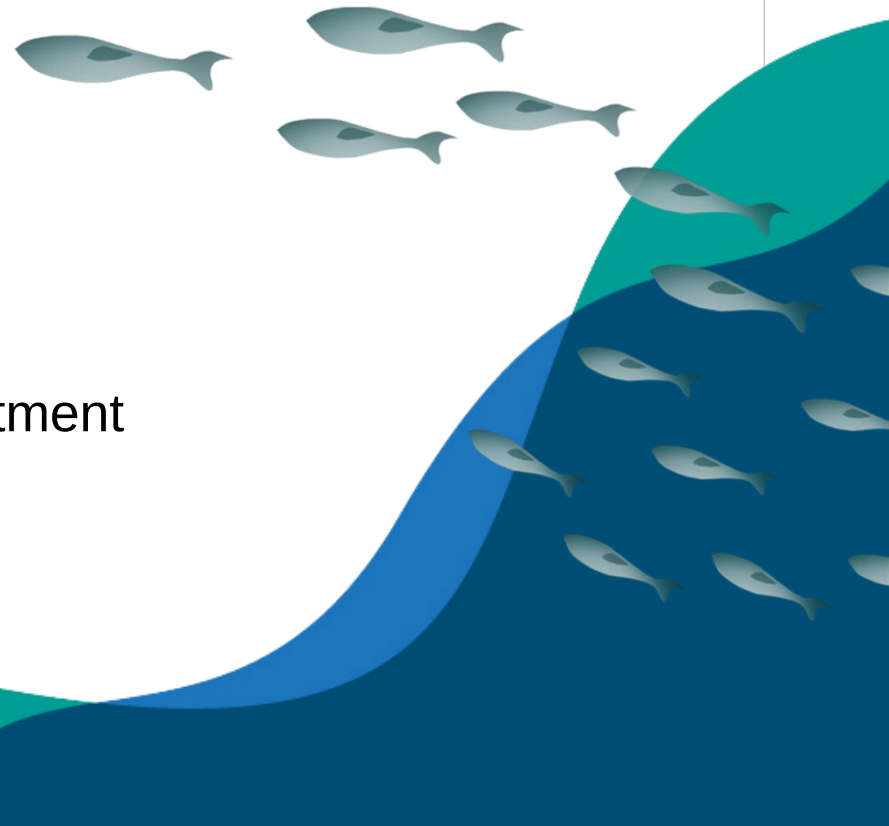
Ministry of Oceans and Fisheries

KOEM Korea Marine Environment Management Corporation

Korea’s national policies and legal frameworks for MPA and marine mammal conservation



Dr. Young Nam Kim
Department head, Marine conservation and restoration depaortment
Korea Marine Environment Management Corporation(KOEM)

MPA & Marine Mammal conservation

Korea : diversity, uniqueness and pristineness of Habitats

Subtidal,Rocky Marine Ecosystem



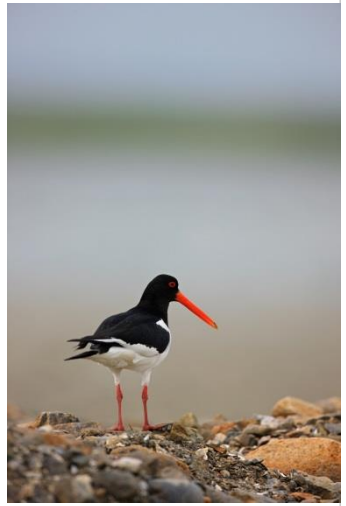



Marine mammals,Reptiles,
Coastal birds, etc.









MPA & Marine Mammal conservation

Korea manages marine mammals under the Conservation and Management of Marine Ecosystems Act.

Chapter III: Protection of Marine Organisms establishes the designation of protected marine species, including cetaceans and pinnipeds.

MPA & Marine Mammal conservation

Korea manages marine mammals under the Conservation and Management of Marine Ecosystems Act.

Chapter III: Protection of Marine Organisms establishes the designation of protected marine species, including cetaceans and pinnipeds.

-Marine mammals such as the finless porpoise and spotted seal are designated as marine protected organisms

-The Act prohibits capture, collection, trade, or intentional disturbance

MPA & Marine Mammal conservation

Conservation programs by Ministry of Oceans and Fisheries

Population & Habitat Surveys:

Acoustic monitoring of finless porpoises in the Yellow Sea

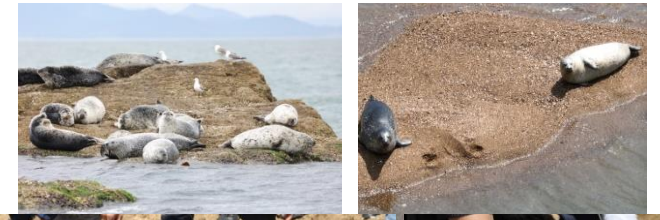
Habitat research for spotted seals

Support for marine animal rescue and treatment facilities.

Rehabilitation and release programs
Operation of networks such as the Yellow Sea Finless Porpoise Conservation Network.

Restoration projects (e.g., Dokdo sea lion genome research

Collaboration with IUCN and regional agreements



MPA & Marine Mammal conservation

Public awareness and training

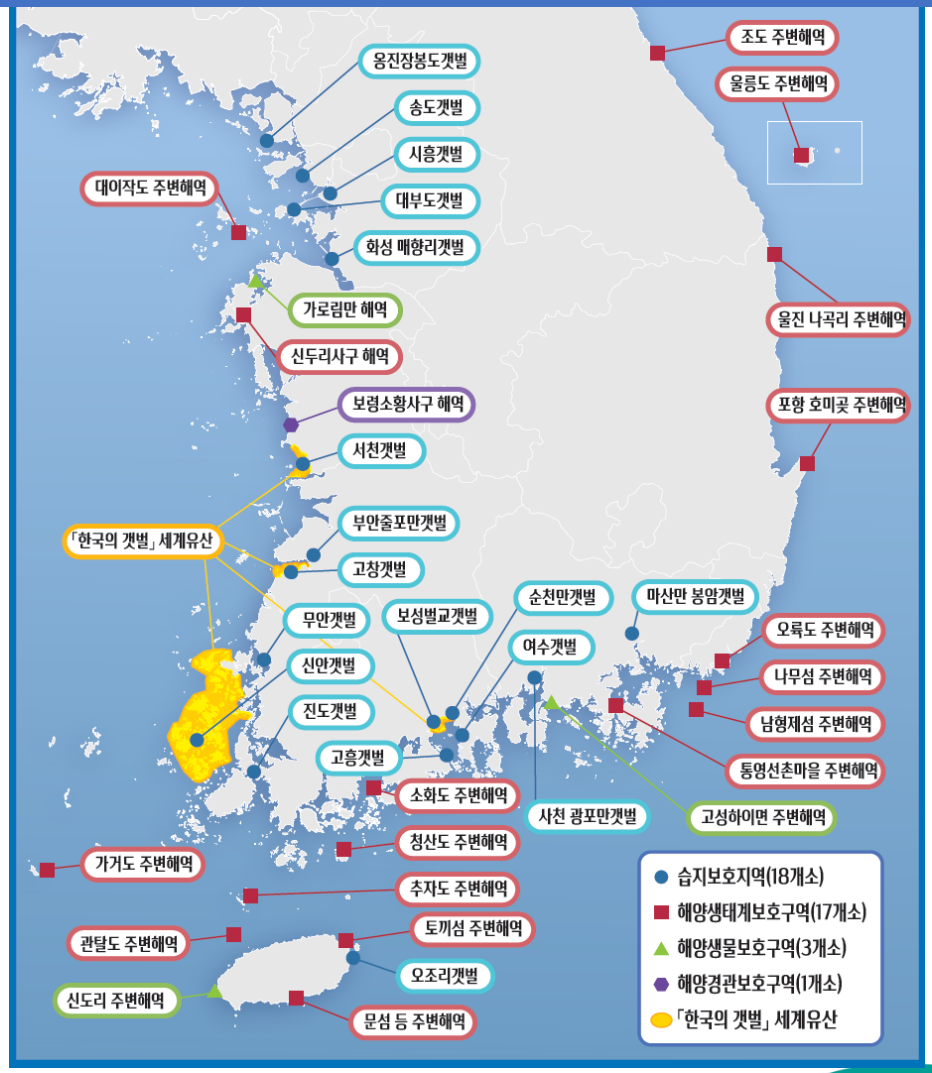
MPA In Korea

39 MPAs(2,047.292 km²) as of March 2025

- Wetland protected area (18)
- Marine ecosystem protected area (17)
- Marine life protected area (3)
- Marine scenery protected area (1)

World natural heritage sites	Measures (㎢)		
	heritage	Buffer	Total
Seochoen	68.09	36.57	104.66
Gochan	55.31	18.80	74.11
Shinan	1,00.86	672.54	1,773.4
Boseong-Suncheon	59.85	18.01	77.86
Total	**1,284.11**	**745.92**	**2,030.03**

MPAs in South Korea designated by the MOF



Korea Blue Action(OOC)_MPA

1. Actively Support the Ratification and Implementation of the BBNJ Agreement

2. **Expand Domestic Marine Protected Areas**

→ **Designate at least one new large-scale MPA annually until 2030**

3. **Actively Participate in Discussions on High Seas MPAs**

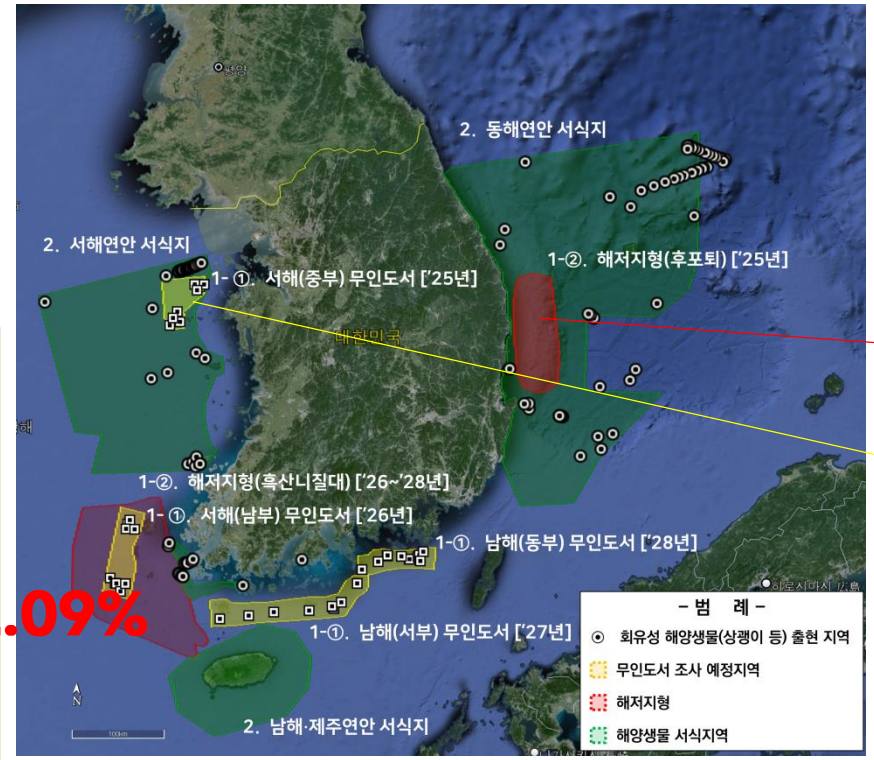
MPA & Marine Mammal conservation

MPA Target

Targets for the MPAs
- **(national) 30% of territorial waters by 2030**

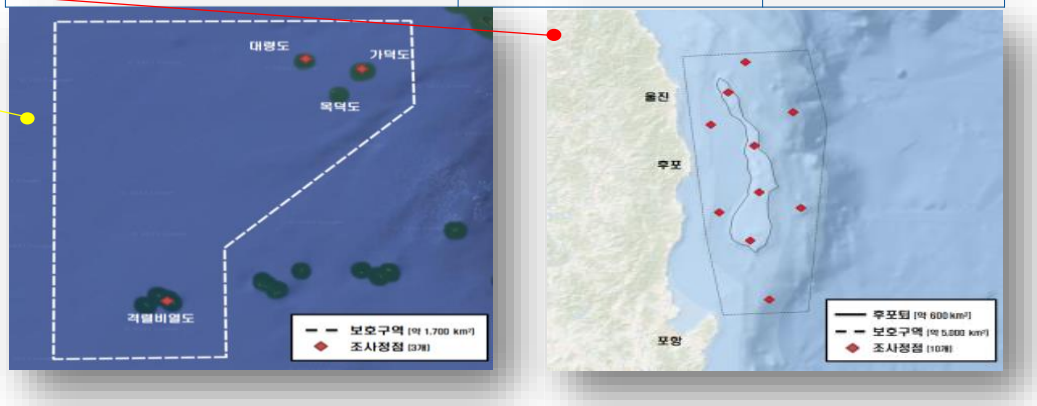
Current score : 2.09%

- **(GBF) 30% of world's ocean by 2030**



Large MPA candidates around Korean sea

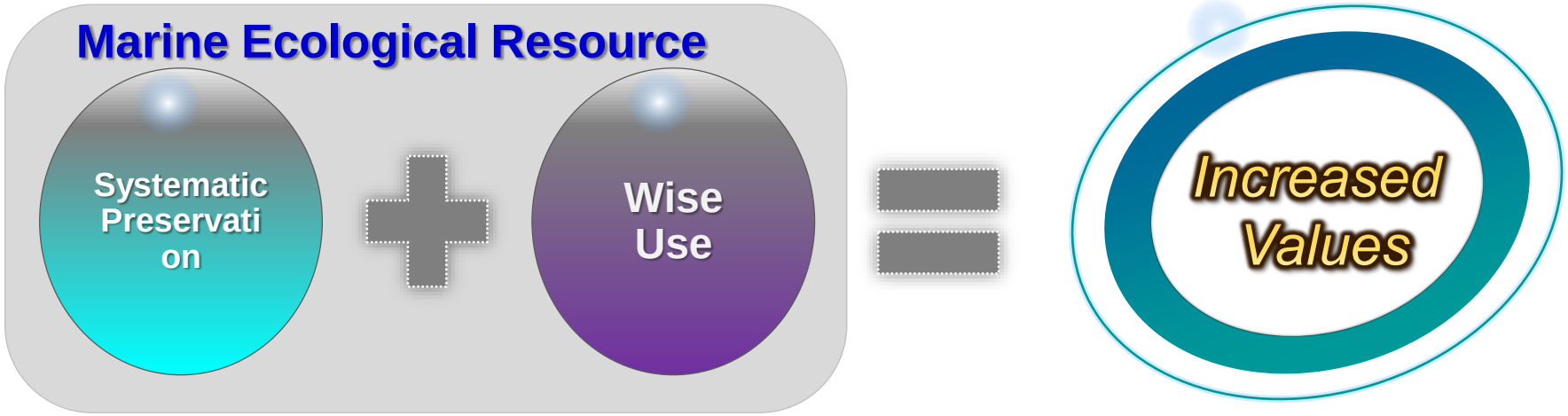
Category	No. of candidate	Measures (㎢)
Territorial sea starting point uninhabited island	4	11,200
Upwelling sea area (Open	2	20,000
Migratory area	2	81,000
Underwater topography	1	12,500
Total	**9**	**124,700**



2024 In-depth survey for MPA designation

MPA & Marine Mammal conservation

MPA management



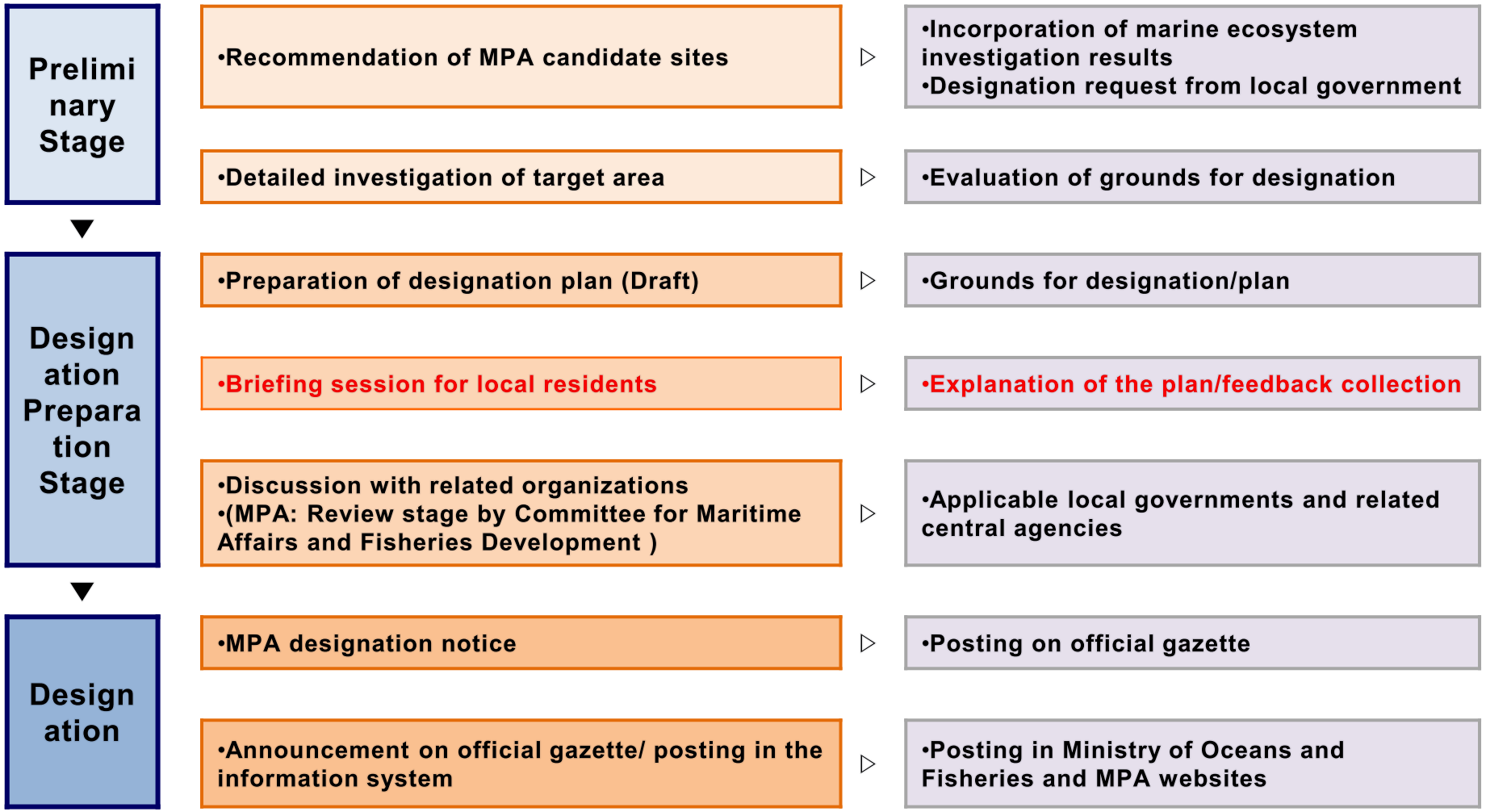
(Preservation) Establishment of preservation plan and detailed project plan, management committee operation

(Use) Ecological experience learning center, application of bio-resource, continued use of fishery resources

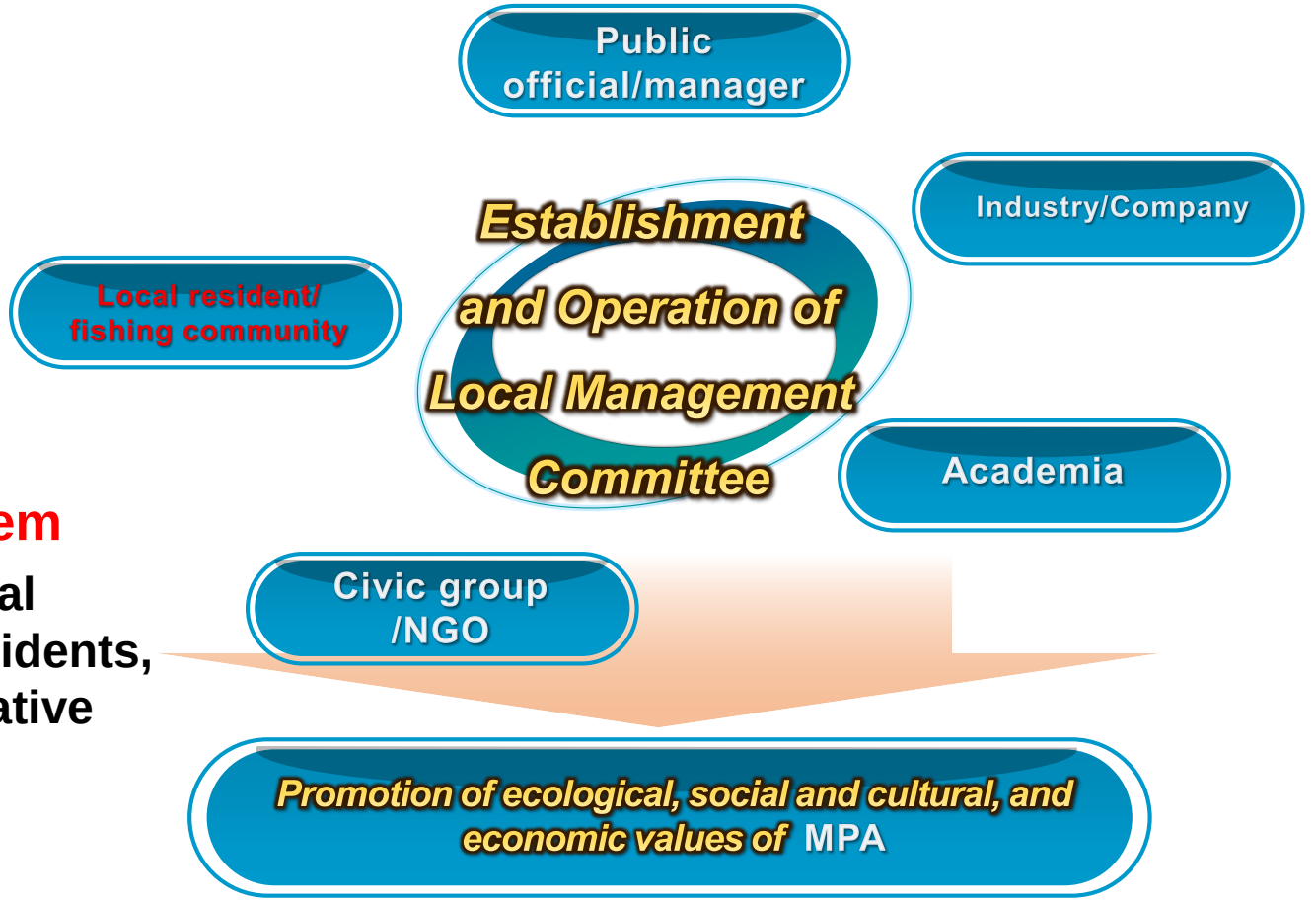
(Increased Values) Investment in management projects, revitalization of eco-tourism, increased values of local products

MPA & Marine Mammal conservation

MPA designation process



MPA Management system



Local Participation Management System

- Local-led management in which regional stakeholders (public officials, NGO, residents, businesses, academia) have a conservative awareness and establish governance, participating in MPA management

Tidal flat Restoration

Restore of Tidal Flats

- Restore abandoned tidal flats such as salt pan or fish farms
- Recover the old and severed mudflat channels, which have been cut off by bridges

Before restoration of abandoned salt pan

After restoration of tidal flats

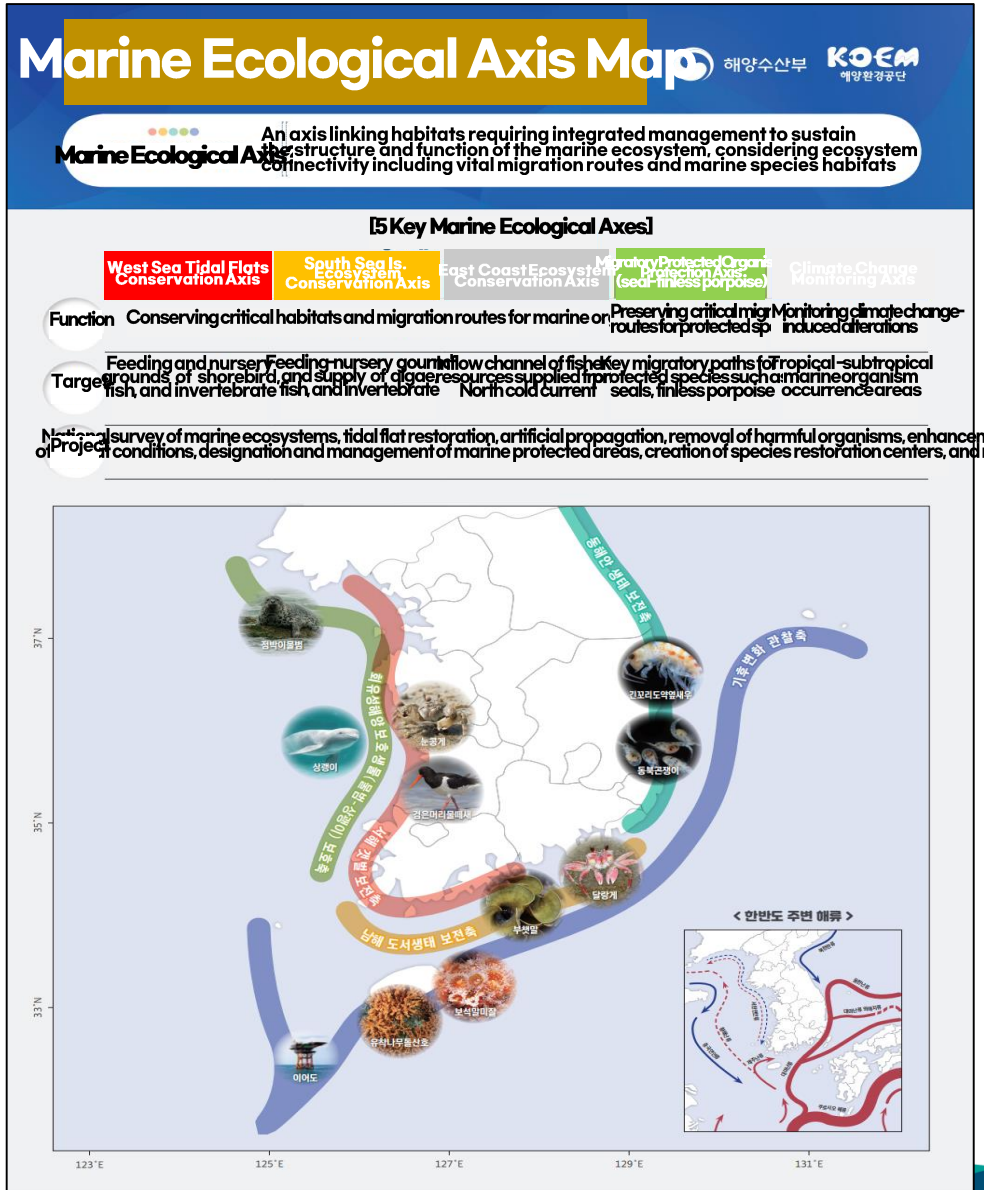
MPA & Marine Mammal conservation

Marine ecological axis

5 Key Marine Ecological Axes based on the characteri

Restoration ⇕ MPA

Integrated & Systematic Managem



MPA & Marine Mammal conservation

National monitoring program for marine organisms

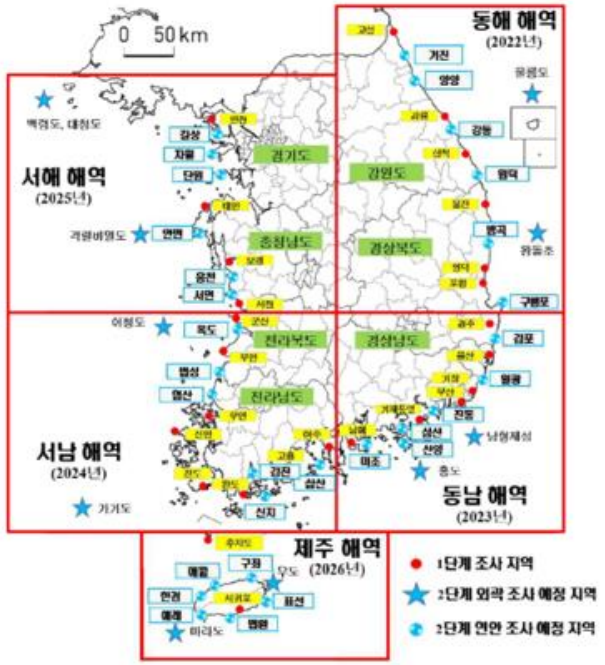
National Marine Ecosystem Monitoring

Purpose	Itens	Freq.
Time series Diagnostic & Evaluation on total 1,071 stations; Subtidal,intertidal, rochy, coastine bird, etc.	Total 103 Factors 17 Biological Factors, 9 Seawater Factors, 7 sediment Factors etc.	1~4 times /year

Baseline/Focused Total 1,071 Stations

Securement marine bio resource

Purpose	Items
Discovery of marine biological resources & Obtaining a specimen	5 taxa 20 order

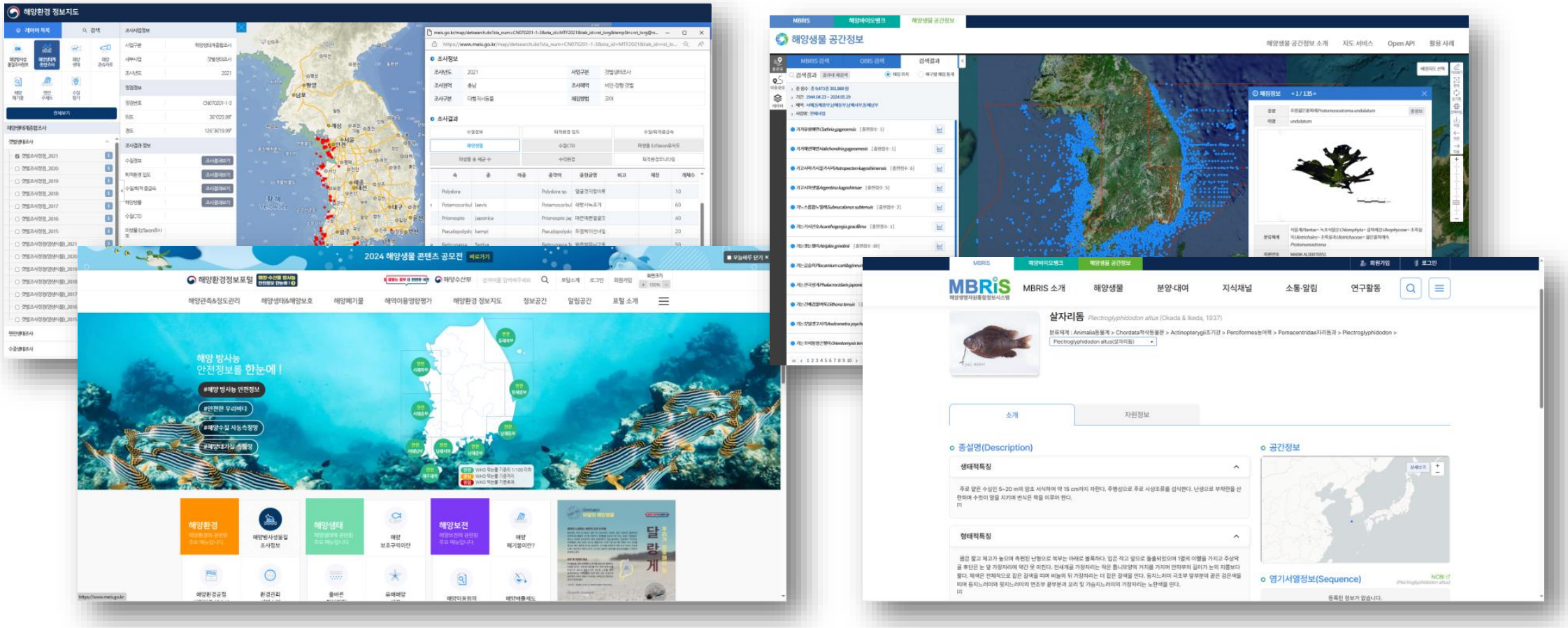


MPA & Marine Mammal conservation

Data and sharing

MEIS (Marine Environment Information System)

MBRIS (Marine Bio-Resource Information System)



MPA & Marine Mammal conservation

MPA
MARINE PROTECTED AREA

Macrobenthic Ecosystem of Kores'sTidal Flats

The intertidal zone, situated between high and low tides, experiences periodic submersion by seawater. The following statistics are derived from an eight-year span of spring and summer surveys conducted in the East Sea, West Sea, South Sea, and Jeju regions of Korea from 2015 to 2022. Survey zones are indicated by dots on the map.

Results of survey

1 Particle size

East	0.6
West	4.7
South	5.3
Jeju	2.0

2 TOC (%)

East	0.11
West	0.35
South	0.69
Jeju	0.14

3 Heavy metal Index(Igeo)

East	0.16
West	0.30
South	0.40
Jeju	0.11

4 Density of macrobenthos

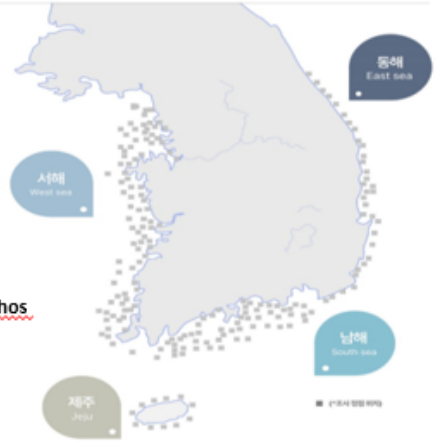
East	340
West	973
South	1,623
Jeju	2,472

5 Diversity of macrobenthos

East	0.71
West	1.75
South	1.72
Jeju	1.27

6 Health Index of macrobenthos

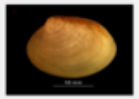
East	0.52
West	0.53
South	0.51
Jeju	0.40



Dominant species

East sea

A sand flat with a steep slope and narrow width developed. Due to the influence of waves, sediment movement is large, so organisms that quickly dig through sediment are advantageous. Compared to other sea areas, there are fewer species and the community structure is very different.



West sea

A gentle slope and wide mud flat developed. Sandy sediments increase from the coast to the open sea, and muddy sediments increase from north to south. The macrobenthic fauna community is divided into coastal and open sea. The density of organic carbon and benthic organisms is high due to the inflow of large rivers.

South sea

Flat terrain and wide mud flats developed. Most of them are muddy and silty sediments and have the highest organic carbon content. This is the sea area with the highest number, density, and biomass of macrobenthic animals.

Jeju sea

Most of the area is rocky intertidal zone, and soft substrate mudflats exist in some areas. The slope is gentler than the East Sea and the tidal flats are wider. Similar to the West Sea in terms of macrobenthic fauna communities.

Description of items

Partical size

It refers to the size of sediment particles. Smaller numbers mean coarser particles.

Total organic carbon

The total amount of organic carbon in the sediment layer. Used as food for benthic organisms and increases as the sediment particles become smaller.

Heavy metal index (Igeo)

Concentration degree of heavy metals in sediments is expressed as a grade or number, with larger numbers indicating higher concentration.

Macrobenthoes density

The population of benthic organisms larger than 1 mm living in sediment; increases as sediment particles become smaller.

Diverisity index

Macrobenthos diversity calculated based on the species and population, with larger numbers indicating higher diversity.

Benthic Health Index (ISEP)

Assessing the health of tidal flat benthic ecosystems using the ratio of biomass -based diversity to population-based diversity

Overall state of Korea Seas

This data is drawn from the National Marine Ecosystem Monitoring Program, jointly organized by the MOF and KOEM. It includes data collected across Korea from 2015 to 2022, averaged for analysis. The data is segmented into four cycles: the first from 2015 to 2016, the second from 2017 to 2018, the third from 2019 to 2020, and the fourth from 2021 to 2022. With approximately 1,000 survey zones, this comprehensive dataset covers rocky shore, subtidal, and intertidal ecosystems across all Korean waters with surveys conducted every two years.

Field	Items	1주기	2주기	3주기	4주기	5주기	Trends
수질환경 Water Quality	DIN (uM)	6.17	6.34	6.14	5.55		→ 변화없음
	DIP (uM)	0.22	0.21	0.32	0.36		↗ 약간증가
	Number of Dead zone	2	3	5	3		→ 변화없음
	Percentage of WQI Grade 1	33.6	64.9	42.2	43.7		→ 변화없음
저서환경 Sediment Quality	TOC in intertidal sediment (%)	0.46	0.43	0.47	0.39		→ 변화없음
	TOC in subtidal sediment (%)	0.98	0.74	0.89	0.99		→ 변화없음
	Heavy metal index in intertidal sediment (%)	1	1	1	1		→ 변화없음
	Heavy metal index in subtidal sediment (%)	0.17	0.2	0.09	0.14		→ 변화없음
해양생물 Marine Organisms	Chlorophyll a concentration (ug/L)	1.9	1.8	3.1	3.4		↗ 약간증가
	Zooplankton density (ind./100m^3)	6,075	4,713	4,222	3,780		↘ 매우감소
	Intertidal Macrobenthos density (ind./m^2)	1,435	883	1,207	1,104		→ 변화없음
	Subtidal Macrobenthos density (ind./m^2)	1,371	1,251	1,479	1,868		↗ 약간증가
생물 다양성 Marine Biodiversity	Intertidal Macrobenthic diverisyti index (H')	1.9	1.76	1.58	1.63		→ 변화없음
	Subtidal Macrobenthic diverisity index (H')	2.72	2.56	2.63	2.72		→ 변화없음
	Rocky shore invertebrate diversity index (H')	2.16	2.77	2.67	2.68		→ 변화없음
	Phytoplankton diversity index (H')	1.76	1.84	1.88	1.83		→ 변화없음
	Zooplankton diversity index (H')	1.45	1.52	1.69	1.77		→ 변화없음
생태계 건강도 Ecosystem Health	Algal heath index of (EEI-c)	5.92	5.72	6.18	6.25		↗ 약간증가
	Percentage of MEI Grade 1 (%)	47	45	51	50		→ 변화없음
	Percentage of GEI Grade 1 (%)	5.5	9.0	11.6	8.0		→ 변화없음

Description of items

DIN

Total amount of dissolved inorganic nitrogen

DIN

Total amount of dissolved inorganic phosphate

Dead zone

Number of dissolved , oxygen below 3mg/L

WQI (Water quality index)

Index that evaluates seawater quality into 5 levels, smaller numbers indicating better water quality.

Chlorophyll-a

One of the phytoplankton photosynthetic pigments represents its amount.

TOC

Percentage of total organic carbon in sediments derived from rivers or composed of dead organisms

Igeo

The degree of concentration of heavy metals in sediments; larger numbers indicate higher concentration.

Intertidal Macrobenthos density

The population of intertidal benthic organisms larger than 1 mm living in sediment;

Diversity Index

Diversity calculated based on the species and population; larger numbers indicating higher diversity.

Algal health index

(EEI-c) Index based on the shape and habitat characteristics of rock seaweed; Developed based on the correlation between pollution and lifespan

Marine Ecological Index

(MEI) index that evaluates the subtidal zone based on water quality, sediment quality, and diversity; low rating indicates a healthy ecosystem

Getbal Ecological Index

(GEI) index that evaluates the intertidal zone based on sediment quality, and diversity; low rating indicates a healthy ecosystem

MSP History

Coastal Management Act

"Integrated Coastal Management"

2018 "Turning Point"

Marine Spatial Planning and Management Act

"Integrated Coastal and **EEZ** Management"

+

"**Marine Spatial Suitability Assessment**"

+

"**Integrated Marine and Fisheries information system**"

MSP Procedure

Step	Details
1	Data collection and Convert to GIS information
2	Local council operation with stakeholders
3	Zoning and writing a draft plan
4	Opinion inquiry and resident's review
5	Deliberation and decision notice

✓ **Consultation between local residents and stakeholders will commence from the outset.**

✓ **"Guarantee of Citizen Participation (Legal Framework)**
☞ A variety of channels (e.g., public hearings, resident briefing sessions, community consultations, etc.) will be provided to facilitate the expression of public opinions."

MPA & Marine Mammal conservation

MPA
MARINE PROTECTED AREA

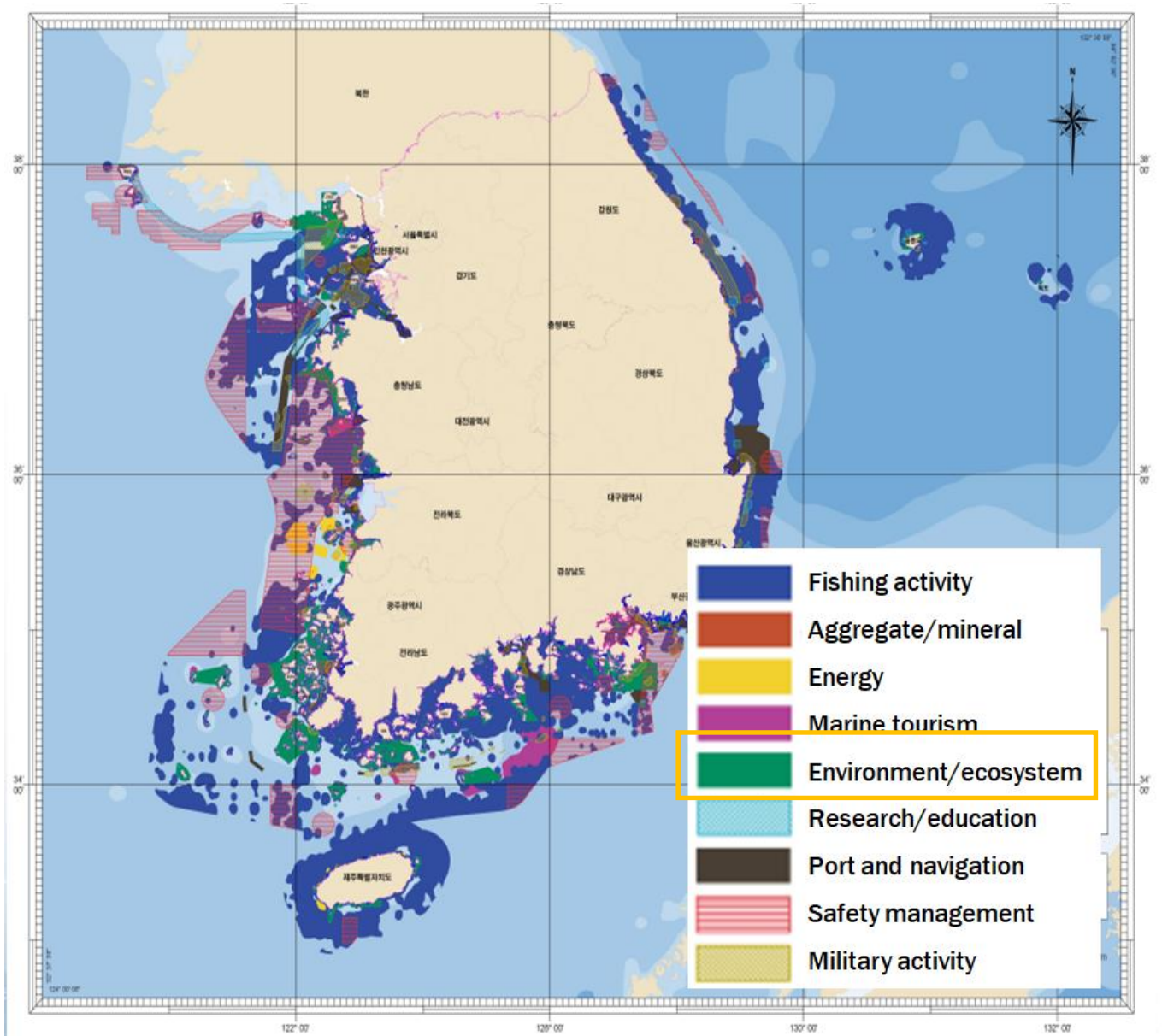
MSP Zoning

- Evaluation of spatial characteristics through the analysis of core activity density
  ⇒ Zoning

No	Zone / Details
1	**Fishing activity protection** Fishery protected area, Fishing Port, Fishing ground, Catch, Aquaculture, etc.
2	**Environment and ecosystem management** MPA, National Park, Protected species habitat, Diversity, Marine ecology grade, etc.
3	**Marine tourism** Beach, Marina Port, Fishing area, leisure activities, etc.
4	**Aggregate and mineral development** Aggregate permit area, mining rights, Aggregate resources, etc.
5	**Energy development** Power generation, Offshore wind farm, Energy resources, Cable, etc.
6	**Port and navigation** Port, Sea route, Vessel traffic, Docking area, Traffic safety area, etc.
7	**Research and education preservation** Marine observatory, Marine science base, Territorial sea point islands, etc.
8	**Safety management** No leisure activities area, Marine industry facilities, Risk of traffic accidents, etc.
9	**Military activity** Military protection and restricted zones, Training area, etc.

MPA & Marine Mammal conservation

MSP Map



Thank you !

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