EAAFP 10th Anniversary
2019 World Migratory Bird Day

Impact of plastic marine debris on wildlife and the effort to reduce in Ro Korea

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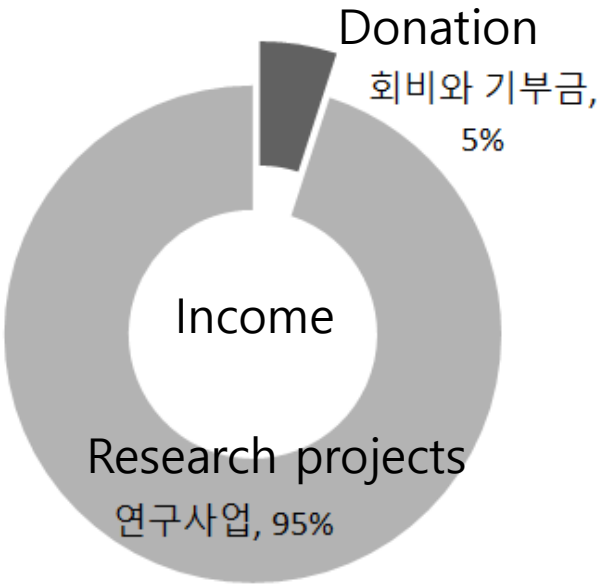
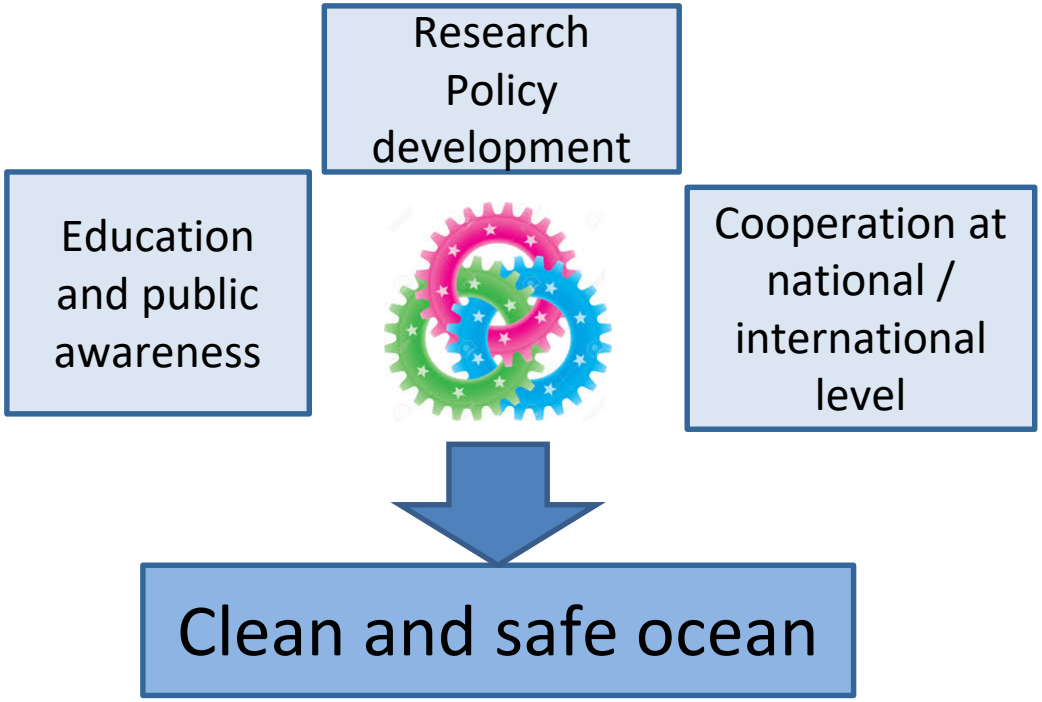
해양쓰레기 전문 연구·교육기관 O·S·E·A·N Our Sea of East Asia Network 동아시아바다공동체

Our Sea of East Asia Network (OSEAN, əʊʃn)

- Since Oct 2009
- OSEAN is a non-profit organization (7 full-time, 3 volunteer staff)
- Dedicated to protect marine environment from **marine debris**.
- Subsidiary: Korea Marine Litter Institute





Solution-oriented approach of OSEAN

Key words

Citizen science
Networking
Collaboration

Finding solutions to marine debris (MD) problem in Korea

Quantity, distribution, source identification of MD

Negative impact of MD on wildlife, tourism, navigation

Finding solution to serious items/sources

Finding solution to serious items/sources

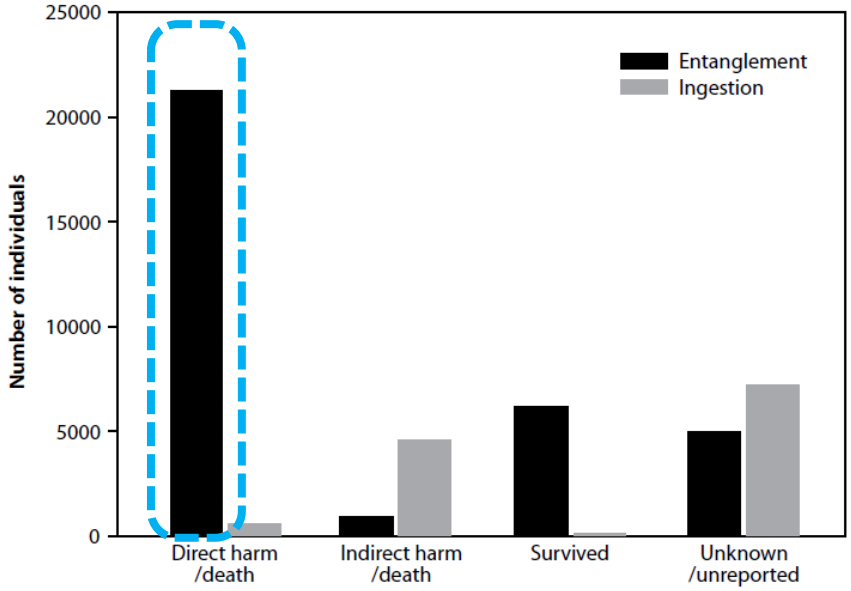
Reducing quantities and impact in Korea

International cooperation to tackle MD in Asia Pacific region

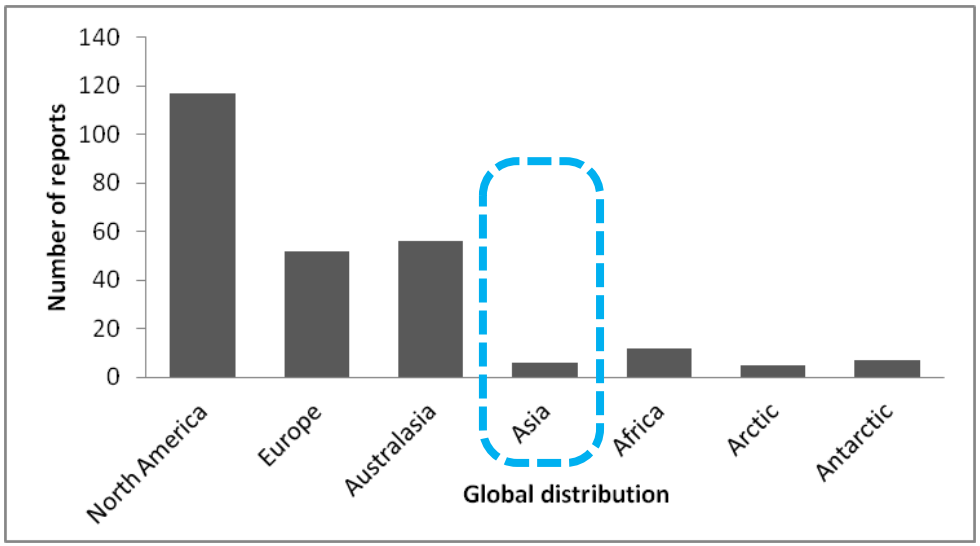
Background

- Generally saying, a million of seabirds and a hundred thousand of marine mammals every year have been killed due to marine debris (mostly plastic).
- Entanglement by and ingestion of marine debris are the most common types of harm on wildlife and entanglement causes direct harm and death (CBD, 2012).
- Lack of studies in Asia in similar level to Africa, Arctic and Antarctic regions (CBD, 2012). No data in Ro Korea had been reported.

Entanglement and ingestion



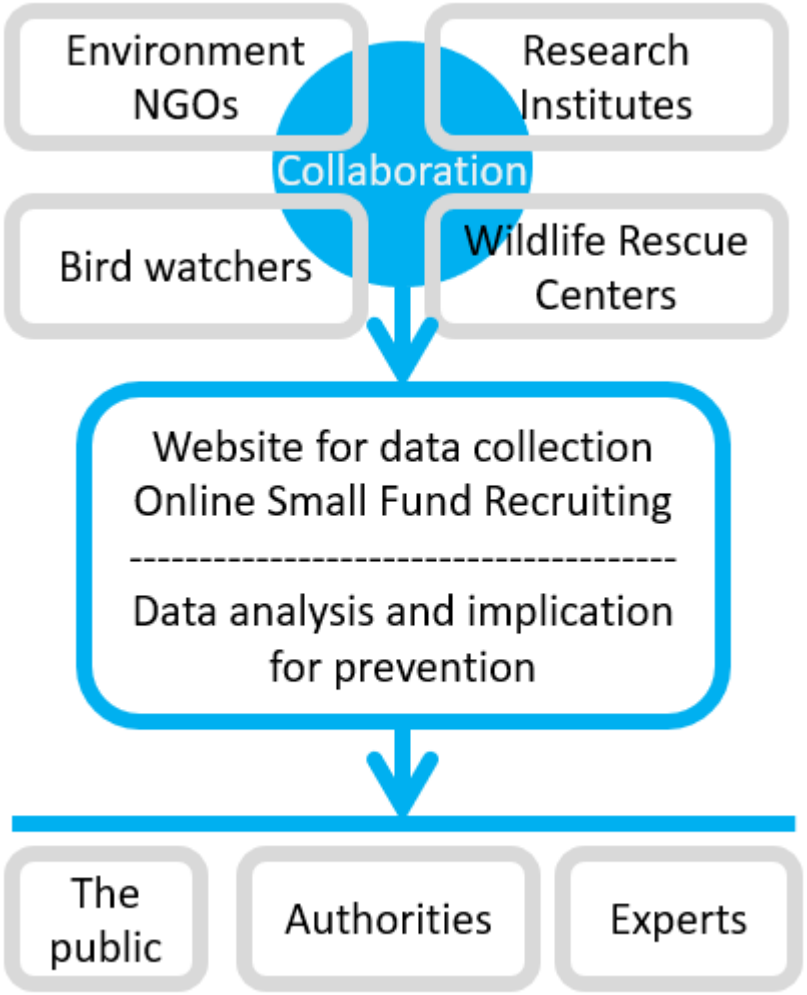
Regional studies



CBD (2012)

Objectives and methods

- To identify **vulnerable species** to marine debris, **types of impact** (entanglement or ingestion) and **sources** of marine debris
- To identify the most **harmful items** which have seriously affected wildlife
- To provide implications for **management policies** and **prevention strategies** based on data and information collected nationwide.



Collaboration with 10 organizations and institutes on a voluntary basis

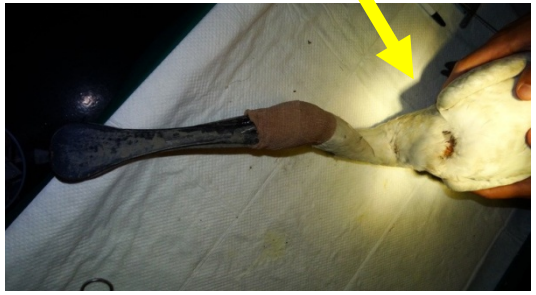
Classification	Organization	Data collected by
Wild life rescue center	Busan Wild Animal Treatment Center	Veterinarians
	Chungnam Wild Animal Rescue center	Veterinarians
	Jeju Wildlife Rescue Center	Veterinarians
NGO	Korea Wild Bird Protection Association	Birdwatchers
	Jeju Wildlife Research Center	Birdwatchers
	PGA Wetland Ecology Institute	Scientists
	Our Sea of East Asia Network	Scientists
	Gang-hwa Citizens Coalition	Birdwatchers
Research Institute	Korea Institute of Ocean Science and Technology	Scientists
	Migratory Birds Center of National Park Research Institute	Veterinarians /Scientists

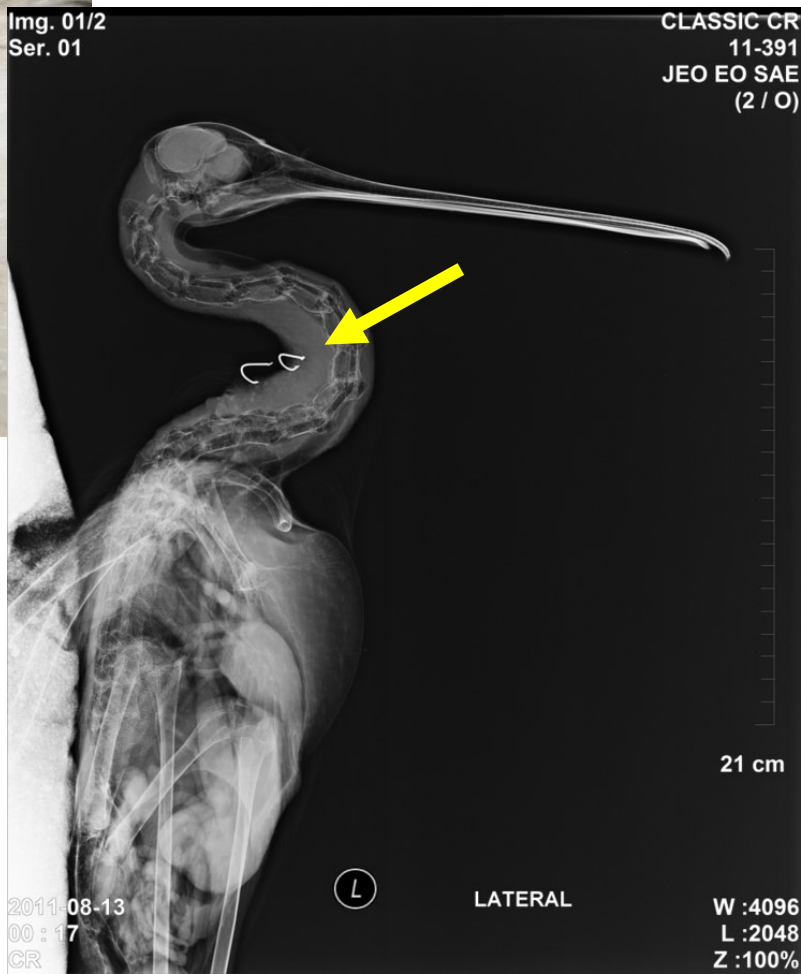
45 cases occurred in 2003~2012

Collected cases

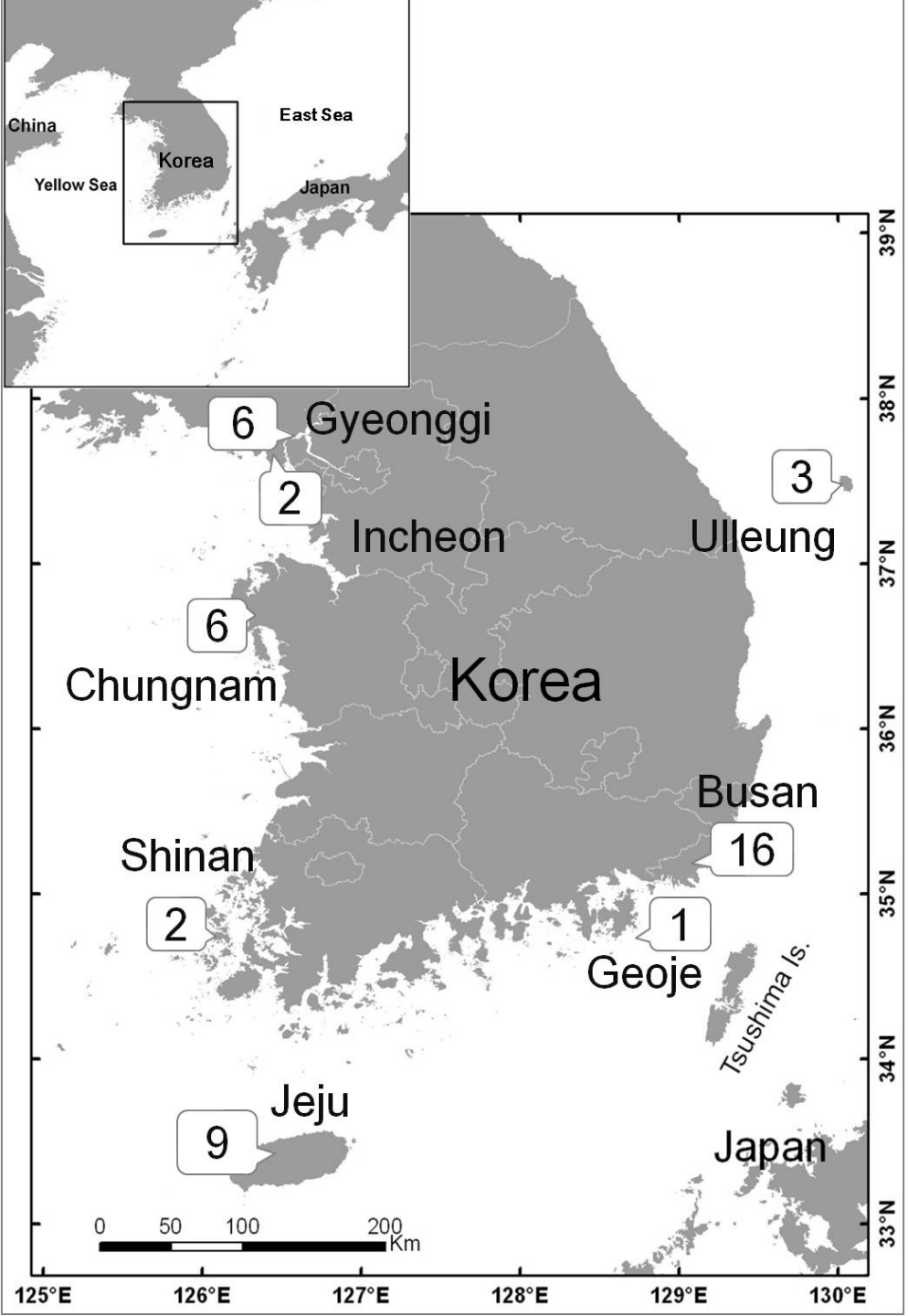
Ancient murrelet *Synthliborampus antiquus*

Collected cases





Black-faced spoonbill *Platalea minor*



Spatial distribution of occurrence

Year	Occurrence
2003	1
2004	1
2005	3
2006	1
2007	1
2008	5
2009	9
2010	11
2011	6
2012	7
Total	45

Order / Species	N (%)
Birds (16 species)	**42 (93.3)**
Black-tailed gull *Larus crassirostris*	19
Black-headed gull *Larus ridibundus*	1
Slaty-backed gull *Larus schistisagus*	1
Vega gull *Larus argentatus*	1
Greater painted snipe *Rostratula benghalensis* †	1
Ancient murrelet *Synthliboramphus antiquus*	1
Great egret *Egretta alba (Casmerodius albus)*	2
Black-faced spoonbill *Platalea minor* ‡ †	2
Night heron *Nycticorax nycticorax*	1
Grey heron *Ardea cinerea*	1
Temminck's cormorant *Phalacrocorax capillatus*	1
Whooper swan *Cygnus cygnus* †	3
Pacific diver *Gavia pacifica*	1
Black-throated diver *Gavia arctica*	1
Short-tailed shearwater *Puffinus tenuirostris*	2
Mallard *Anas platyrhynchos*	2
Little egret *Egretta garzetta*	1
Great crested grebe *Podiceps cristatus*	1
Mammals (2 species)	**2 (4.5)**
Finless porpoise *Neophocaena phocaenoides* ‡	1
Water deer *Hydropotes inermis* ‡	1
Crustaceans (1 species)	**1(2.2)**
De Haan's shore crab *Chiromantes dehaani*	1
Total 11 orders, 21 species	**45(100.0)**

‡ Internationally threatened species
† Protected by domestic act

Entanglement and ingestion

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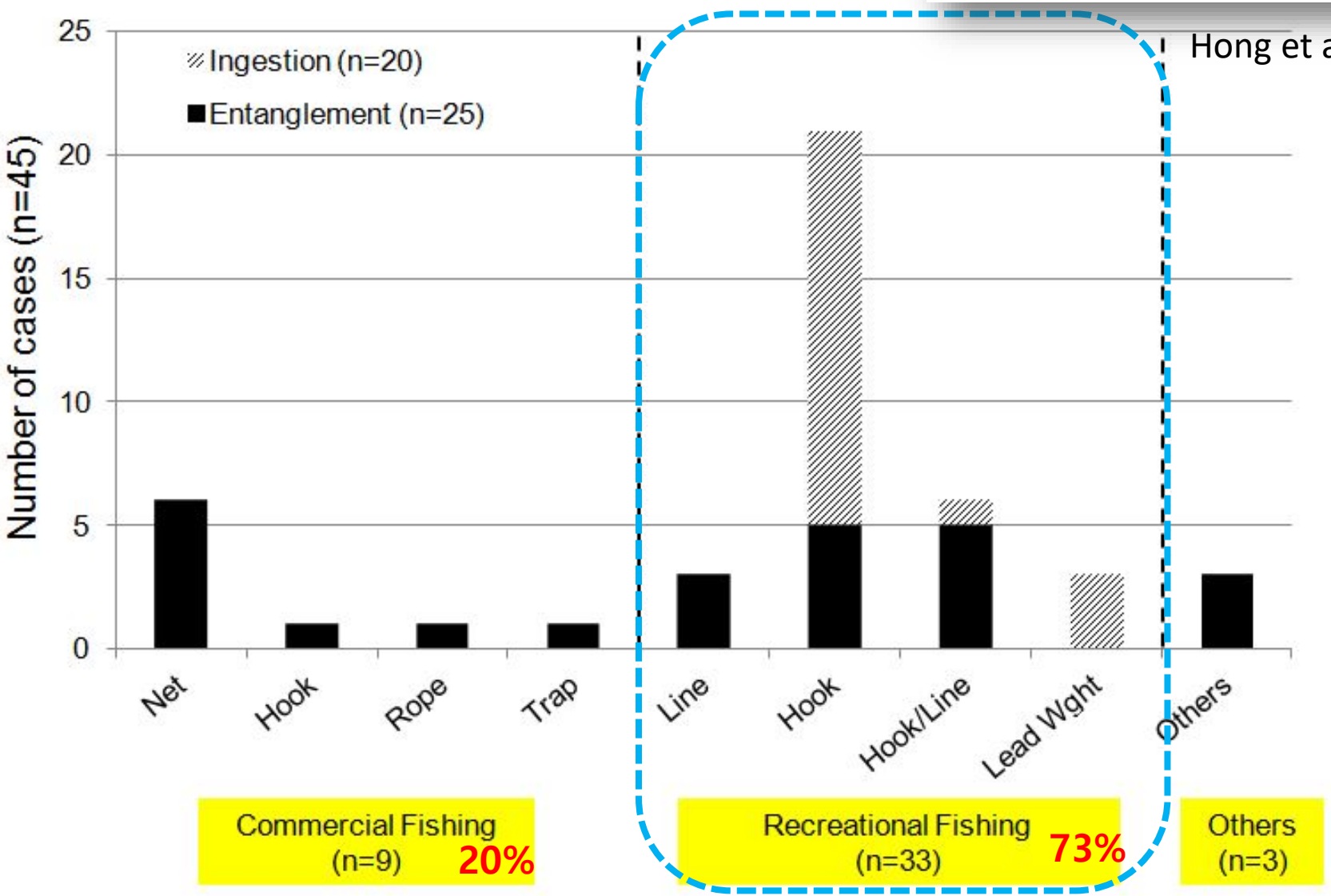
Impacts of marine debris on wild animals in the coastal area of Korea

Sunwook Hong [a,f], Jongmyoung Lee [a,f,*], Yong Chang Jang [a], Young Jun Kim [b], Hee Jong Kim [c], Donguk Han [d], Sang Hee Hong [e], Daeseok Kang [f], Won Joon Shim [e]

Hong et al. (2013)



Impacts by recreational fishing gears

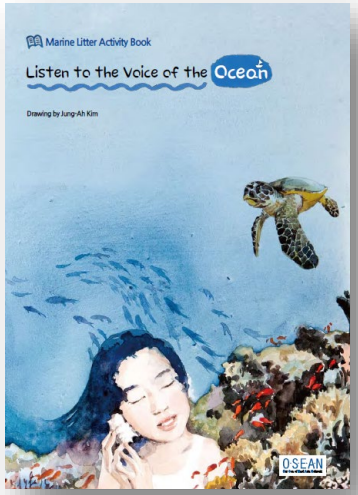
Debris	Species	Sections (n)
Hook (metal) (n=22)	Black-tailed Gull *Larus crassirostris*	E: Bill (1), Neck (1) I: Oral cavity (4), Oesophagus (4), Stomach (3), Intestine (1)
	Slaty-backed Gull *Larus schistisagus*	E: Abdomen (1)
	Black-headed Gull *Larus ridibundus*	I: Unknown (1)
	Black-faced Spoonbill *Platalea minor*	E: Neck (1)
	Short-tailed Shearwater *Puffinus tenuirostris*	I: Stomach (1)
	Great Egret *Egretta alba*	E: Leg (1)
	Little Egret *Egretta garzetta*	E: Bill (1)
	Grey Heron *Ardea cinerea*	E: Wing (1)
	Black-throated Diver *Gavia arctica*	I: Stomach (1)
	Pacific Diver *Gavia pacifica*	I: Stomach (1)
Line (plastic) (n=16)	Black-tailed Gull *Larus crassirostris*	E: Bill (1), Wing (6), Leg (4)
	Slaty-backed Gull *Larus schistisagus*	E: Abdomen (1)
	Great Egret *Egretta alba*	E: Leg (1)
	Temminck's Cormorant, *Phalacrocorax capillatus*	E: Wing and leg (1)
	Grey Heron *Ardea cinerea*	E: Wing (1)
	Night Heron *Nycticorax nycticorax*	E: Neck (1)
Lead sinker (n=3)	Whooper Swan *Cygnus cygnus*	I: Stomach (3)

E: entanglement
I: ingestion

Hong et al. (2013)

Actions to reduce the cause of death

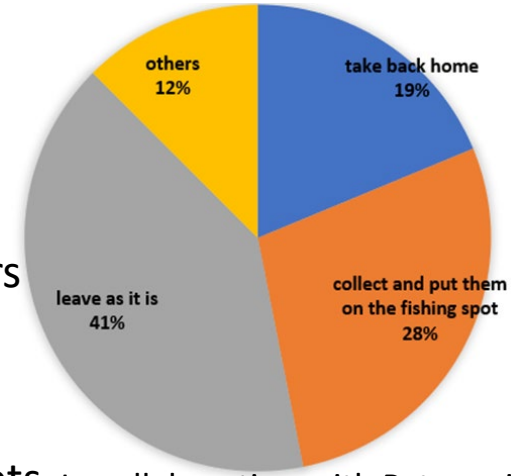
Booklet and leaflets



Coastal cleanups

Event

Surveys on anglers



Surveys on fishing spots

In collaboration with Patagonia

Arts & Exhibition

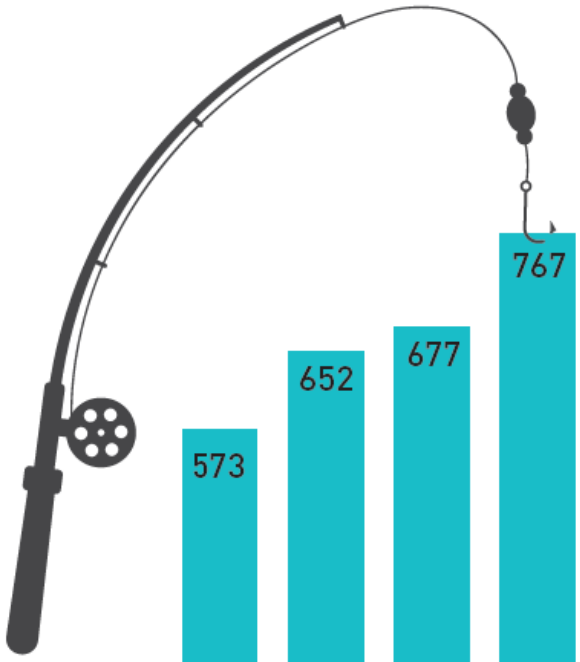
Actions to reduce the cause of death

TV show targeting anglers' littering, Fishing TV for 1 year

The monitoring camera set up to watch anglers' behaviours

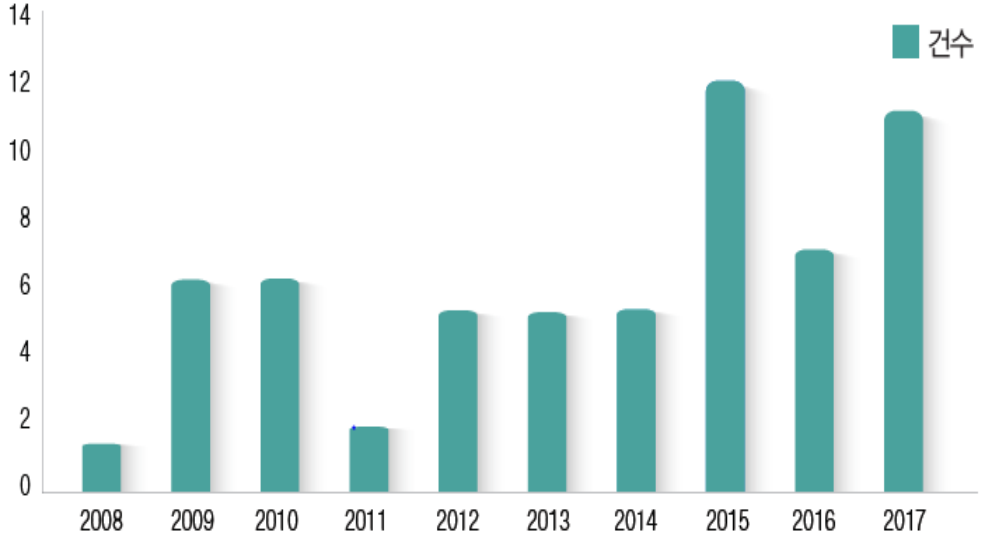
In collaboration with video production

However,
Increasing anglers



Number of anglers (10,000 people, estimated by Ministry of Oceans and Fisheries

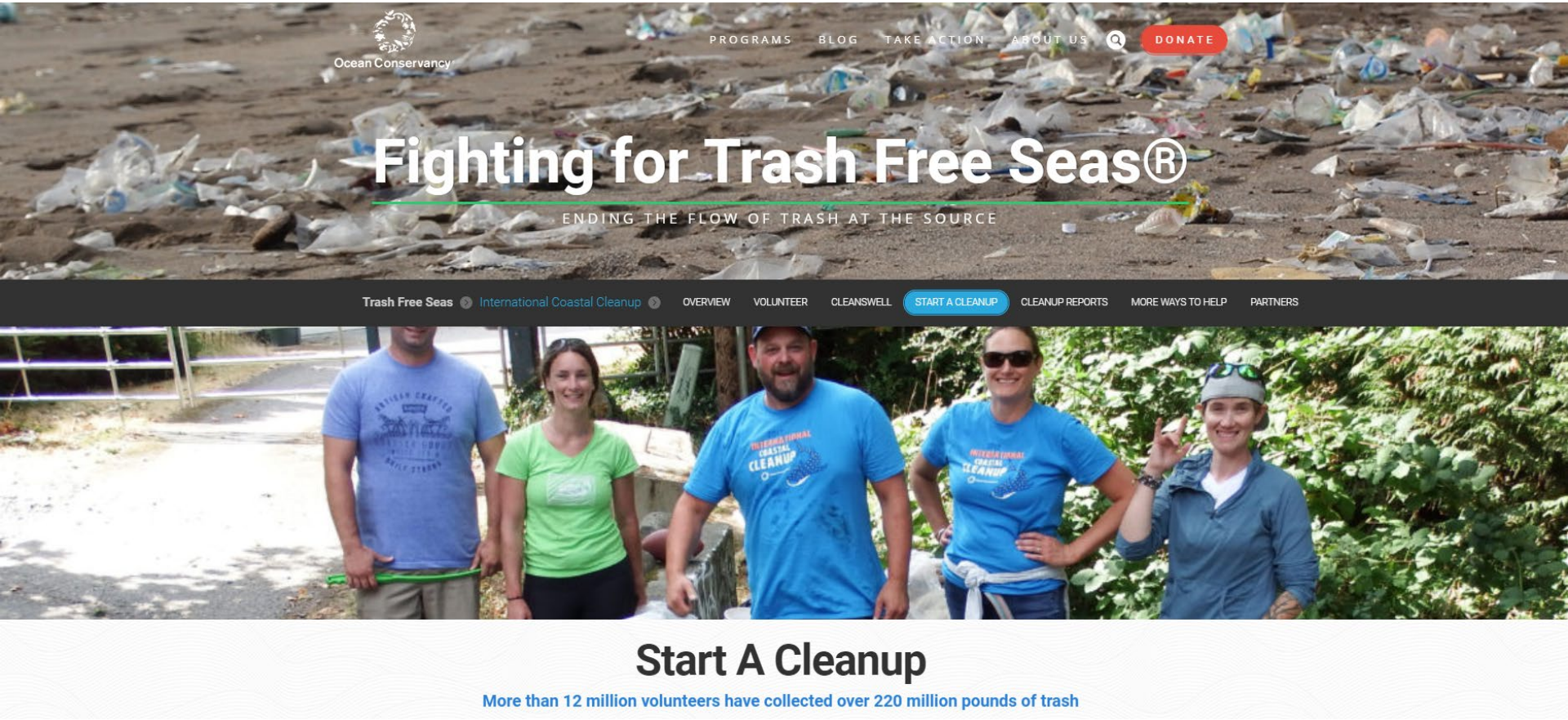
Increasing damages



Number of cases (entanglement and ingestion) occurred in Busan Wildlife Cure Center for 10 years

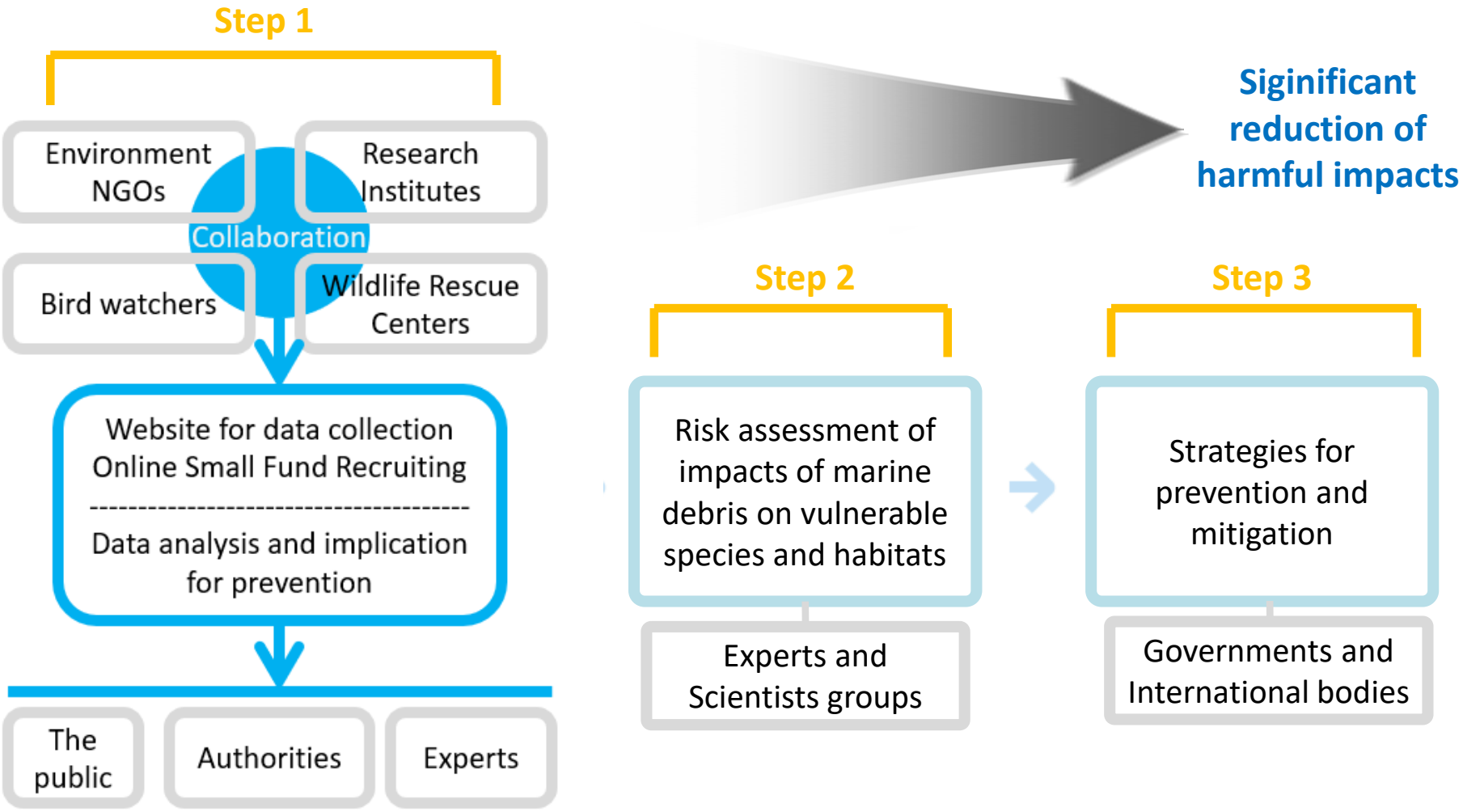
Need your help!

International Coastal Cleanup



Data collection on impact on wildlife for 2nd phase in Korea

Suggestion



In under-studied regions on impacts of MD on biodiversity & birds

Save birds from plastics with OSEAN!

Thank you for listening!

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