

# National Marine Litter Management Program of RO Korea

: Results on 10 years of practice

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CHO SOO-YEON



A Public Corporation Creating Future Value Of Healthy Ocean  
Korea Marine Environment  
Management Corporation





### ■ Status of Marine Litter in ROK

**176,000 tons** of Marine Litters Generated Annually in ROK

- **By Cause, Land based 118,000 tons (67%); Sea-based 58,000 tons (33%)**
  - \* Inflow of fallen trees due to natural disasters: 86,000 tons (48%), Fishing gear: 44,000 tons (25%)
- **Amount of Marine Debris: 152,000 tons**
  - \* Shoreline 12,000 tons, sunken 137,000 tons, floating 2,000 tons



Floating Debris



Shoreline Debris



Sunken Debris



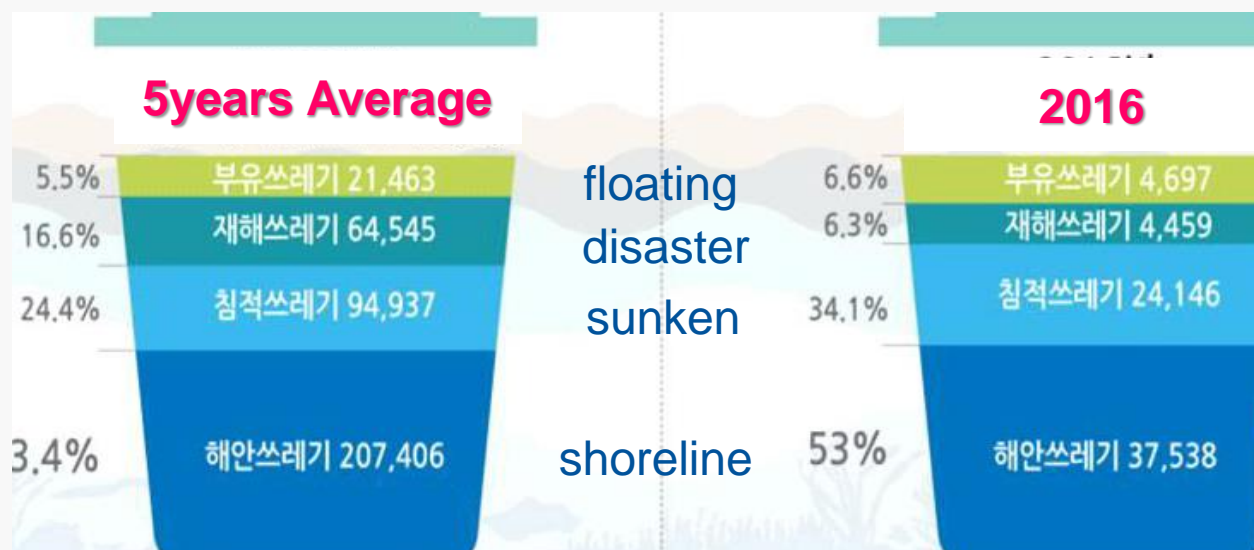


## ■ Removal Performance of Marine Litter in ROK

Amount of Removed Annually: **78,000 tons**;

Overall Cost: **US\$ 60 million** (excluding local governments)

- Type of ML: shoreline litter 53%, sunken litter 24%,  
natural disaster litter 16%, floating litter 5.5%

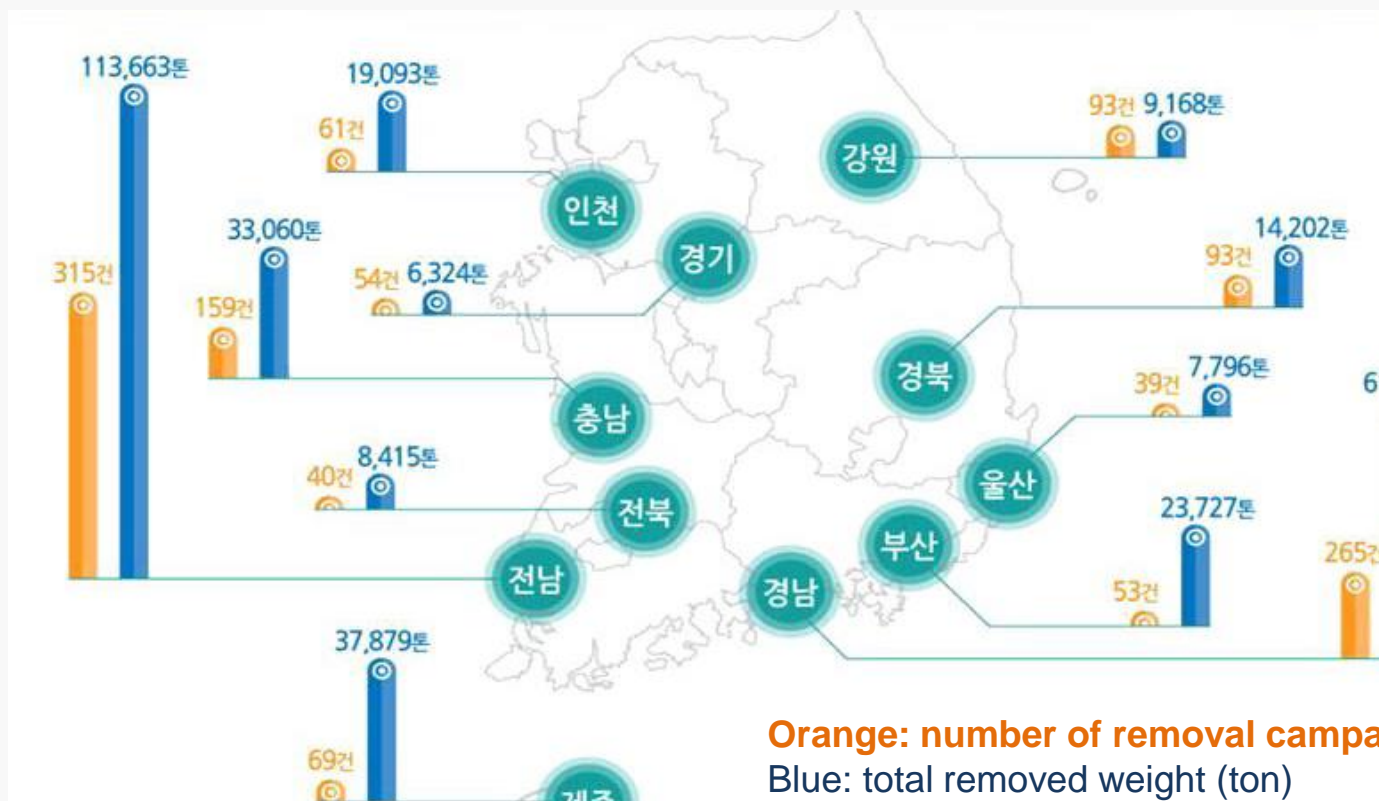






## ■ Marine litter removal by local government

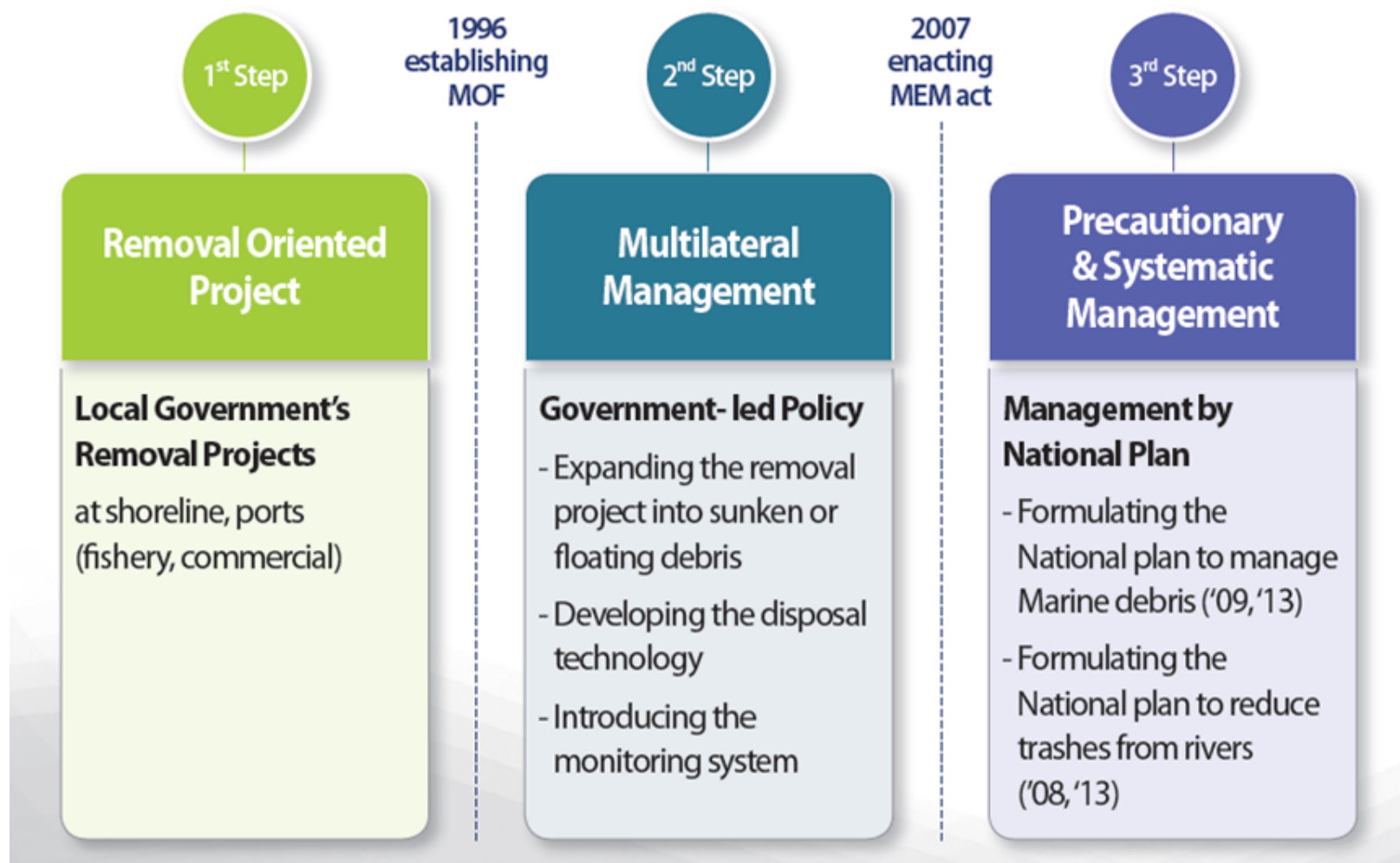
113,663 tons marine litter removal in Jeonnam Province on 2016







## ■ Marine Litter Management in ROK







## ■ Institutional and Legal Arrangements

### » Institution

**Ministry of Oceans and Fisheries (MOF)**



**Korea Marine Environment Management Corporation (KOEM)**



**Marine Litter Management Center**

**Local governments, NGOs and Private Sectors**

### » Law & Policy

**Marine Environment Management Act (2007)**

**Comprehensive Marine Environment Management Plan**

**Comprehensive Marine Litter Management Plan**

**Implementation of Programs and Projects**





## ■ Establishing Comprehensive Marine Litter Management Plan

### Legal Basis

- Policy measures established **every 5 years** according to the Marine Environment Management Act 24
- **Inter-ministerial policy collaboration** between MOF-MOE-KCG

### Progress

- **1st PLAN (2009-2013)** Appx. US\$ 240 million
- **2nd PLAN (2014-2018)** Appx. US\$ 330 million





## ■ Review of 1<sup>st</sup> National Marine Litter Management Plan (2009-2013)



Set-up and operation of ML collecting barges, Establishing fishing gear management system, Promotion of eco-friendly fishing gear use, Promotion of fishing boat waste/Bilge removal et al.

**Minimizing litter inflowing into marine environment**

**Increasing ML collection and disposal capacity**



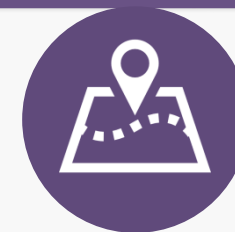
Fishing port deposited waste removal, Buying of the recovered waste during fishing, Deposited fishing gear removal, Distribution of Styrofoam volume reducer, River and estuarine waste clean-up et al.

Supporting NGOs' Marine Environment Conservation activities, Development of Marine Environment Education Programmes, Public outreach on Marine Litter, National Marine Litter Monitoring Programme, Regional and global cooperative projects



**Involving public and international collaboration**

**Enhancing ML management capacity**

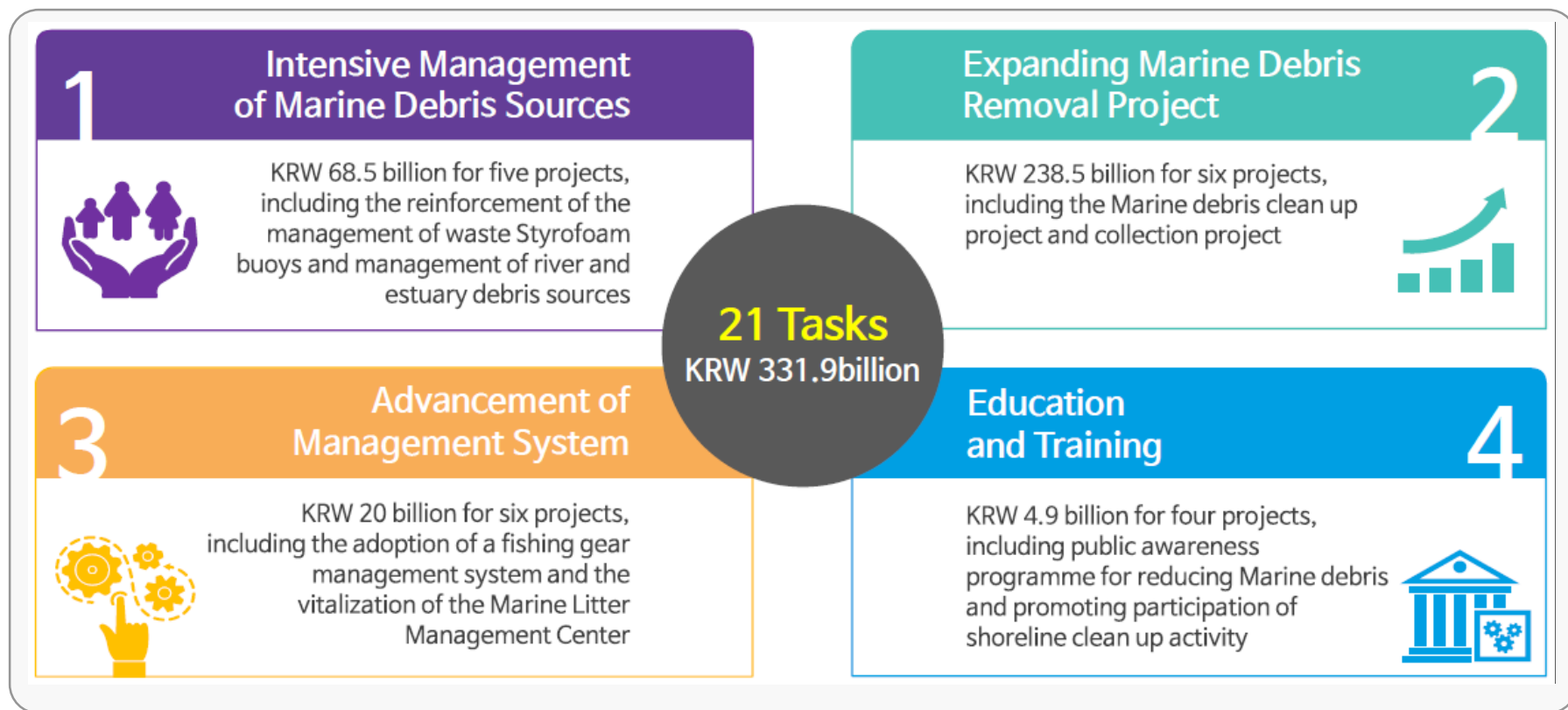


**28 Tasks**  
US\$ 240million





## ■ Review of 2<sup>nd</sup> National Marine Litter Management Plan (2014-2018)







## Case 1: Set-up and operation of ML barges

- Objectives

Set-up a barge-type marine collection boat in ports or fishing ports to remove litter during fishing activities. It helps prevent the occurrence of abandoned, derelict and discarded fishing gear.

- Progress

Year	2010~2012	2013
Number of Barges	128	51
ML removal (ton)	2,951	1,298



1 barge: Approx.  
US\$170,000  
(2010)





## Case 2:

### Promotion of Fishing Boat Waste/Bilge Collection Bins and Receptacles

#### Objectives

- Preventing the littering of waste and bilge of small fishing boats
- Campaigning and educating fishers on littering of boat waste/bilge
- Establishing waste collecting system at fishing port

#### Roles

- KCG: set up of waste collection bins at ports; promotion and campaign
- Fisheries cooperatives: Collection bin maintenance and volunteer management



Year	Fishing Boat Waste Collection		Bilge Collection	
	Site	Amount (ton)	Site	Amount (ton)
2012	128	1,372	77	128
2011	100	1,470	53	111
2010	100	1,063	32	10
2009	85	825	-	-



## Case 3:

### Compensation for the recovered waste during fishing

#### Objectives

- To prevent re-entering of the recovered waste during fishing into marine environment by buying the recovered waste
- This is ultimately cost-effective
- Enhancing fishers' awareness on marine environment

#### Progress (Total vol. of waste bought)

Total (Ton)	2009	2010	2011	2012
30,959	9,692	6,563	8,054	6,650

#### Cost sharing: National 60%, Local 40%

- Approx. US\$ 26M up to 2012
- Approx. 118% achievement (compared to planning)







## Case 4: Youth Marine Environment Programme

- **Objectives**
  - Educating marine environment protection to Elementary, Middle and High School students
  - Including programmes such as Lectures, Summer Camps, Events, Competition
- **Implementation**
  - Korea Coast Guard,
  - National-wide 16 local branches,
  - Approx. 10,000/year youth participation





## Case 5: Establishment of MALI Center and Marine Litter Information System



- MALI Center established in 2011
- Marine Litter Information System is to provide various information to public which was established in 2011 within MALI Center in KOEM

### Monitoring



### Info. management

조사기관	해양환경관리공단	조사시점	000.000
조사구분	해양쓰레기	조사지역	한정조사
조사시점별조사구분	조사시점별.0000	비고	
● 조사시점별(매년) - 조사일별 - 000			
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자료	자료	자료	
조사시점별.000	사진	연.연.연	
조사시점별.000	문서	연.연.연	
● 조사시점별.자료			
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### Policy support



### International Collabor.





## Marine Litter in ROK

### Case 6: National Marine Litter Monitoring Programme

- **Objectives**
  - Collecting nation-side ML data
- **Implementation**
  - KOEM with 19 NGOs
  - Include foreign-origin litter study







## ■ Scope of 3<sup>rd</sup> National Marine Litter Management Plan (2019-2023)

### ❖ Evaluation of the 2nd National Marine Litter Management Plan(2014~2018)

- Evaluate Action Programs on 2nd NMLM Plan
- Problem Analysis

### ❖ Global and Domestic Trends in Marine Litter Management

- Reserch on Global and Domestic Trends and Policies in Marine Litter
- Business Demand Research

### ❖ Research and Estimation of Domestic Marine Litter Volume

- Data collection and analysis, estimation of marine litter volume, establishment of systems for research and statistics

### ❖ Establishment of Objectives and Strategies for the 3rd National Marine Litter Management Plan

- Establishment of directions for policies and management objectives, suggestion of execution strategies

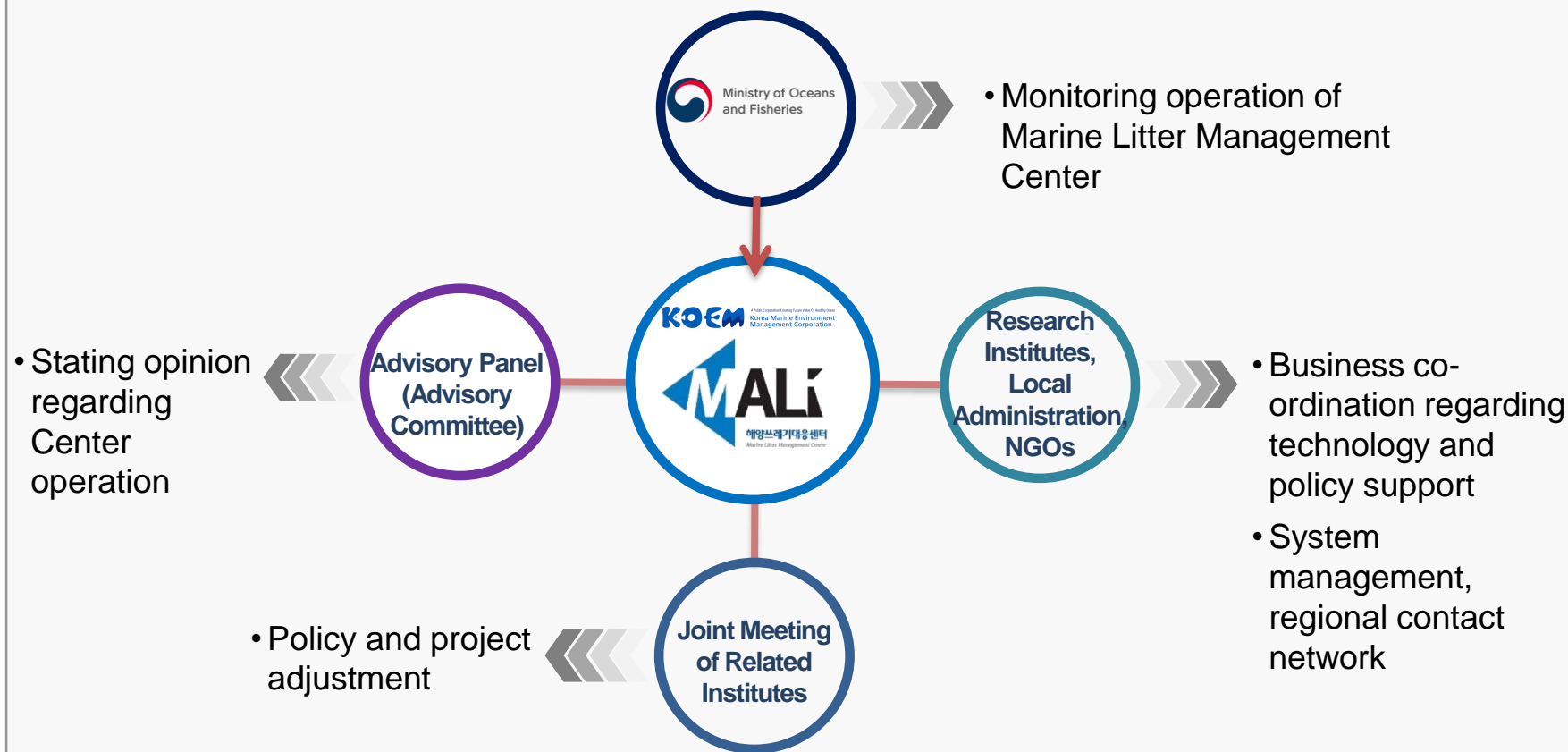
### ❖ Establishment and Implementation of Execution Plans(Business/Project) for Each Objective, Management, Arrangement of Evaluation Methods

- Suggestion and implementation of detailed tasks for each strategy and execution plans, arrangement of plans to acquire financial esources





## ■ Marine Litter Management Center Co-ordination Scheme







## Nationwide Marine Debris Survey on ROK Coast

- Starting Marine Debris Monitoring at **20 sites** in 2008

- Expanded to **40 sites** in 2015

\* About 25 local NGOs participated in each region



- Marine Debris Management System in Coastal Area

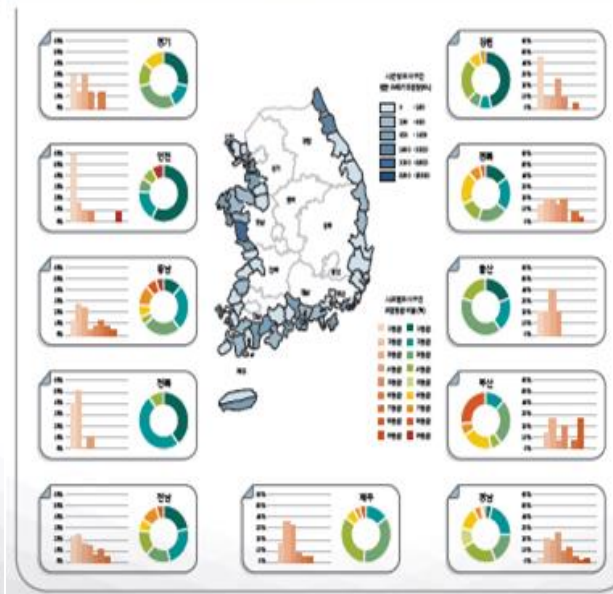
- Determine total amount of shoreline debris
- Develop pollution evaluation index

\* 40 sites for the pilot survey, investigations conducted at 383 sites simultaneously



- Coast GIS (Geographic Information System)-based Shoreline Debris Information Management System

- Create a nationwide shoreline pollution map
- Develop an mobile application for convenience

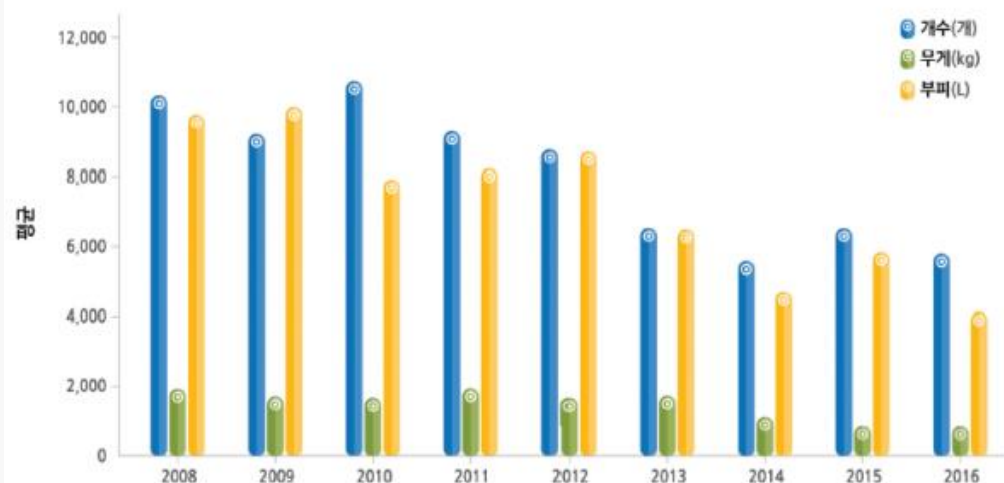






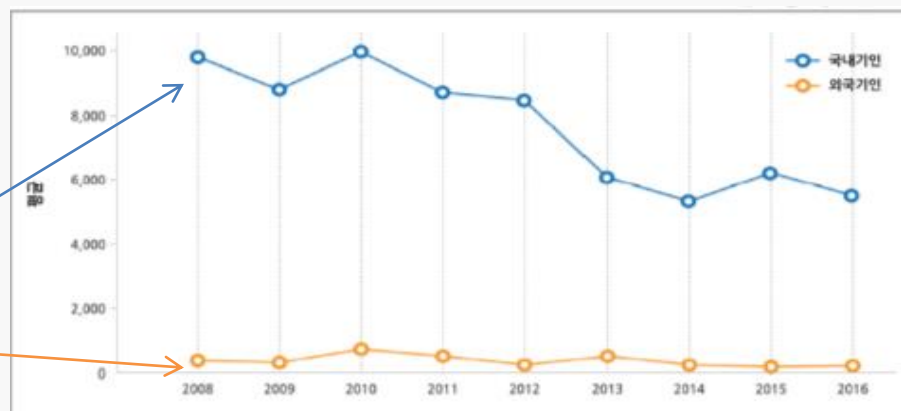
## Results of monitoring (2008~2016)

- Occurrence in number, volume and weight are decreasing trend



Blue: Number count  
Yellow: volume (L)  
Green: Weight (kg)

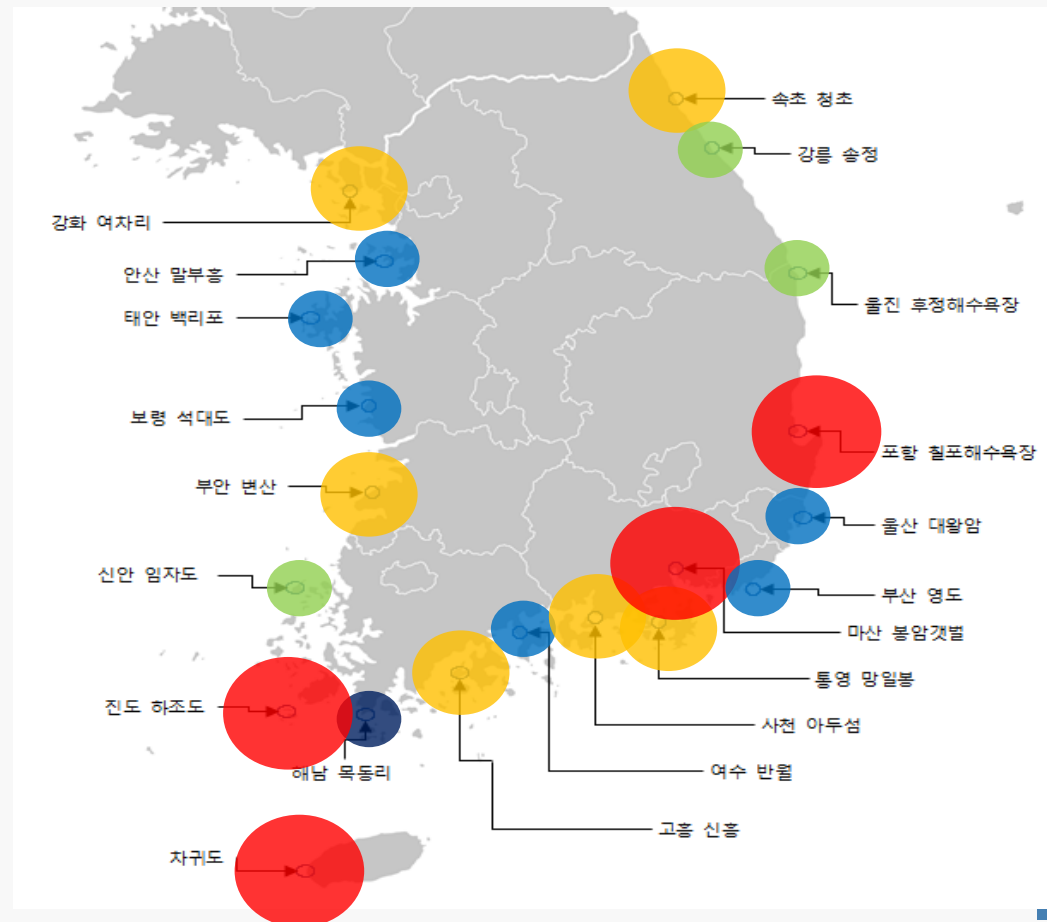
ML Number count  
Blue: RO Korea origin  
Yellow: Foreign origin





## Marine Litter Index

- Using the formula designed to identify which area is affected by Marine Litter the most. Similar to Clean Coast Index (Israel)

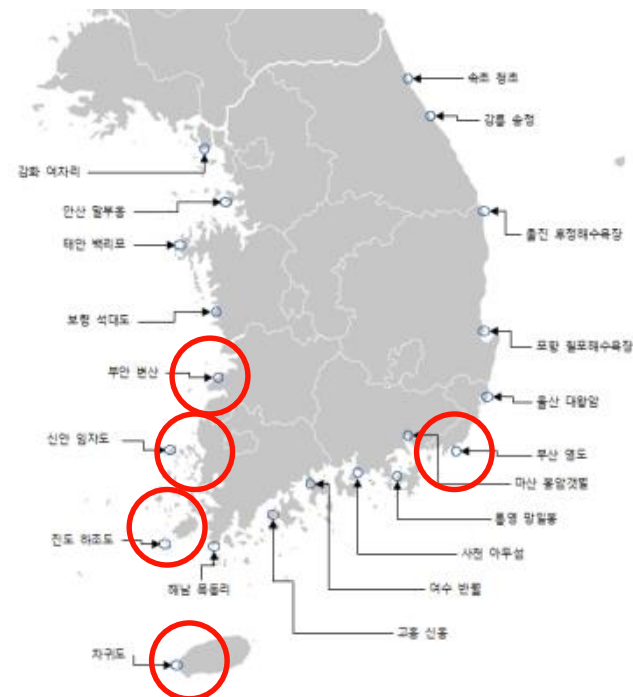
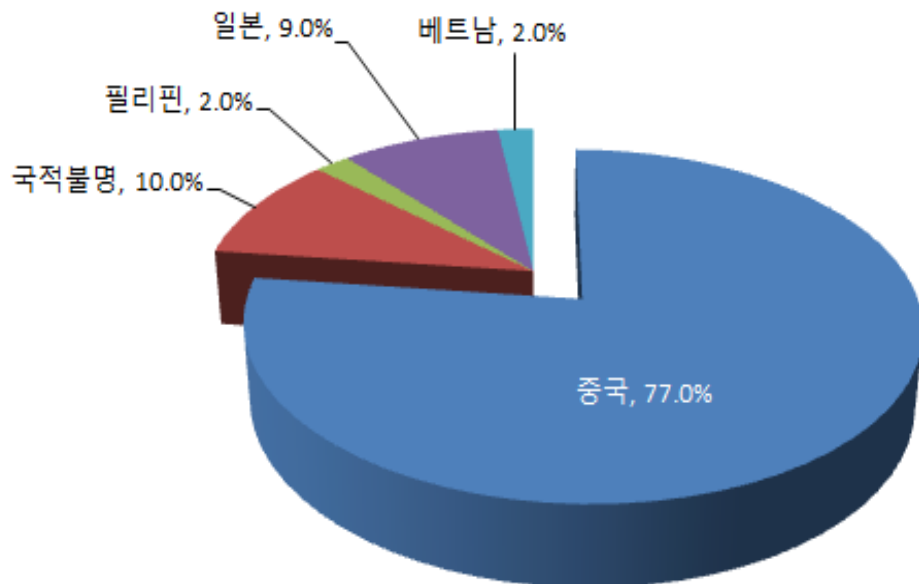






## Foreign-origin Litter

- Monitoring Card contains foreign origin litter
- Litter from various countries
  - Foreign litter contribute less than 10% of total occurrence
  - China(77%), Japan (9%), Philippines(2%), Vietnam(2%), others(10%)
  - South-west coast in the foreign litter hotspots (Busan, Shinan, Jindo, Jeju)

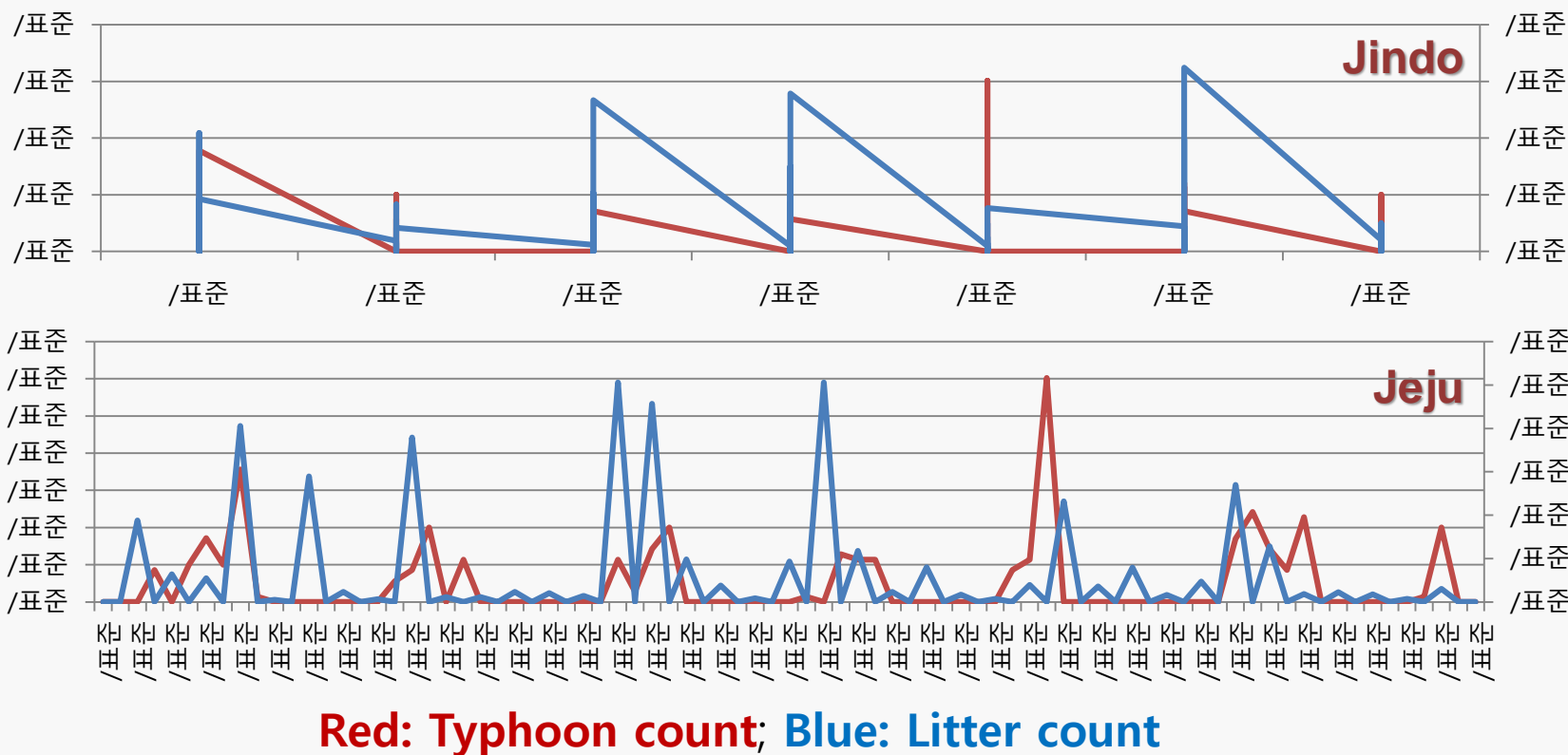






## Typhoon and Marine Litter Occurrence

- Typhoons land fall on China during 2008~2014 were summed.
  - Marine litter survey for foreign objects were calculated.
- ➡ Good match with foreign litter hotspots (Jindo and Jeju)







## ■ Lesson Learned

### Waste minimize

- 80% of marine litter is land-based origin
- Establishing a circular economy through 3R is the key to the successful management of marine litter

### Behavioral change

- Residents, coastal industries, fishers, vessel operators and students are main contributors of the marine litter
- Waste generation should be minimized

### Education & Awareness

- Citizens and students should be aware of the severity of marine litter and well respond to the issue
- Putting focus on education and outreach is important





## ■ Lesson Learned

### Monitoring

- Scientific survey of ML will provide policy makers a firm basis for their resource allocation
- Monitoring activity by local NGOs and students/volunteers promote awareness and education of ML
- Scientific survey data provide current status and trend of ML for public awareness and education

### Internal Collaboration

- Marine litter is a transboundary issue
- Collaboration with other countries should be promoted

**KOEM wish to collaborate with EAS countries  
on marine litter related activities**



An underwater photograph showing a bright light source, likely the sun, shining down from the surface. Sunlight rays (crepuscular rays) are visible, creating a dramatic effect. The water is clear and blue, with some bubbles and ripples visible near the surface.

**THANK YOU**  
FOR YOUR ATTENTION