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## What Makes Reliable Data for Microplastics Policy? (ISAP2022 Thematic Track-13) - Japan's experience -

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# Policies against Marine Plastics Pollution in Japan

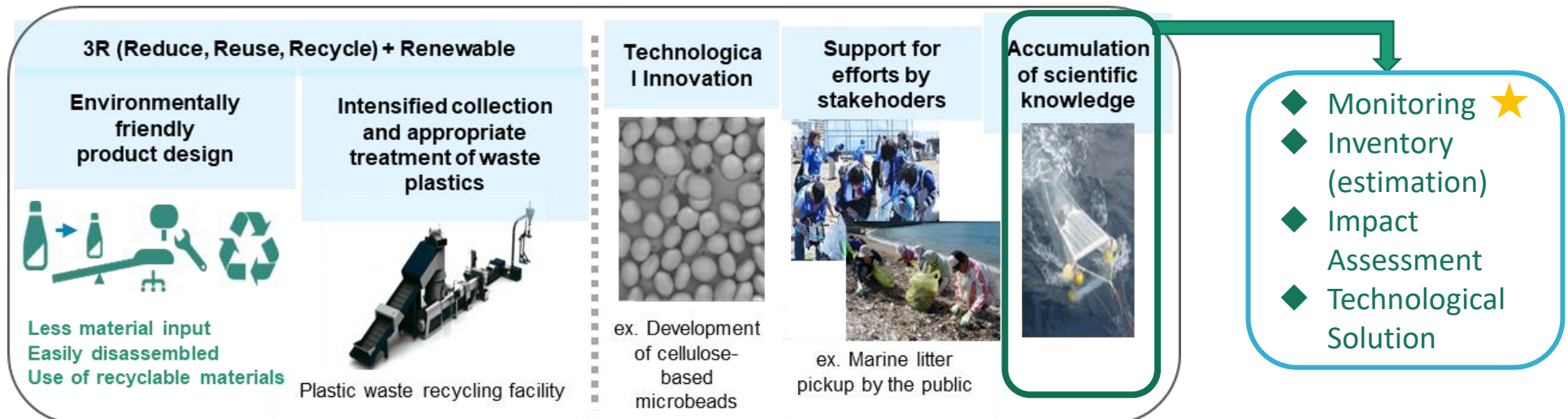
## Legal / Policy Framework

- the Act on Promoting the Treatment of Marine Debris (2009, amended in 2018) → the Basic Policy on the Comprehensive and Effective Promotion of Measures Against Articles that Drift Ashore under the Act (2009, 2019) --- Promotion Council for Marine Litter Policy
- Resource Circulation Strategy for Plastics (2019)
- National Action Plan for Marine Plastic Litter (2019)
- **Act on Promotion of Resource Circulation for Plastics (2021 (enforced in 2022))**

## Measures

## Life cycle approach

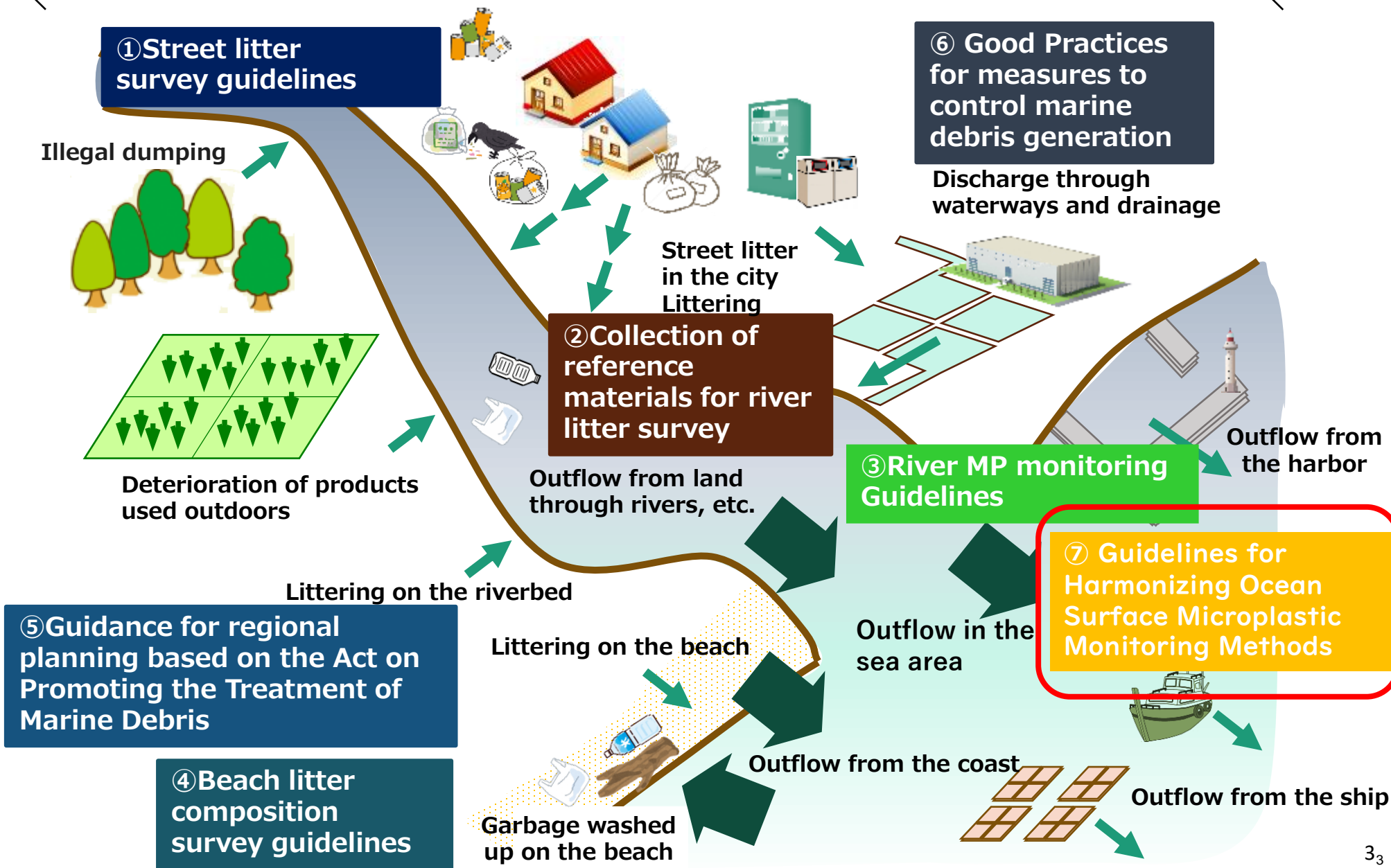
## Science based approach



## Financing

- Public finance (ex. Subsidies for clean-up activities)
- Private finance etc..

# MOE's survey/monitoring/clean-up guidelines related to plastics floating into Ocean



# ★ Periodic surveys on Marine Litter including plastics organized by MOEJ

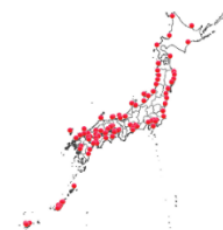
## Beach litter 2010~

Collect and summarize the amount, types, and composition of beach litter, and the language of plastic bottles on beaches.

(28 sites in total with some sites surveyed periodically)

(Survey method)

- All beach litter of 2.5 cm or larger within a 50-meter survey area is collected and classified at beaches that are not frequently cleaned.
- From 2020, the survey entity was change from MOEJ to local governments to expand survey sites and continuous surveys at the same sites to understand the changes over time.
- From 2014 to 2019, microplastics were also collected to examine PCBs and other harmful chemicals adsorbed on microplastics.



Survey sites  
(2015~2019)

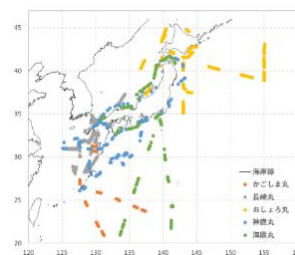
## Floating macro litter (Visual observation) 2014~

Count floating macro litter on the sea surface in coastal and offshore areas of Japan to estimate the density and amount of litter in each area.

(Coastal: approx. 15 sites/year, Offshore: approx. 600 sites/year)

(Survey method)

- Coastal surveys are conducted by visiting a total of 13 bays in turns.
- Offshore surveys are conducted in the waters of east of the Philippines, and the area up to around 150 degrees east longitude.
- The number, type, and size of litter are counted visually from a vessel.



## Ocean Surface microplastics 2014~

Survey distribution of floating microplastics in coastal and offshore areas of Japan.

(Coastal: approx. 15 sites/year, Offshore: approx. 100 sites/year)

(Survey method)

- Collect floating microplastics by net during cruises for floating macro litter survey.
- Identify material using infrared rays, count the number using microscope, etc.
- From 2014 to 2019, laboratory analysis to examine PCBs and other harmful chemicals adsorbed on microplastics were conducted (every year for coastal samples, depending on the year for offshore samples).



## Seafloor litter 2014~

Collect seafloor litter in coastal and offshore areas of Japan to estimate the density of litter by sea area.

(Survey method)

- Coastal surveys are conducted by classifying litter collected by bottom trawling during fishing operation.
- Offshore surveys are conducted in the East China Sea, off Oarai and off Tomakomai. Litter is collected by surveys using bottom trawling.



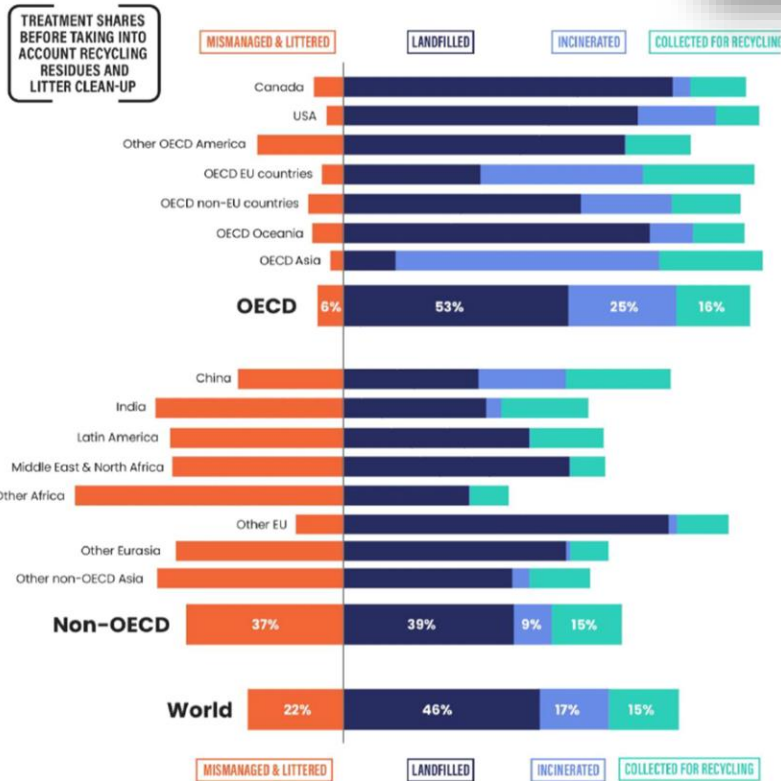
# Global Outlook of Plastics Leakage to the Environment – Importance of International Cooperation -

For example...



Figure 2.7. More plastic waste is mismanaged than collected for recycling

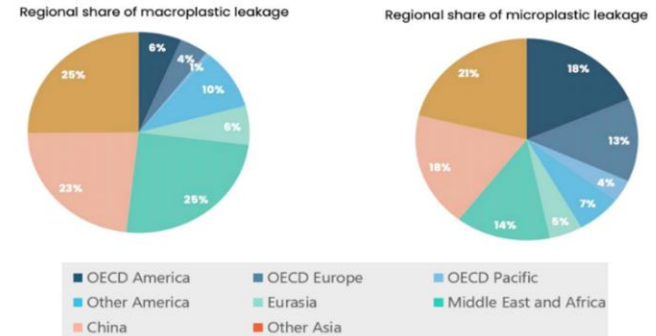
Share of plastics treated by waste management category, before recycling losses, 2019



Source: OECD Global Plastics Outlook Database. <https://doi.org/10.1787/c0821f81-en>

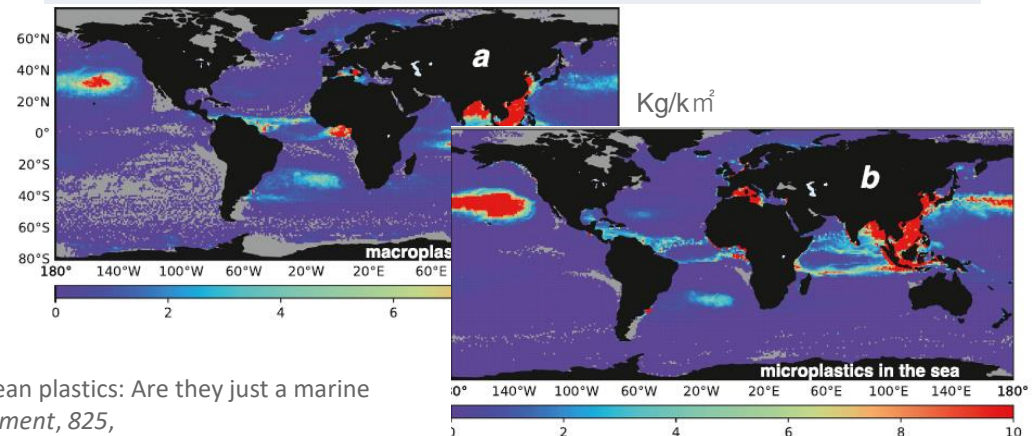
Figure 2.10. Leakage to the environment is high in emerging economies, especially for macroplastics

2019



Source: OECD Global Plastics Outlook Database. <https://doi.org/10.1787/c0821f81-en>

Ocean plastic abundance computed in the PTM (particle tracking model) with fragmentation and removal timescales of 3 years. (Average masses in 2017) (Isobe, A., & Iwasaki, S. (2022))



Isobe, A., & Iwasaki, S. (2022). The fate of missing ocean plastics: Are they just a marine environmental problem? *Science of the Total Environment*, 825, [153935]. <https://doi.org/10.1016/j.scitotenv.2022.153935>

# Guidelines for Harmonizing Ocean Surface Microplastic Monitoring Methods

2016

International expert meetings



2017

An inter-laboratory comparison (ILC)



▲ Particles of natural objects

▲ Microplastics

2018

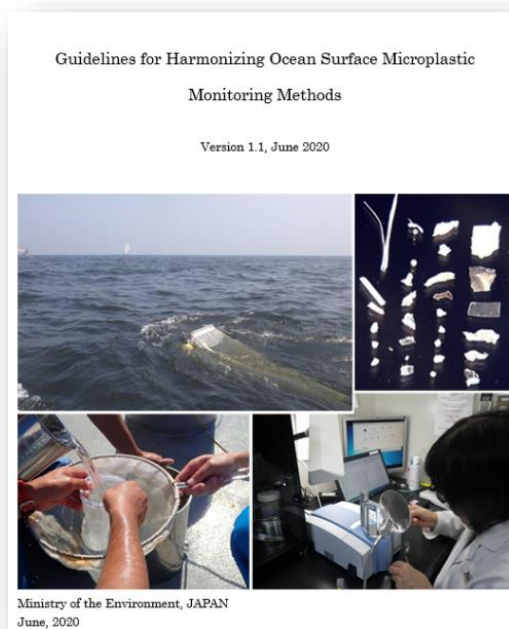
Comparison of sampling methods

2019

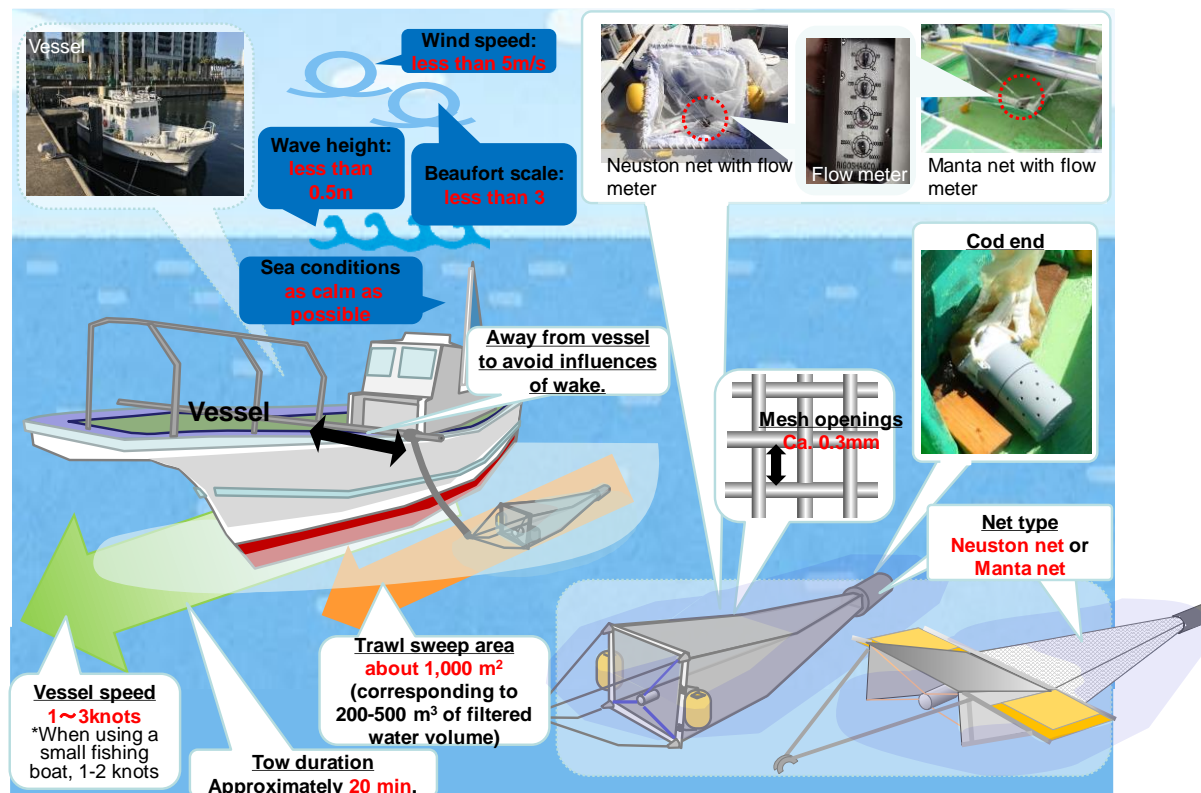
Publication of the Guidelines

2020

Revision

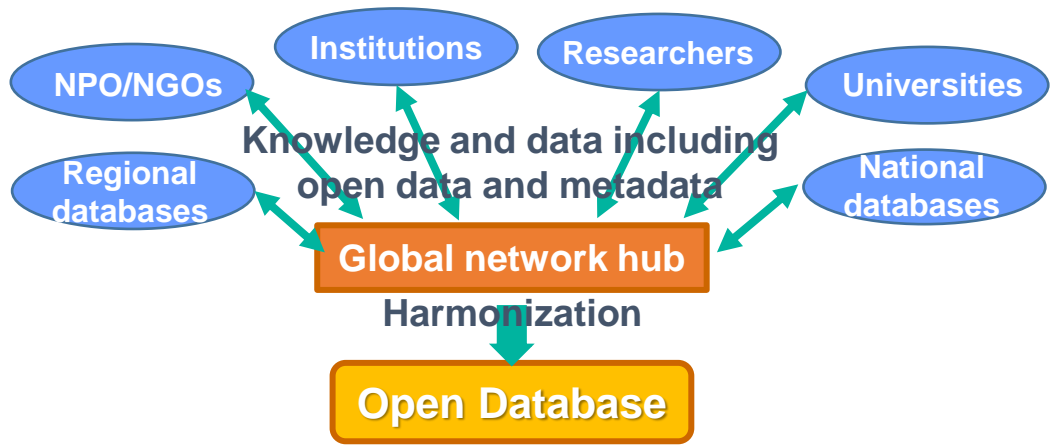


(published in 2019 and revised in 2020)



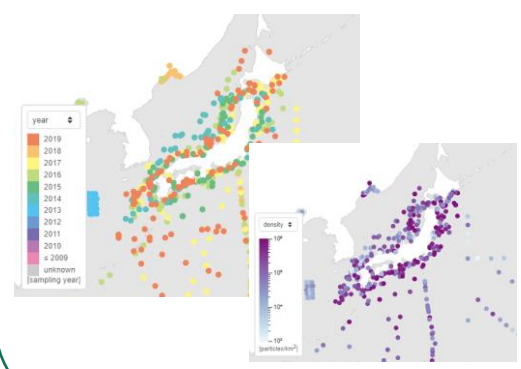
# Marine Plastic Litter Monitoring Data Sharing – microplastics

- **Bring together** monitoring data of ocean surface microplastics
- **Classify** the data for better comparability in line with the Guidelines
- **Visualize** the distribution and abundance on 2D maps
- **Open** the information to the public  
Assumed users: researchers, policy-makers, general public

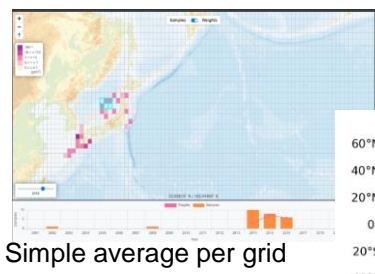


## Images of 2D maps to be provided by the Open Database

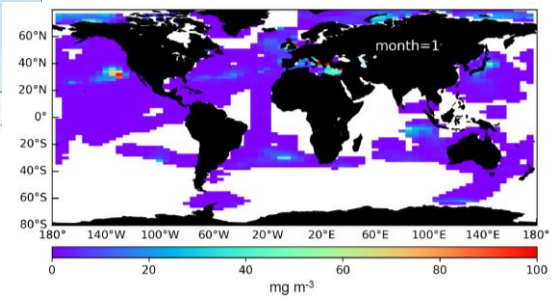
### ● Survey sites



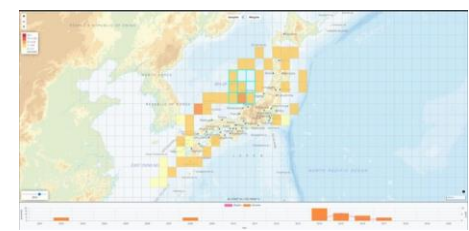
### ● Density of ocean surface microplastics



### Use of calibrated data



### ● Survey frequency



Japan is developing a database for ocean surface microplastics which will be launched in JFY2023.

# Training Program on Marine Plastic Litter Monitoring Methods

## Outline of the training

- Training monitoring methodologies of marine litter (floating litter, ocean surface microplastics, seabed litter, and beach litter) for governmental officials and researchers, since 2016.
- For 2 weeks. Training on research vessels and in labs in Japan or via online.

## Number of participants

FY2017		FY2018		FY2019		FY2020		FY2021	
Indonesia	1	Indonesia	1	Indonesia	4	Indonesia	5	Indonesia	10
Thailand	2	Thailand	1	Vietnam	3	Vietnam	4	Vietnam	6
P.R. China	2			Cambodia	1	Thailand	4	Thailand	6
				Thailand	1	Myanmar	4	Myanmar	5
<b>Total</b>	<b>5</b>	<b>Total</b>	<b>2 persons</b>	<b>Total</b>	<b>9 persons</b>	<b>Total</b>	<b>17</b>	<b>Total</b>	<b>27</b>
	<u>persons</u>						<u>persons</u>		<u>persons</u>

Online

## Snapshots of the training

