

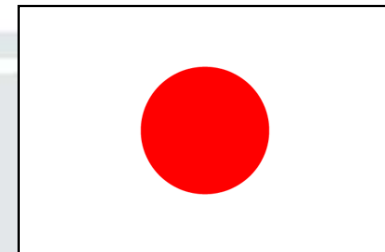
# Progress in Addressing Marine Litter in Japan

June 4<sup>th</sup>, 2018

Office of Marine Environment of Ministry of the Environment

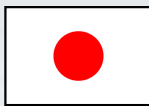


Ministry of the Environment





# Overview of Marine Litter in Japan



Nagasaki Pref. (Tsushima-city)

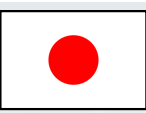


Yamagata Pref. (Tobishima)



**【Damage caused by marine litter】**  
Bad effects on ...  
Marine Environment, Beautiful Beach ... Tourism  
Ecosystem, Fishery Operation, Ship Navigation etc.

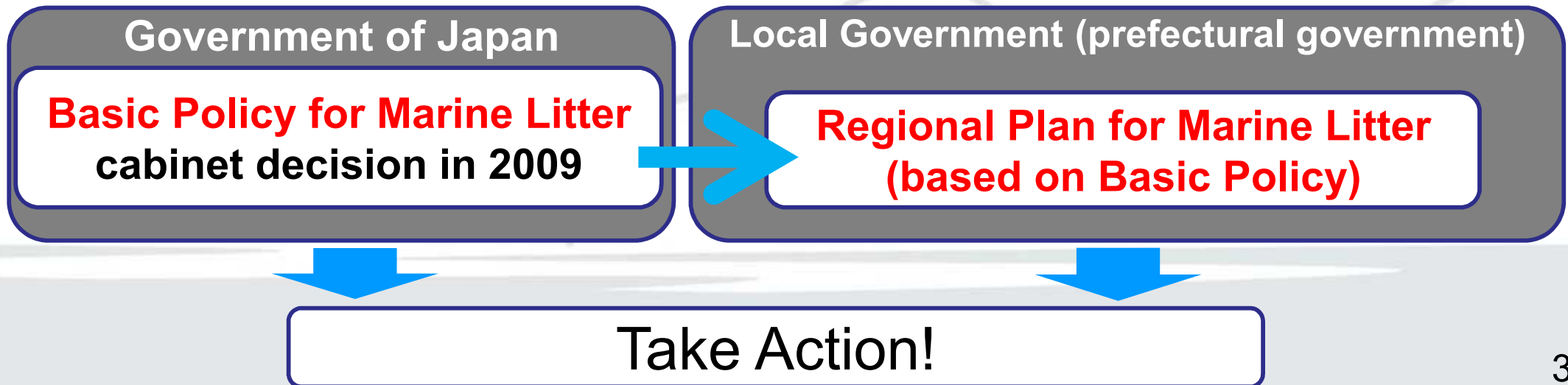




## Act on Promoting the Treatment of Marine Debris Affecting the Conservation of Good Coastal Landscapes and Environments to Protect Natural Beauty and Variety(enforced in 2009 )

- Purpose
  - To conserve good landscape and environment, by promoting smooth removal action and effective reduction of marine litter generation.
- To achieve the comprehensive and effective promotion
  - Clarify respective responsibility of relevant organizations

(National government, local government, the Coast Administrator ,etc.)





# Japanese Marine Litter Policy



Act on Promoting the Treatment of Marine Debris Affecting the Conservation of Good Coastal Landscapes and Environments to Protect Natural Beauty and Variety

## The Government

**:The Promotion Council of marine litter policy is set up within the government**



Cooperation under The Promotion Council of marine litter policy

Ministry of the Environment.

- The Secretariat of the Promotion Council in order to manage the affairs of the council.
- Responsibility for Management of Marine litter (excluding matters related to other ministries).
- Responsibility for waste management (the Waste Management and Public Cleaning Act etc. ) and establishment of a sound material-cycle society (including promotion of Recycling system etc.).

**Ministry of Economy, Trade and Industry.**  
**Industrial activities .**

**Ministry of Agriculture, Forestry and Fisheries**  
**Fishery based litters, Trees from mountains.**

**Ministry of Land, Infrastructure, Transport and Tourism**  
**River side litter, debris in Port and Sea Route area.**

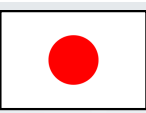
**Japan Meteorological Agency**  
**Research for plastic debris**

**Japan Coast Guard**  
**Public awareness for Marine Environment conservation**





# Subsidy Project for Cleaning up Coast in Japan

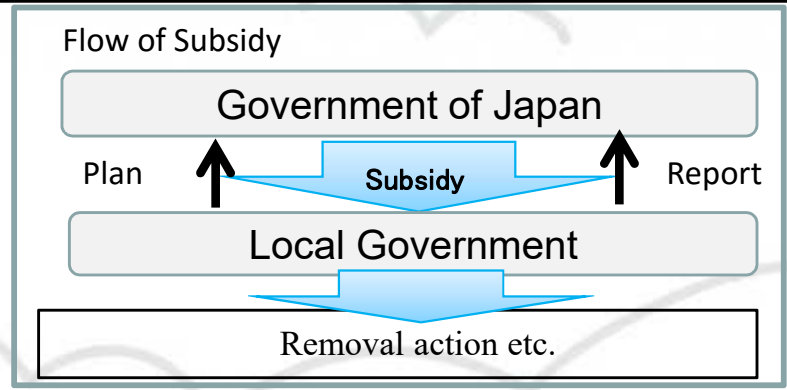


Subsidy Project to Local government for cleaning up coast, reducing generation etc.

National Budget	2009 - 2012 About	<b>54 million US\$</b>
	2013 - 2014 About	<b>91 million US\$</b>
	2015 About	<b>26 million US\$</b>
	2016 About	<b>27 million US\$</b>

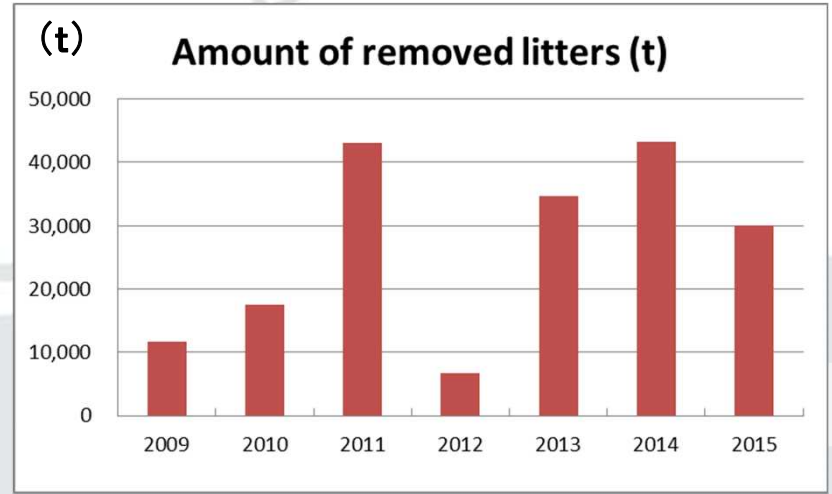
US\$1= JY110

- Subsidy money can be used for
  - Cleaning up coast
  - Reducing generation
- From 2015, removing **drifting** and **sea bed litters** is added to the menu of subsidy.



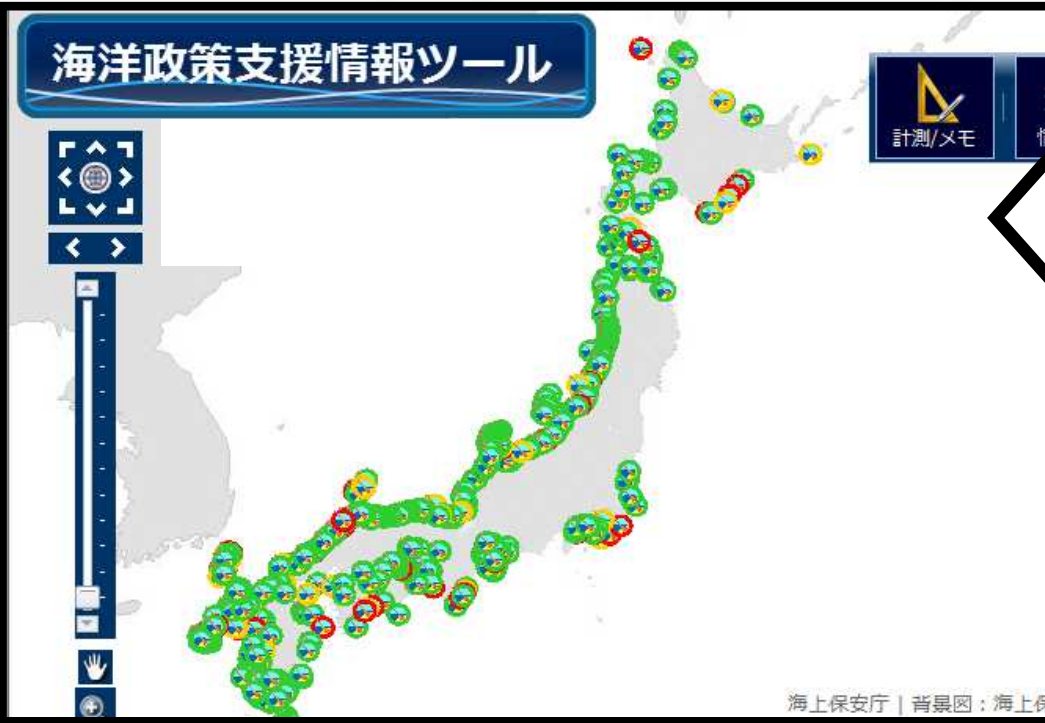

Result of Subsidy Project by Government of Japan

Fiscal year	2009	2010	2011	2012	2013	2014	2015	2016
Budget (Thousand US\$)	54,182				90,800		25,910	27,272
Amount of removed litters (t)	11,760	17,584	43,058	6,617	34,610	43,259	30,611	31,141





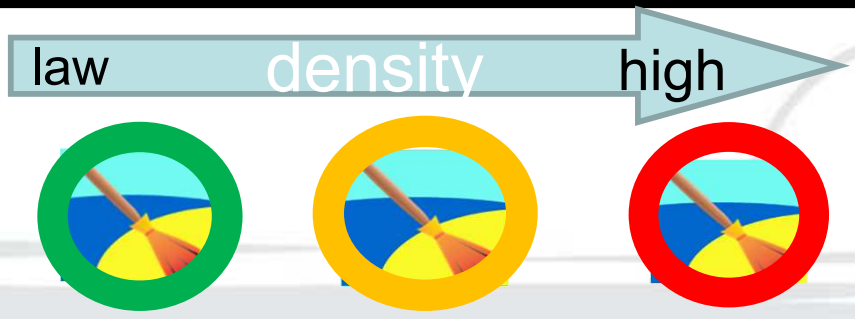
- Visualization of effects of cleaning up activities by the subsidy project, using Web GIS (the web site is only in Japanese).

Input metadata and density data of litter collected on the coast  
 (\*)The density means weight (ton) per total density (km)

- \* The input data is released on the web sites.
- \* Users can see where the coast was cleaned, when the coast was cleaned, and how much litter was collected on the coast.

These information are useful to make clean-up plan etc.



3 colored symbols means the density of litter collected on the coast.







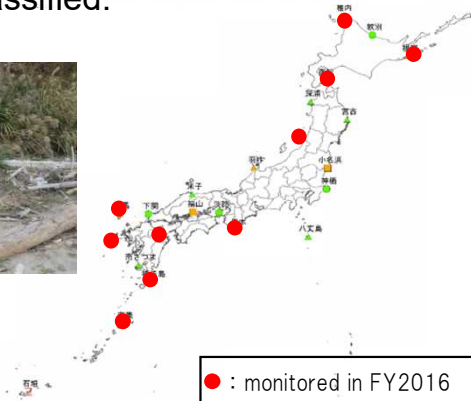
# Marine Litter Research by MoE



Monitoring on marine litter is conducted on the coasts around Japan, and visual observation of floating marine litter, microplastics survey and seabed marine litter survey are conducted in coastal waters (Mutsu Bay, Toyama Bay and Wakasa Bay in 2016) and open oceans by the Government of Japan.

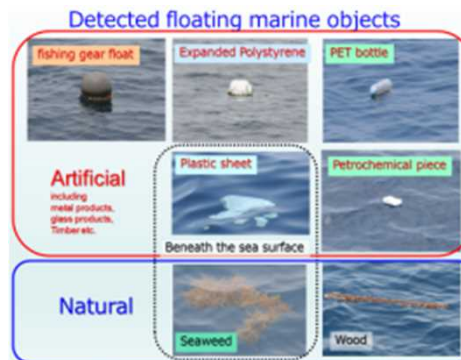
## Marine Litter Monitoring on the Coasts

Marine Litter Monitoring is conducted on 28 coasts for 5 years. Information concerning amount, items, composition and languages on the label (showing the origin), etc. of marine litter is collected and classified.



## Visual Observation of Floating Marine Litter

Floating marine litter is observed visually from vessels in coastal waters and open oceans. Density and amount of marine litter are estimated on each ocean.



## Seabed Marine Litter Survey

Seabed marine litter is monitored with trawl net in coastal waters and open oceans. Density and amount of marine litter are estimated.



Trawl net



Fishery net collected

## Microplastics Survey

Microplastics survey is conducted to promote research on marine pollution. Concretely, the following items are researched,

- distribution of microplastics around Japan
- amount of hazardous chemical substances such as PCB adsorbed on microplastics



Resin pellet



Net sampling

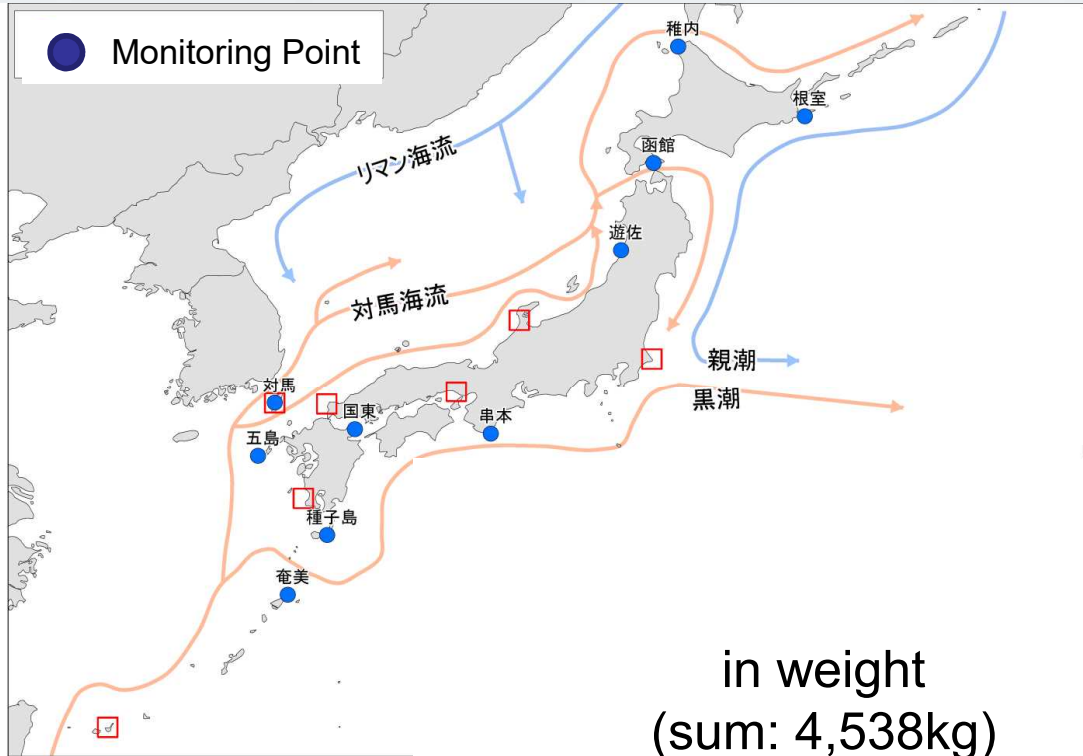
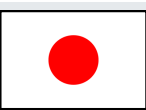


Counting with microscope



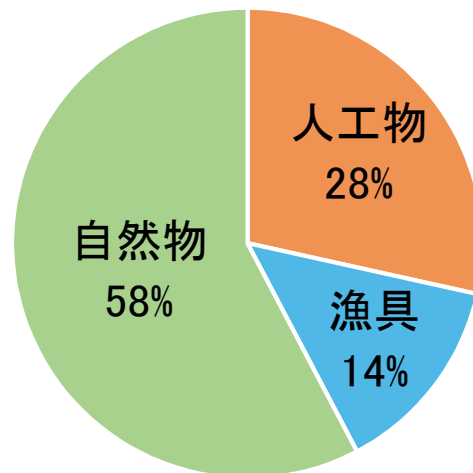


# Result of the Monitoring Marine Litter on the Coast

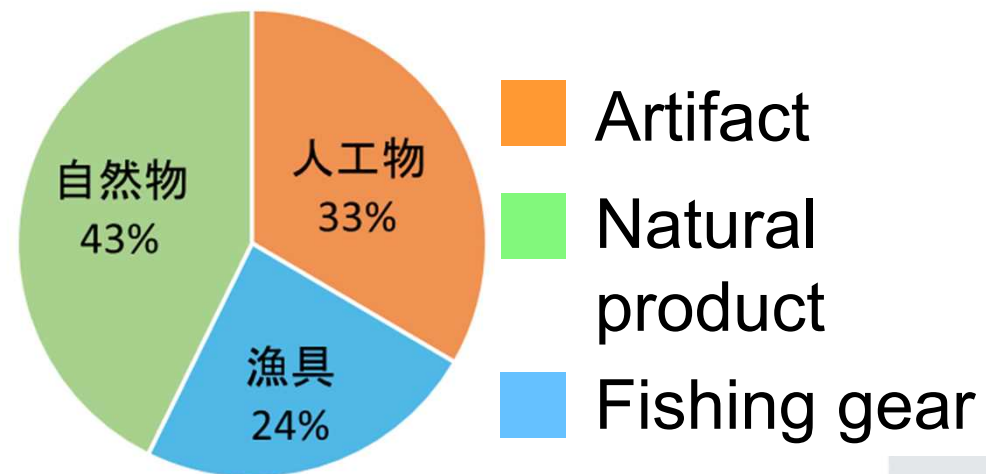


## 2016 result : type of marine litter

in weight  
(sum: 4,538kg)

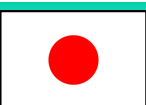


in volume  
(sum: 21,019liters)

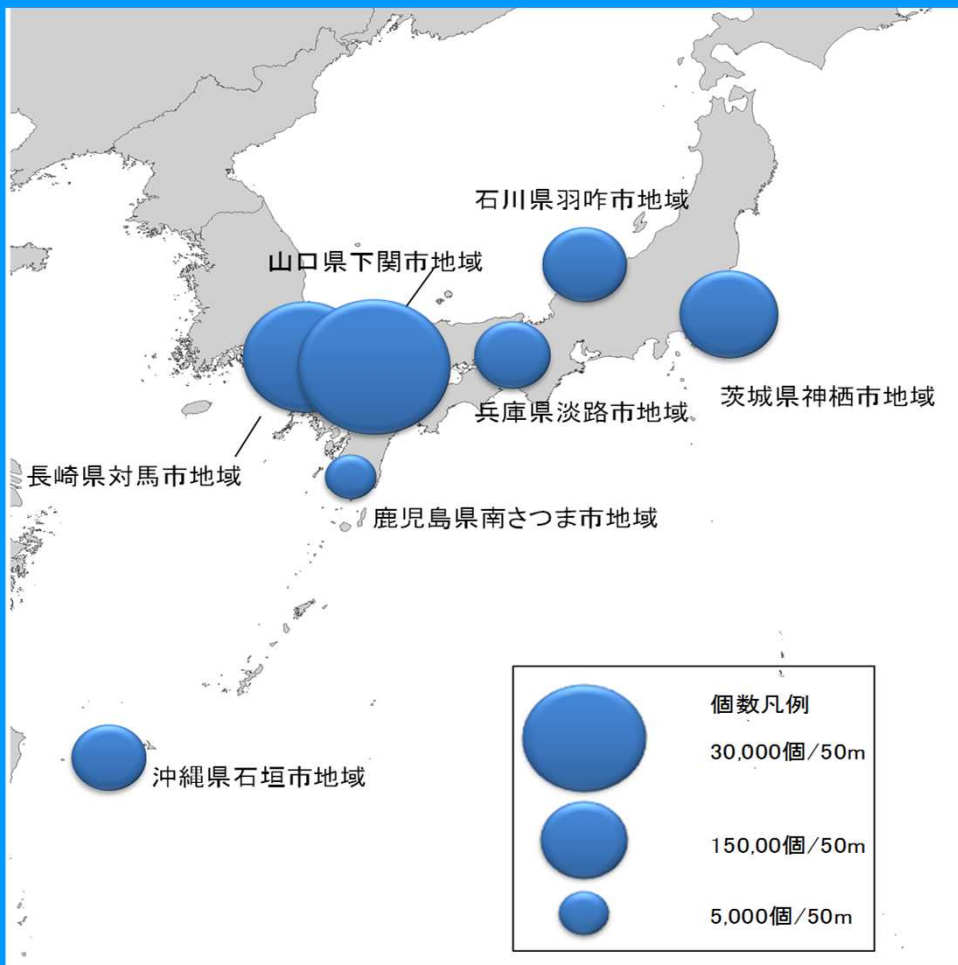




# Marine Litter Research by MoE

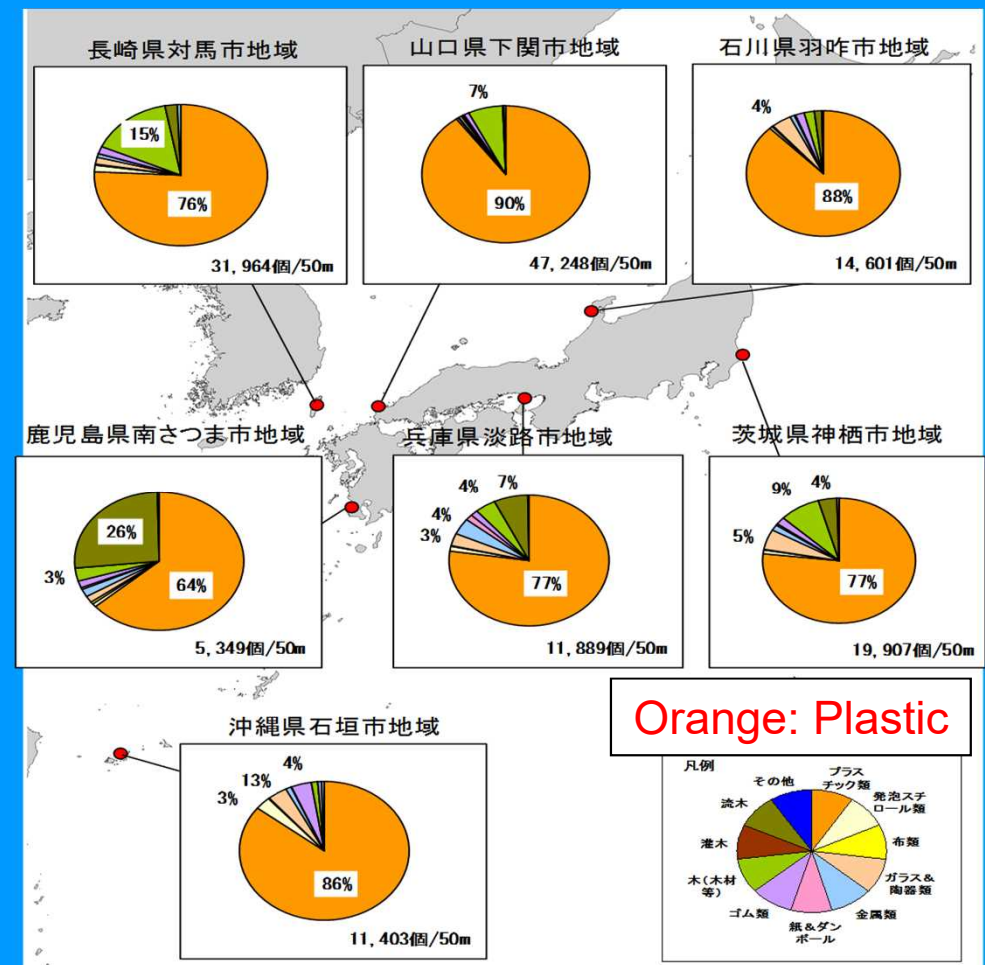


- In Shimonoseki, Yamaguchi Pref., the total amount of marine litter for 5 years (2010-2014) is the largest (about 47,000 pcs. in the shoreline of 50m).
- Plastics has been collected the most and occupies about 80-90% of the total amount of marine litter at all 7 coasts.

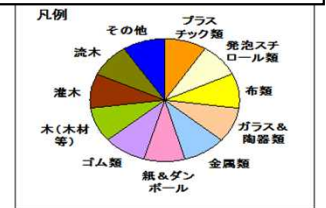


The number of the marine litter on the coasts

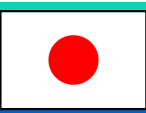
※five years: piece of the artifact and shrub are shuffled off.



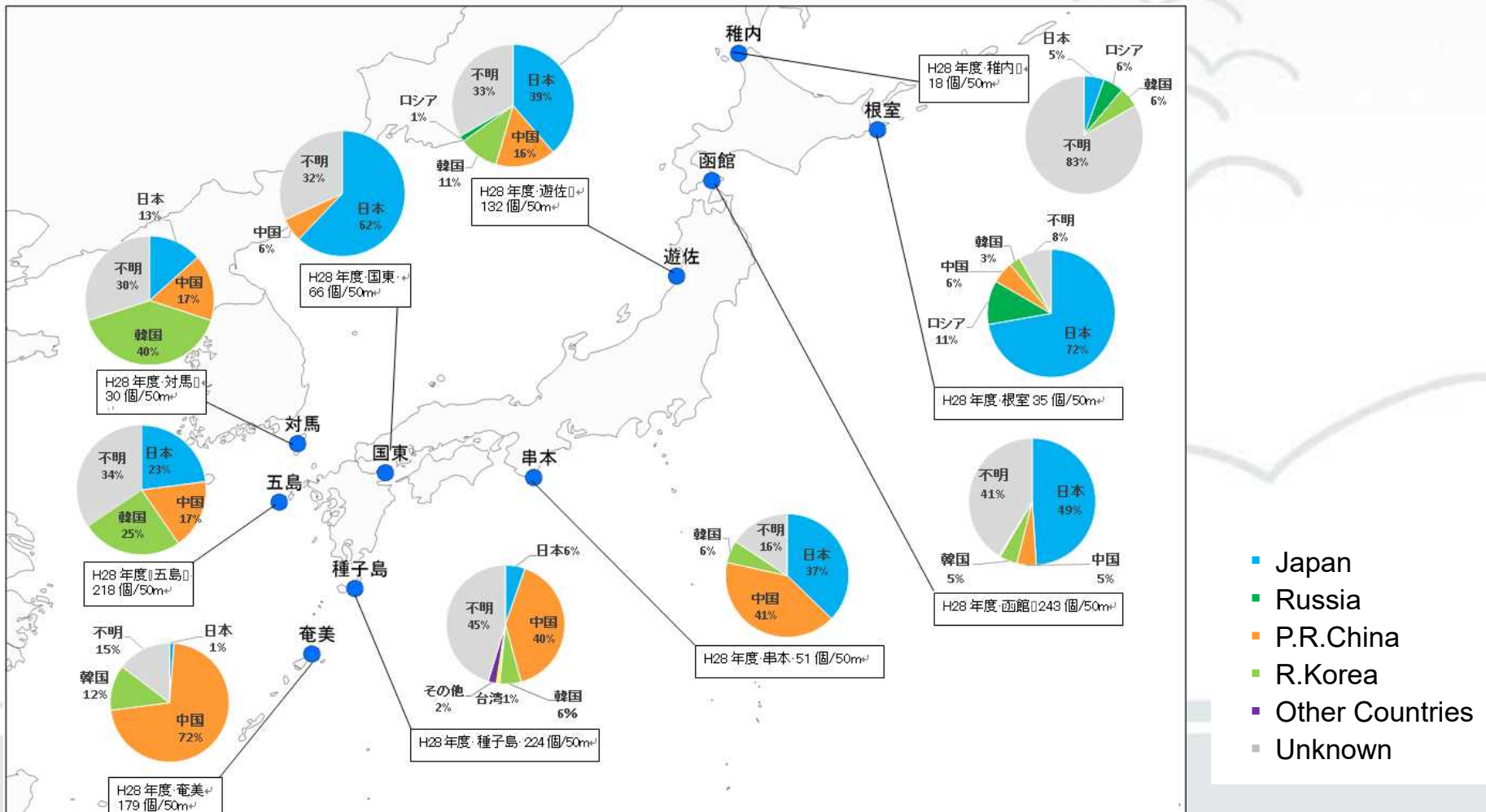
Orange: Plastic



Ratio by the kind of the marine litter on the coasts (artifact + natural product)

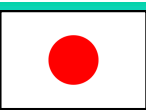


- Pet bottles collected on the 10 coasts have been classified with product countries in FY2016.
- Many of them collected in some areas were made in Japan and many of them collected in other areas were made in PRC or ROK.



Ratio according to the product country of PET bottle in FY2016



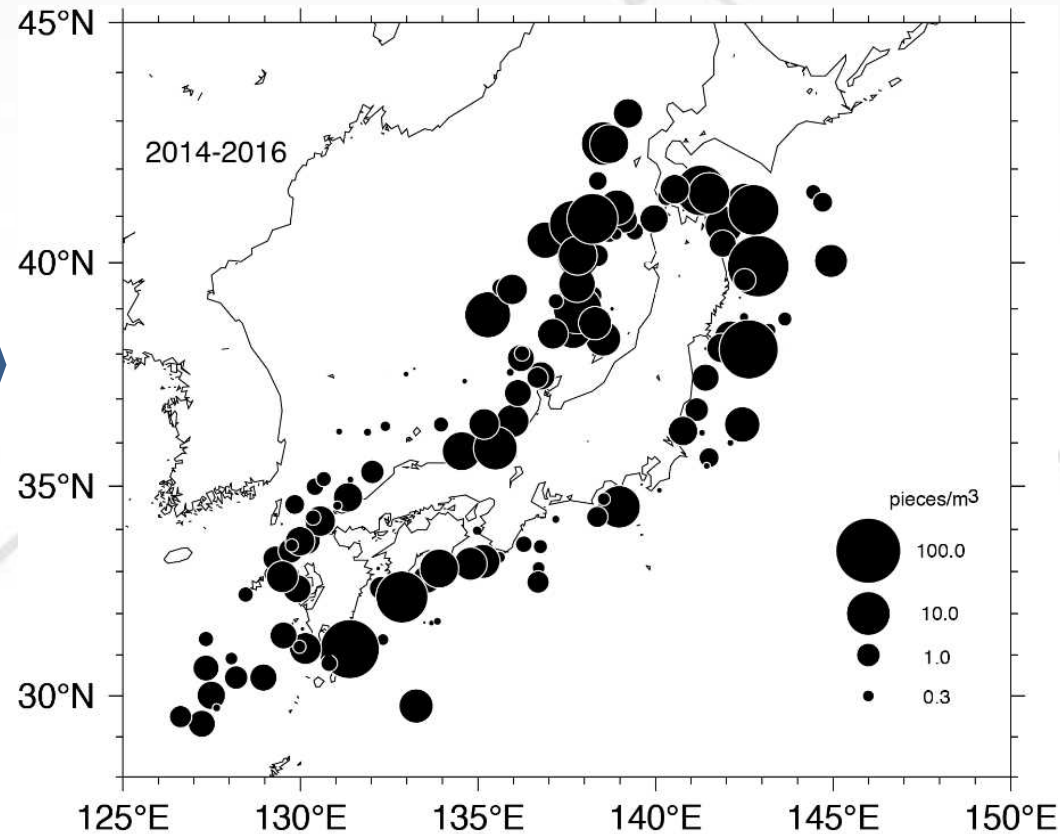


## Offshore Survey for drifting microplastic by vessel.

Ministry of the Environment carried out offshore survey for drifting debris in collaboration with Tokyo University of Marine Science and Technology on July to October in 2015. The purpose of this survey is to grasp the actual condition of drifted microplastics.



## Distribution map of the microplastics density around Japan from FY2014 to FY2016



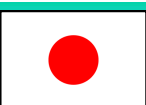
## Drifting microplastics around Japan



Plankton net



Pieces of microplastic



- In FY2017, we expand the observational area and network. We observed floating marine debris and microplastics in the northwestern part of Pacific as well as in areas surrounding Japan by using 5 research vessels, in cooperation with Hokkaido University, Nagasaki University and Kagoshima University in addition to Tokyo University of Marine Science and Technology and Kyushu University.

**Nagasaki-Maru**  
owned by  
Nagasaki University



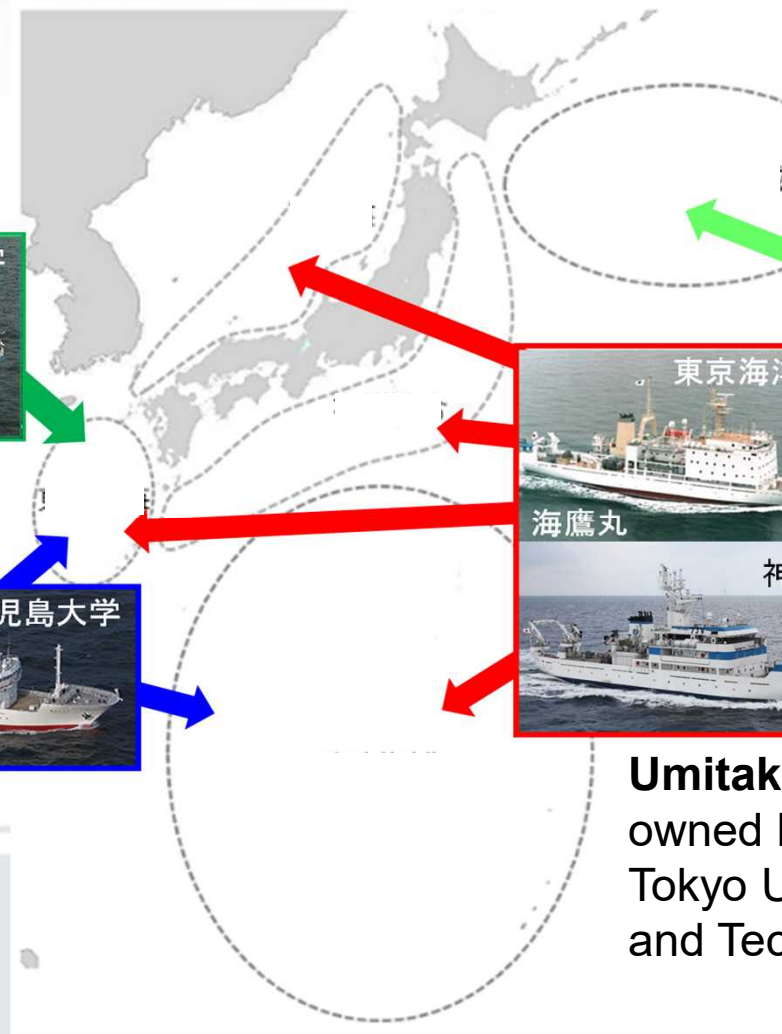
**Oshoro-Maru**  
owned by  
Hokkaido University



**Umitaka-maru and Shinyo-maru**  
owned by  
Tokyo University of Marine Science  
and Technology

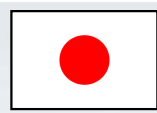


**Kagosima-Maru**  
owned by  
Kagoshima University





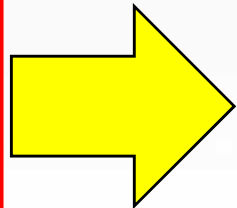
# Future Development After the G7 Toyama Environment Ministers' Meeting



## Global cooperation G7 Toyama Environment Ministers' Meeting



1. Priority Actions to Adress Land-Based Sources
2. Priority Removal Actions
3. Priorities Actions to Address Sea-Based Sources
4. Priority Actions on Education, Research and Outreach



Cooperation at the local level (Japan, China, Korea, Russia)

### OTEMM

(Japan and China Korea three countries Minister of the Environment meeting)



### ONOWPAP

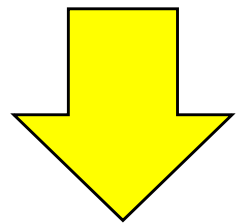


N O W P A P

Northwest Pacific region sea action plan

※others: action by Japan/China, Japan/Koria

## Accelerate an regional action



## Expand to an international frame

UNEP, APEC, G20, FAO, IMO etc.

Fostering international feeling, and effective, efficient measures are promoted by international cooperation

## the 2030 Agenda for Sustainable Development (SDGs)

- As an aim common throughout the global community until 2030, we set sustainable development target (17 goals, 169 detailed targets)
- Goal 14.1: By 2025, I prevent all kinds of marine pollution including the pollution by the particularly land activity including the marine garbage and eutrophication and largely reduce







## < G7 Ise-Shima Summit > (May 2016)

- Reconfirmed that we will deal with marine litter issue while recognizing that we should try to control and reduce marine litter, plastic in particular, from land base source, as set out in the clause of “resources effectiveness and 3Rs” in the leaders’ declaration

## <G7 Toyama Environment Minister’s Meeting> (May 2016)

- Reconfirmed the importance of “the G7 action plan to deal with the marine litter problem” stated in the Annex to the Leaders’ Declaration agreed at Elmau summit of the last year and its effective enforcement. **We, as the G7 nations, are also committed to the enforcement of the priority measures in according with the situation of each member country.**
- We are committed to regular follow-up on actions taken by G7 to share best practices and promote outreach of these measures to other countries

## <G7 Bologna Environment Minister’s Meeting> (June 2017)

- Determined to further implement the G7 Action Plan to Combat Marine Litter.
- We reiterate our concern for the issue of marine litter, in particular plastic litter and microplastics, and reaffirm our commitment to fight this global threat.

## <G20 Hamburg Summit> (July 2017)

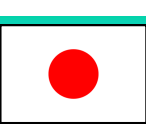
- It is the first time that the issue of marine litter is dealt with at G20 Summit.
- With the efforts of G7 in mind, the launch of the initiative “G20 action plan on marine litter” were agreed, in which measures for marine litter prevention, to promote sustainable waste management, to address education and outreach and so on.



G7, Ise-Shima, Summit ( May 2016 )



G7 Bologna Environment Minister’s Meeting (June 2017)



- ① Promotion of environmentally sound waste managements
- ② Promotion of reducing marine litter, and its collection and removal action before it degrades into microplastics
- ③ Promotion of international collaboration working with international organizations such as UNEP, IMO and FAO
- ④ Promotion of outreach and educational activities
- ⑤ Actions towards standardizing and harmonizing monitoring methodologies

MoE has promoted standardization and harmonization of microplastics monitoring methodologies in the ocean.



## Outcomes of the Expert Meeting

Following two items were discussed in the meeting and summarized by reflecting experts' comments after the meeting in December 2016.

### 1. Recommendation on microplastics monitoring

- ◆ To identify which area of monitoring needs to be harmonized by each major monitoring items (minimum requirement).  
Ex. Tow consideration(time, area etc.), Sampling net, Mesh size, shape, color, plastic type category of microplastics, etc.
- ◆ A draft of harmonized monitoring methods has been prepared.

### 2. Joint Pilot Survey Plan

The following two pilot researches are proposed.

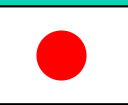
#### ➤ To estimate “experimental variance”

Cross-check of a common standard sample for quality control was implemented to estimate “experimental variance” among different laboratories in FY2017.

#### ➤ To estimate “sampling error”

Next step is planned to estimate a ‘sampling error’ by analysis of actual sea water (FY2018).

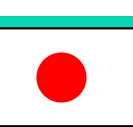




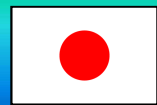
- ◆ Japan held 2<sup>nd</sup> expert meeting and invited several experts in the meeting.



Group Photo of the 2<sup>nd</sup> Expert Meeting



- Date 27-28, February, 2018
- Venue Tokyo, Japan
- Organizer Ministry of the Environment, Japan
- Secretariat Association of International Research Initiatives for Environment Studies/ IDEA Consultants, Inc.
- Purpose
  - To report and discuss the results of the pilot project
  - To discuss recommendation on analysis method of microplastics and to revise the recommendation, based on the results of the pilot project.
  - To propose a plan in order to estimate “sampling error” by conducting simultaneous/parallel net-samplings of microplastics at sea (FY2018).
- Participants Seeing the following slide



**Participants** 13 experts attended in the meeting.

# listed in alphabetical order

Name	Country	Name	Country
Dr. Suchana Chavanich (Dr. Viranop Viyakarn)	Thailand	Dr. Jingli Mu (Dr. Weiwei Zhang)	P.R. China
Dr. Pascal Hagmann	Switzerland	Dr. Wonjoon Shim	R. Korea
Dr. Atsuhiko Isobe	Japan	Dr. Hideshige Takada	Japan
Mr. Nikolai Kozlovskii	Russia	Dr. Tadashi Tokai	Japan
Dr. Amy Lusher	Norway	Dr. Keiichi Uchida	Japan
Dr. Elisa Marti (Dr. Andrés CÓZAR)	Spain	Dr. Katerina Vasilenko (Dr. Peter Ross)	Canada
Dr. Yutaka Michida 【Chairman】	Japan	(*) Blue means the person attended inter-laboratory comparison project.	

(\*) Dr. DeLorenzo (USA) and Dr. Hinata (Japan) were unable to attend the meeting.





- ◆ We discussed the results of the Inter-Laboratory comparison (ILC) of microplastics analysis methods.
  - ➡ Submitting a short note to an international journal
- ◆ As a result, we revised the recommendations made in FY2016.
- ◆ For the future work to be conducted in and after 2019, some key words were identified from the team, namely; MP in sediment, in organism (seafood/human health), vertical distribution in mid-water (10m-100m), new device/method to pick up MP, also in future, MP in sea ice and in atmosphere.
- ◆ We agreed to submit a short note about the results of our pilot project to an international journal disseminate the outcome of the meeting to various expert meetings.





**Thank You for your attention.**