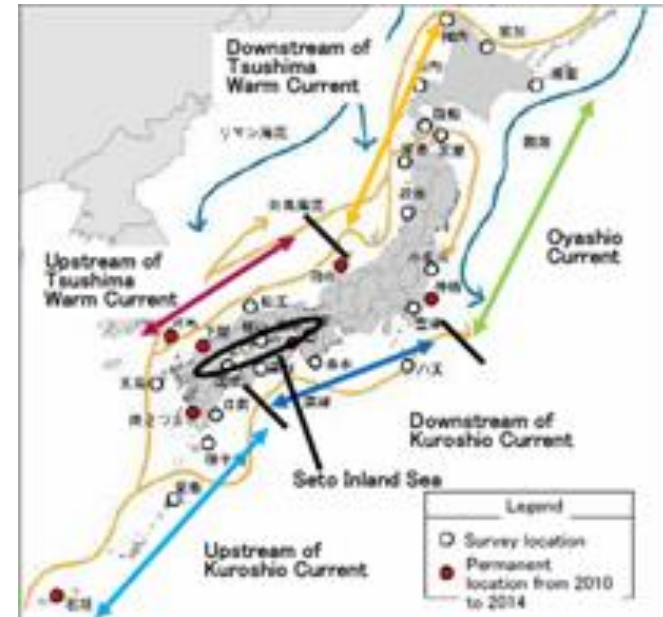
2019年监测区域海洋垃圾数量分布图



2. Monitoring of Marine Litter (cont.)

Japan

- From 2010-2014, continuous surveys were conducted at 7 locations;
- From 2015-2019, survey locations increased to 28.



Top 10 items in piece

No	Item	Ratio
1	Bottle caps, lids	17.6%
2	Plastic rope and string	16.6%
3	Wood (including logistics pallets, charcoal, etc.)	9.2%
4	PET bottles (less than 2L)	6.9%
5	Plastic fishing gear (others)	4.2%
6	Plastic food containers (cups, etc.)	4.0%
7	Plastic packing bands and vinyl tape	3.7%
8	Urethane	3.5%
9	Plastic tableware (straws, forks, spoons, muddlers, knives, etc.)	3.5%
10	Plastic buoys	3.2%

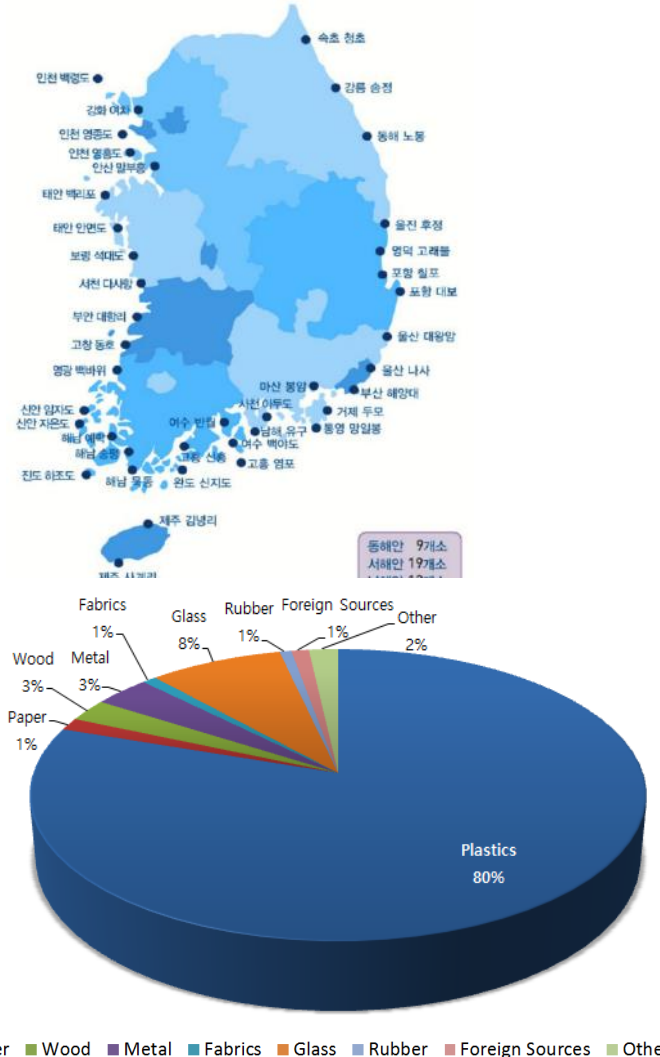
(Source: MoE Japan)



2. Monitoring of Marine Litter (cont.)

Korea

- Korea collected national-wide marine litter data from 40 different sites.
- Result (2019) shows that in term of number, plastic and styrofoam accounts for 80% of marine litter, followed by glass(8%) and metal(3%), wood(3%)

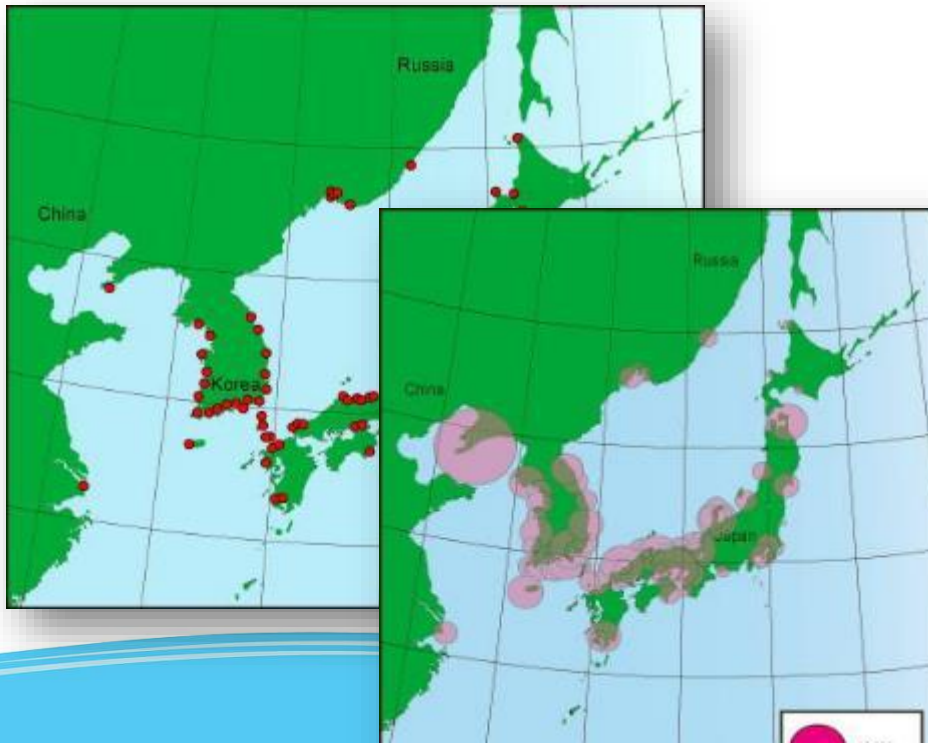


(* Data from Marine Litter Information System / www.meis.go.kr)



2. Monitoring of Marine Litter (cont.)

- Northwest Pacific Regional Node of Global Partnership on Marine Litter set up in 2015
- Monitoring data since 2003 are available online!



<http://dinrac.nowpap.org>
<http://114.251.10.253:186/>



2. Monitoring of Marine Litter (cont.)

MERRAC

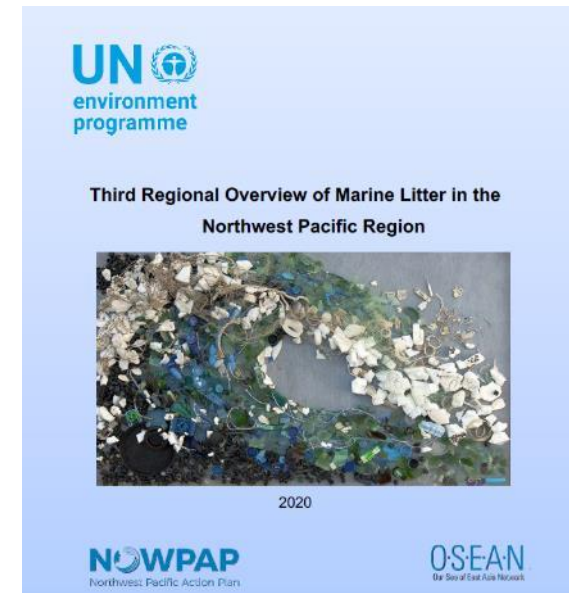
- Understanding of Floating Marine Litter Distribution and Impacts (2016)
- Review and Analysis of Existing Floating Marine Litter Prediction Models (2020)

POMRAC

- Micro-plastics content and migration in the Peter the Great Gulf (2020)

RCU

- 3rd Regional Overview on Marine Litter in the Northwest Pacific Region (2020)





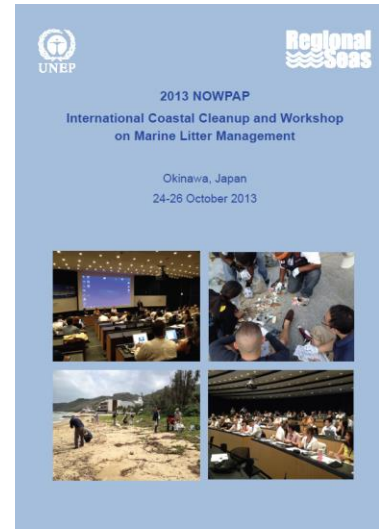
3. Removing existing Marine Litter

With focus on national actions on:

- Removal of existing marine litter
- Beach Cleanup Campaigns
- Research activities related to marine litter



**Boryeong Korea
2014**



**Okinawa Japan
2013**



3. Removing existing Marine Litter (cont.)

Japan

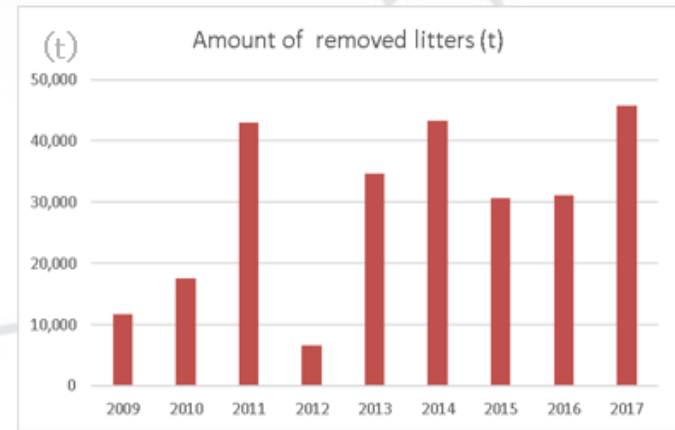
National Budget



Results of the Government of Japan's subsidized project for cleaning up coasts in Japan

2009 - 2012	About	54 million US\$
2013 - 2014	About	91 million US\$
2015	About	26 million US\$
2016	About	27 million US\$
2017	About	28 million US\$

US\$1= JY110



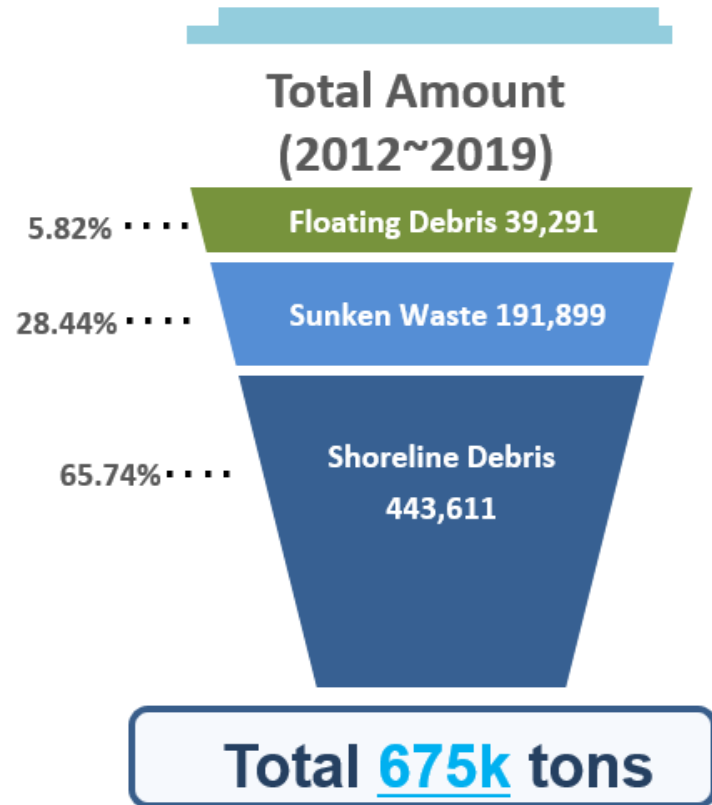
Source: MoE Japan



3. Removing existing Marine Litter (cont.)

Korea

- Amount of removed ML every year on average: apprx 84,000 tons
- Overall Average Cost: apprx US\$ 52 million





3. Removing existing Marine Litter (cont.)

Korea

- Compensation for the collected waste during fishing (**buying the recovered waste**)
- **Distribution of Styrofoam Compressors**
 - Distribution of Styrofoam Compressors that can recycle styrofoam buoys as photoframes, building materials etc.
 - 27 compressors are distributed nationwide in 2020



(Source: MOF, Korea)





3. Removing existing Marine Litter (cont.)

China

In Xijidang village in Lianyungang, among the 40,000 tons nets discarded, about 35,000 tons nets became useful goods.





Organization of International Coastal Clean-up (ICC) Campaigns since 2006

Yamagata, Japan, 2006

Rizhao, China 2007

Hirado, Japan (2010)

Jeju, Korea (2010)

Lianyungang, China (2011)

Vladivostok, Russia 2012

Okinawa, Japan (2013)

Boryeong, Korea (2014)

Yantai, China (2015)

Vladivostok, Russia 2016

Toyama, Japan 2017

Busan, Korea 2018

Dalian, China 2019





NGO's efforts

- Our Sea of East Asian Network (**OSEAN**)

<http://www.osean.net/main/>

- **Rendu Ocean**

<http://www.renduocean.org/>

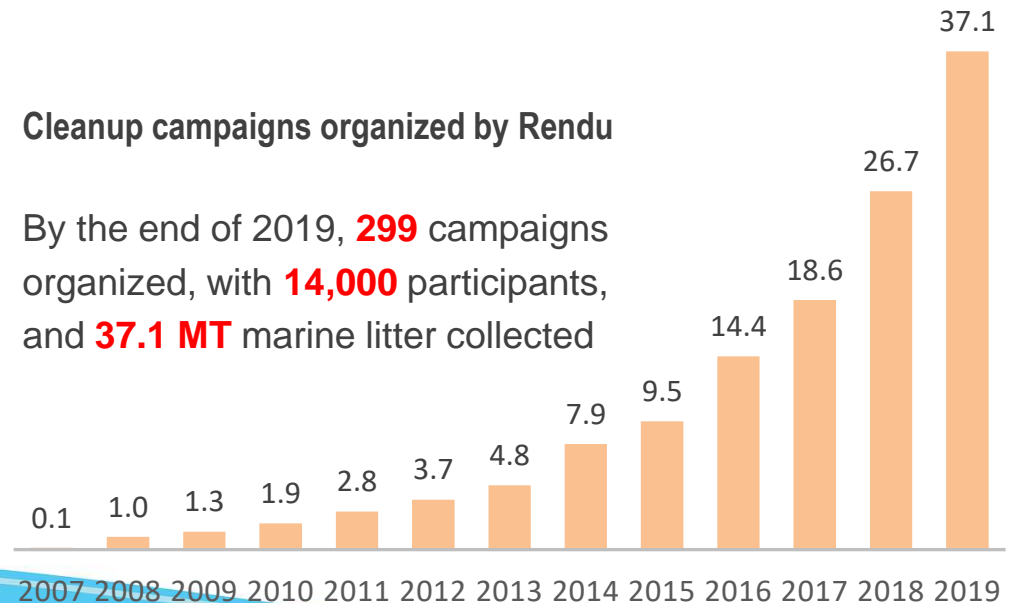
- Japan Environmental Action Network (**JEAN**)

<http://www.jean.jp/en/about-jean/>

Cleanup campaigns organized by Rendu

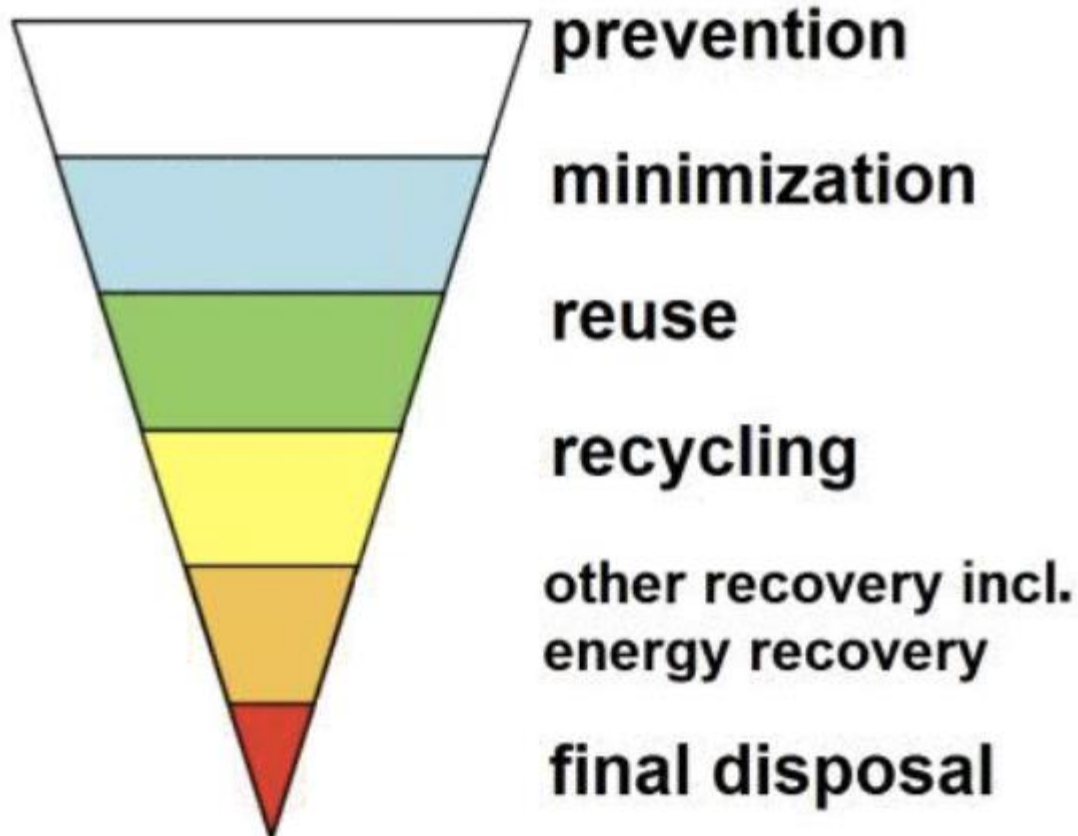
By the end of 2019, **299** campaigns organized, with **14,000** participants, and **37.1 MT** marine litter collected

(Source: Rendu)





Waste management



(Decision BC-10/2)



Marine Debris Management: All Stakeholders

