

MPA and marine ecosystem conservation & management in Republic of Korea

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Ministry of Oceans
and Fisheries



Korea Marine Environment
Management Corporation

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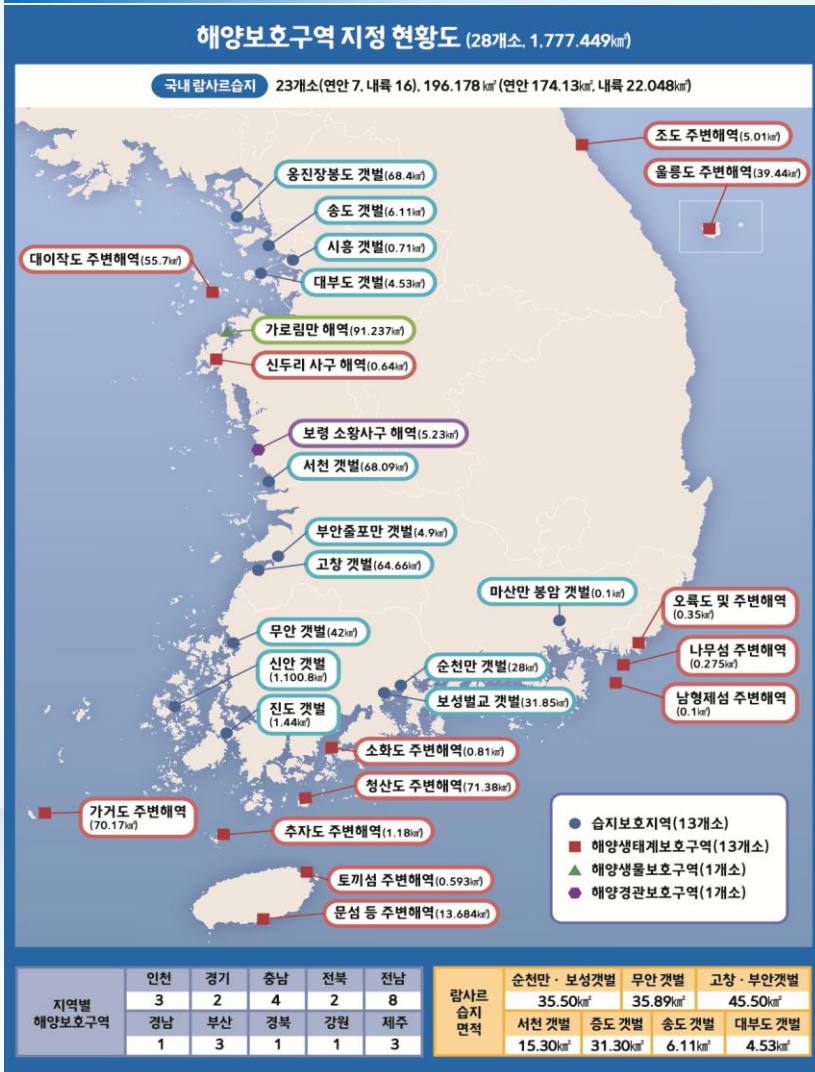
- I . MPA designation & management
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- III . Marine habitat conservation



MPA designation & management

MPA status

Total area 1,777.449km² / 28 places



1. Coastal wetland protect area

- 13 places (Tidal flat)

* RAMSAR designated sites : 7 places

2. Marine ecosystem protected area

- 13 places (coastal area)

3. Marine organism protected area

- 1 place (spotted seal)

4. Marine scenery protected area

- 1 place (sand dune)

MPA designation & management

Relevant Laws

Wetland Conservation Act(1999)

- To conserve wetland and its biodiversity
- To promote international cooperation by reflecting the relevant International Conventions on wetlands

Marine Ecosystem Act(2006)

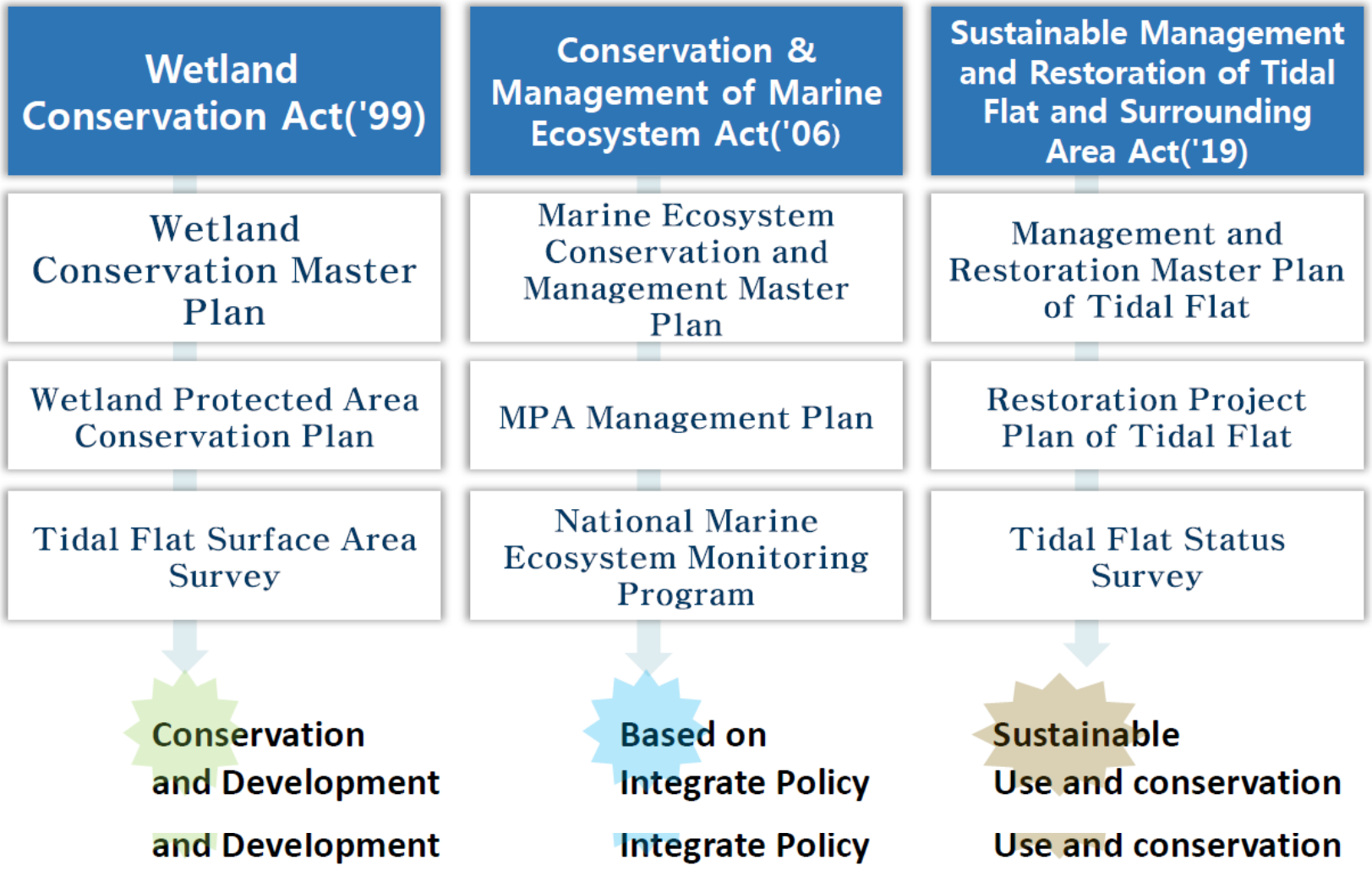
- To protect marine ecosystem from artificial damage and conserve marine biodiversity
- To promote sustainable use of marine living resources
- To manage the marine ecosystem in comprehensive and systematic ways
- By doing this, to improve the quality of people life and protect marine assets

Tidal Flat Act(2019)

- To keep the tidal flats productive and healthy by defining the conservation, management and restoration for sustainable use of tidal flat and surrounding area

MPA designation & management

Management policy



MPA designation & management

Paradigm shift

Marine Spatial Planning Act(2019)

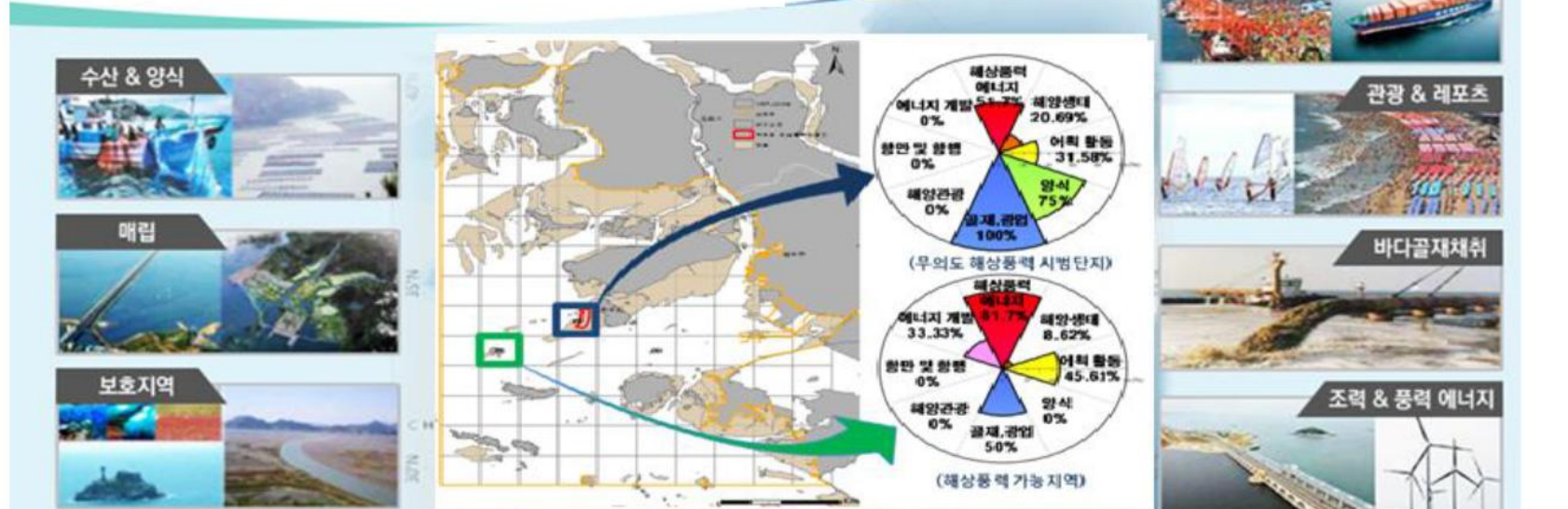
The introduction of marine spatial integrated management system

- ✓ Paradigm shift to 'plan first-use after'

Establishment of Marine spatial plan include information of marine area, key value, area zoning results, etc.

Integrated information of Oceans/Fisheries and Open to the private sector based on BIG-DATA

- ✓ Supports of integrated management and private utilization



Marine Ecological Resources



(Conservation) Develop conservation plans and specific project plans and run management committees



(Use) Access ecology learning sites, utilize ecological resources, and use fishery resources in sustainable manner

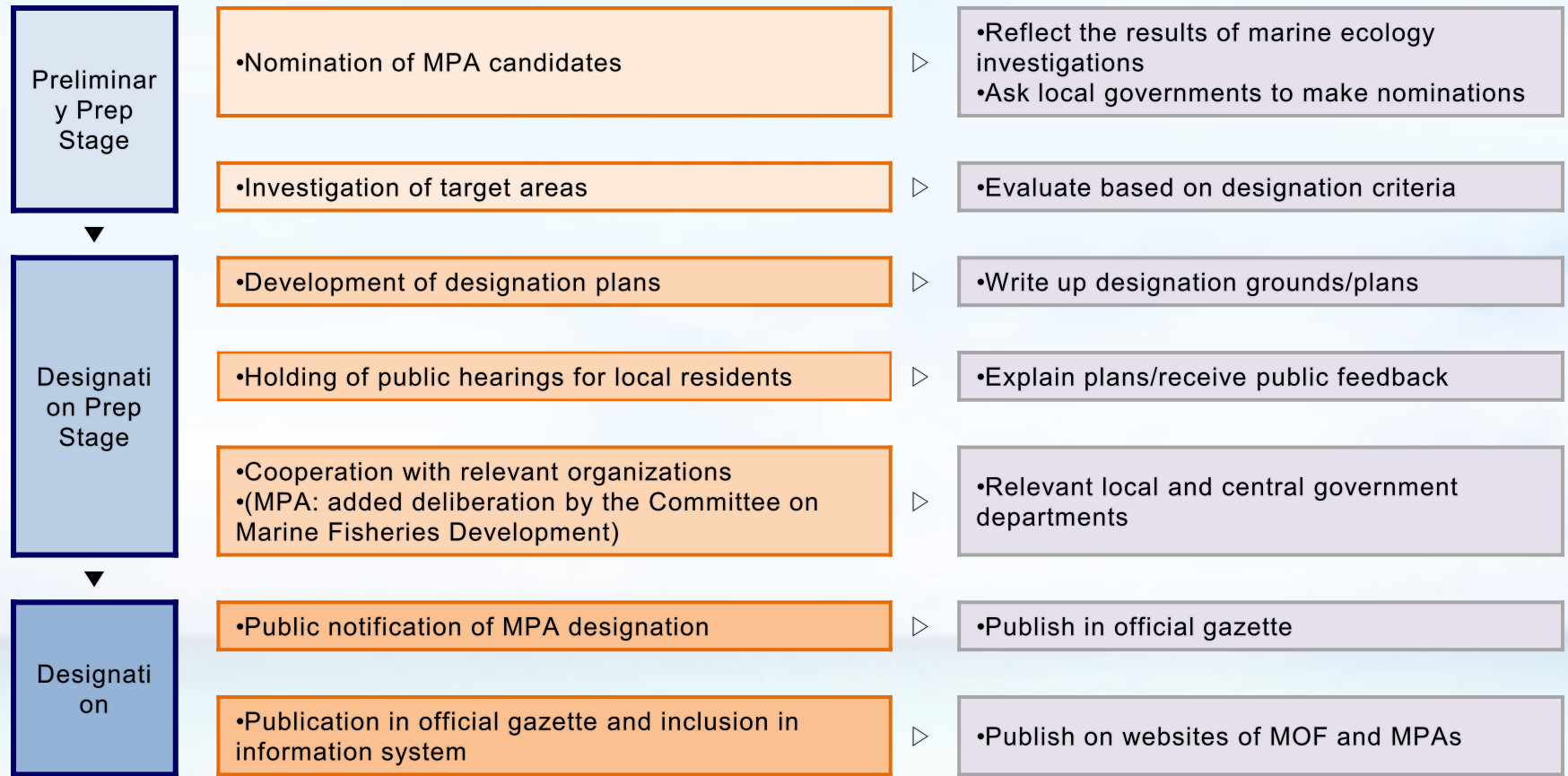


(Greater value) Invest in management projects, promote eco-tourism, and increase the value of local products

MPA Designation and Management

MPA designation procedure

Designation Procedure



MPA Designation and Management

Operation system for MPA management

- Implementation: through participation of local entities
 - Local community-led management through which local stakeholders (public officials, NGOs, residents, businesses, and academia) establish governance based on a conservation mindset and participate in the management of MPAs



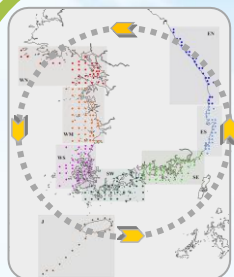
MPA designation & management

Management activities

**MPA
Management
Project**



II National Marine Ecosystem Monitoring Program



Costal Ecosystem
(2006~2014 / every 8 yr)

Tidal flat Ecosystem
(2008~2014 / every 5 yr)



MPA Ecosystem
(2011~2014 / every 3~4 yr)

**Research on the Diversity
of Marine Organism**
(2007~2013)



Integrated Survey (2015~ / every 2 yr)

Tidal flat



Inshore / Offshore



Hot spot

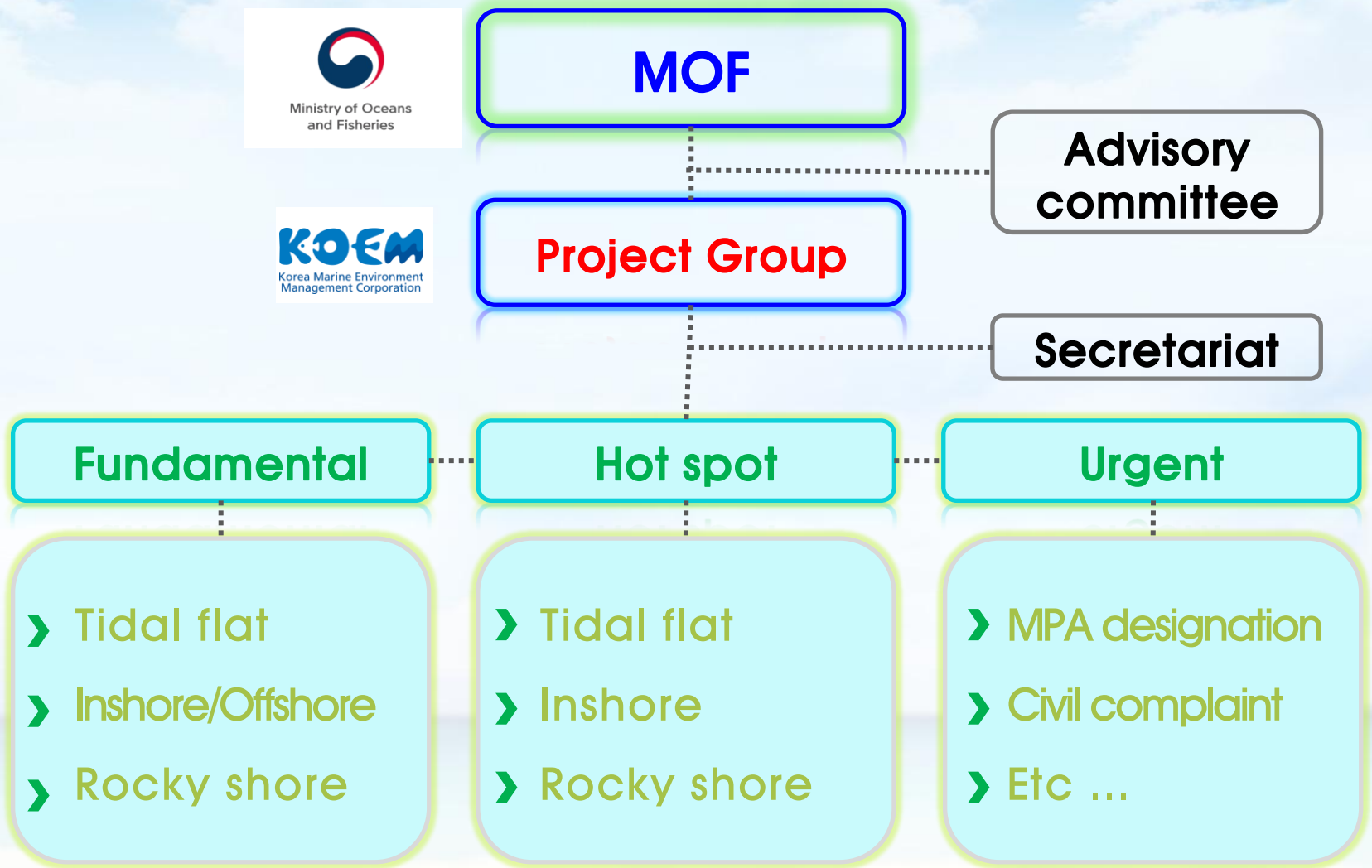


Rocky shore



II National Marine Ecosystem Monitoring Program

Survey system



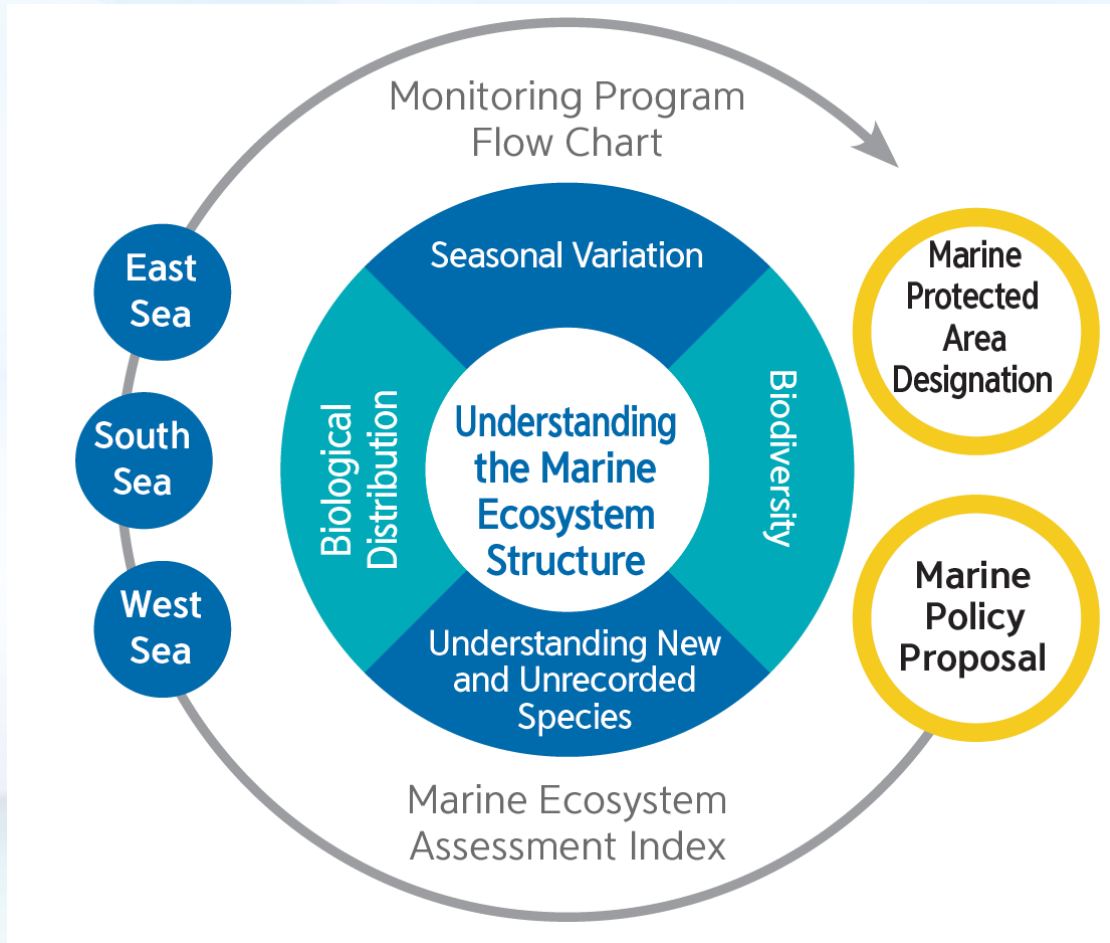
II National Marine Ecosystem Monitoring Program

Survey parameters

Large category	Small category	Parameter	Area	Content
Biotic	Plankton	Bacteria	Subtidal	total number of bacteria
		Phytoplankton	Tidal flat	chlorophyll a
			Subtidal	chlorophyll a(total/nano), species composition, biomass
		Zooplankton	Subtidal	species composition, biomass
	Fish larve/juvenile	Subtidal	species composition, biomass	
	Benthos	Meiobenthos	Subtidal	species composition, biomass, density
		Macrobenthos	Tidal flat	species composition, biomass, density, health index
			Rocky shore	species composition, biomass, density
			Subtidal	species composition, biomass, density, health index
		Marine algae	Subtidal	species composition, coverage, biomass
		Seaweed	Subtidal	species composition, coverage, biomass
	Halophyte	Tidal flat	species composition, coverage, biomass	
	Nekton	Fish	Subtidal	species composition, biomass, gut content
		Crustacea	Subtidal	species composition, biomass
		Cephalopod	Subtidal	species composition, biomass
		Fisheries Resource	Subtidal	species composition, biomass
Sea Bird		Tidal flat /subtidal	species composition, protected species, community structure	
Abiotic	Environment	Sea water	Subtidal	T, S, Nutrient, DO, SPM, POC/PON, heavy metal(Cd, Co, Zn, Cu, Pb, Ni)
		Sediment	Tidal flat	slope, sedimental rate, AVS, COD, ILL, heavy metal (Al, Fe, Cu, Pb, Zn, Cd, Hg, As)
			Subtidal	grain size, organic carbon, total nitrogen, carbonate, heavy metal(Al, Cd, Co, Cr, Cu, Pb, Ni)
	Socio-Economy	Socio-economy status	Tidal flat	nature, industry, tourism, environment etc.
		Economic value	Tidal flat	evaluation ecological, economic value
		Citizen awareness	Tidal flat	Investigation of citizen conservation awareness

II National Marine Ecosystem Monitoring Program

Program flow chart



1. Making a Collection Book of Marine Ecosystem and Investigation Chronology



< Summary Book of Marine Ecosystem > < Investigation Chronology >

- **Investigation Chronology**
Investigation of Results Data through Monitoring Program
- **Summary Book of Marine Ecosystem**
Total Explanatory Data based on the Results of the Monitoring Program

2. Making a Marine Ecosystem Plan

- **1st Grade:** Habitat of Marine Life Subject to Protection; or Sea with high conservation value due to Marine Biological Diversity
- **2nd Grade:** Sea with conservation value in the future or that is needed to protect a 1st Grade Sea
- **3rd Grade:** Seas other than 1st and 2nd, which are subject to development or usage.

3. Designating Marine Protected Area(MPA)

Discover the Proposed Site for Marine Sanctuaries and Suggest the scientific basis

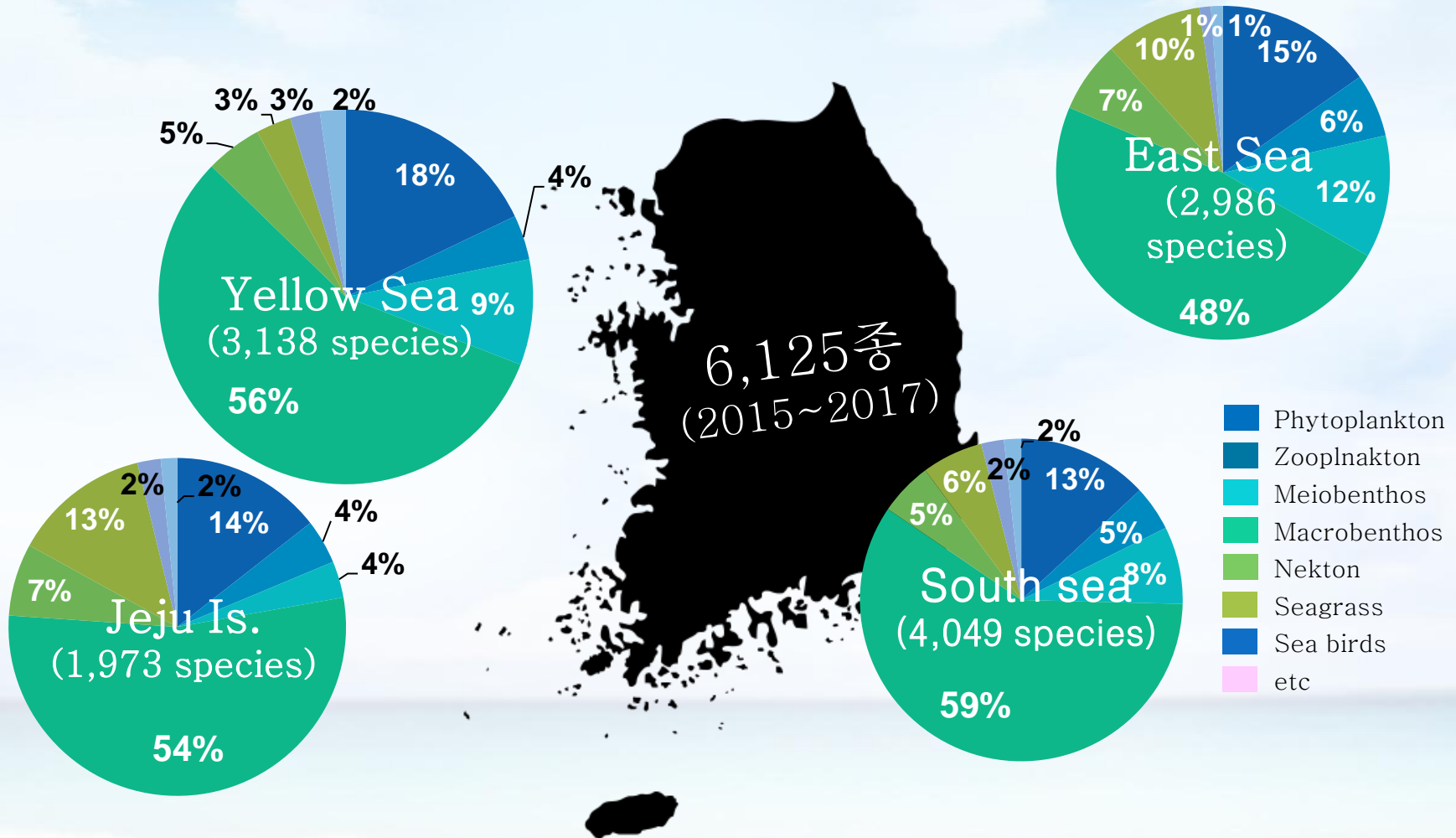
- **Tidal flat MPA:** Wetland that has been preserved in its natural state or has excellent Marine Biological Diversity
- **Marine Ecosystem MPA:** Superb or Vulnerable Marine Ecosystem that is to be protected
- **Marine Life MPA:** Area needed for Marine Life that is Subject to Protection
- **Marine Scenic MPA:** Superb Marine Scenic Area along with healthy Marine Ecosystem

4. Other Applications

- **Offer Basis for Sea Space Planning:** Use as key materials for systemic, effective usage of Sea Space.
- **Monitor noxious Marine Life:** Use for policy to manage noxious marine life by investigating domestic habitation state of introduced species and establishing countermeasures.
- **Support International Cooperation:** Convention on Biological Diversity, the Ramsar Convention, Local consultative groups, UN Marine Evaluation

II National Marine Ecosystem Monitoring Program

Monitoring results



II National Marine Ecosystem Monitoring Program

Data service

➤ www.ecosea.go.kr

web GIS ▶▶ ECO-ATLAS

바다생태정보나라

바다생태 해양보호구역 전자지도 국가해양생태계종합조사 보호대상해양생물종 자료실 알림마당

바다생태정보나라

해양생태정보를 한눈에 바다생태정보나라 [2016 해]

살아있는 갯벌이야기

갯벌체험학습

가상현실 OVR

생성한 우리 갯벌의 이야기를 들어보세요!

교과서에 나오는 갯벌이야기를 확인해 보세요!

갯벌생물을 3D OVR로 만나보세요.

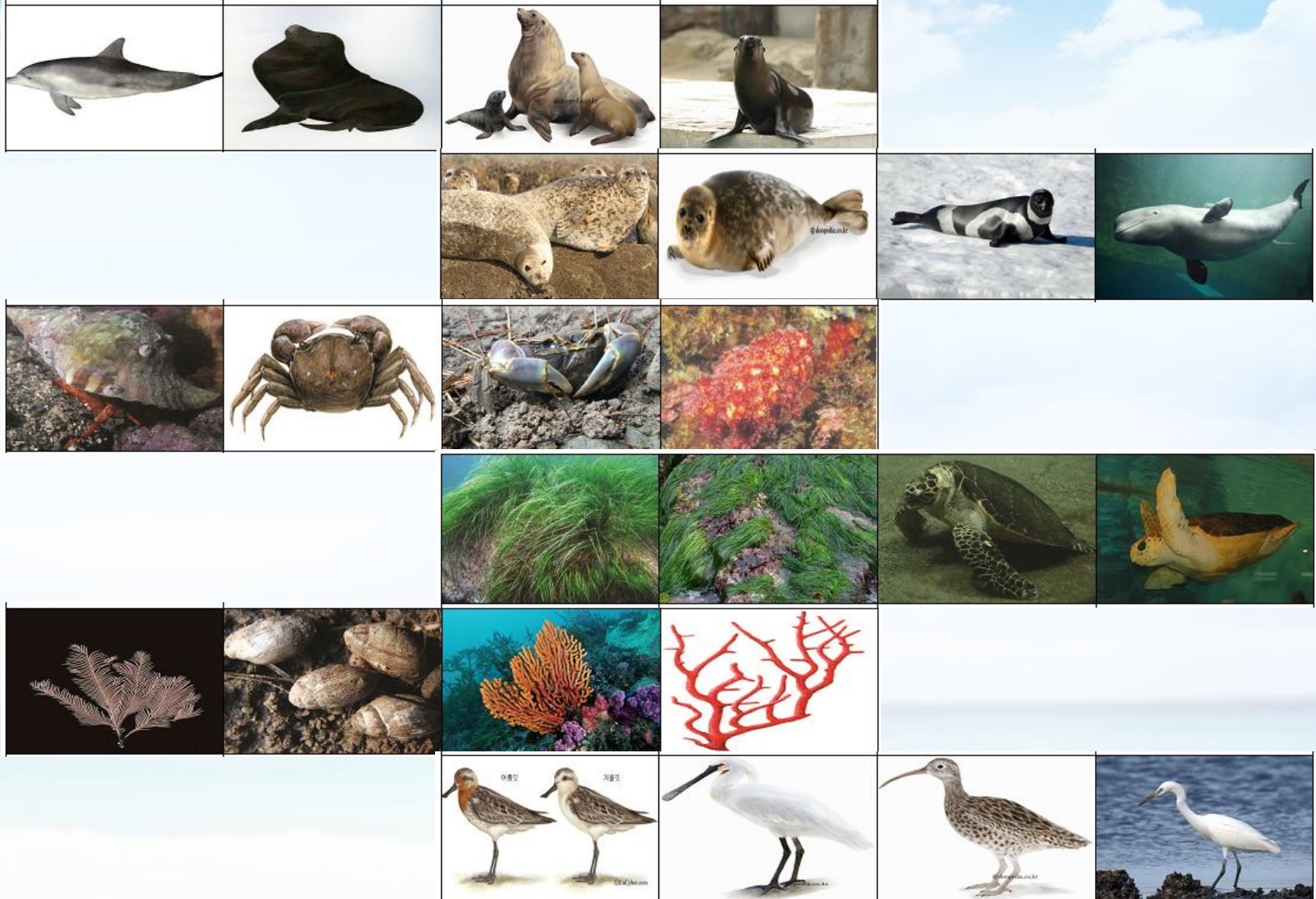
바다생태정보나라 WebGIS

- 조사정점
 - 연안습지기초조사
 - 해양생태계기본조사
 - 해양생태계 조사정점
 - 유영종류 조사정점
 - 광성알발 조사정점
 - 장점도
 - 해양보호구역 조사관할
 - 해양생태도
- 보호대상해양생물 분포도
- 함조도
- 보호지역
- 영역구분
- 갯기타
- 갯기타(환경평가지리정보)
- 갯기타(국립공원관리공단)
- 갯기본도
- 섬지형
 - 읍면동경계
 - 시군구경계
 - 시도경계
- 해양기록도
- 수치 표고모달
- 우치 표고모달(흑도)
- 해안선(한반도 외)
- 해안선(한반도)

동경 128 도 04 분 40 초, 북위 32 도 08 분 08 초

III Marine habitat conservation

Marine protected species (80) in Korea



III Marine habitat conservation

Establishment of protective policy

Survey of species status

- Investigation of population of PMS and habitat status
- Standardization of PMS survey
- Build up DB

Enhancement of management system

- Expansive management of legal protective species
- Establishment of counterplan against reduction of population

Eradication of illegal capture and reduction of by-catch

- Uncover of illegal capture
- Reward for reports of illegal capture
- Development of new fishing gear for reduction of by-catch, and improvement of system



III Marine habitat conservation

Recovery of species and habitat

Protection of habitat of PMS

- Legal designation of Marine Protected Area (MPA)
- Management of Threatening factors and restoration of habitats

Proliferation and Restoration for recovery of population

- Development of artificial proliferation
- Transplantation of individuals by artificial proliferation
- Accumulation of genetic information
- Operation of exclusive organization for species restoration

Protection plan for representative PMS

- Protection of regional representative PMS
- Development of Eco-Tour
- Operation of protective center for endangered animals



III Marine habitat conservation

Reinforcement of cooperation and participation

Reinforcement of capacity of ex-situ conservation, and rescue and medical agency

- Ex-situ conservation of marine species
- Rescue and remedial treatment of marine animals
- Management of associated agency

Enhancement of domestic and international cooperation

- Network among interagency
- Government policy's expansion to NGO and local government
- Enhancement of international cooperation

Education & Public awareness

- Information sharing and promotion of application
- Education of PR for protection of MPS's habitat
- Call for by-catch and strand and education for emergency



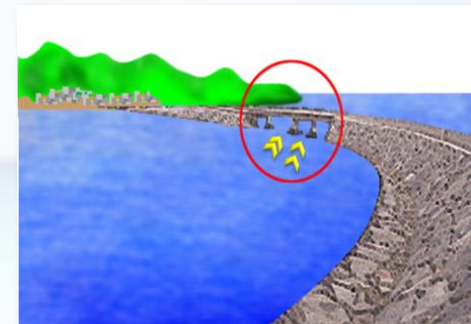
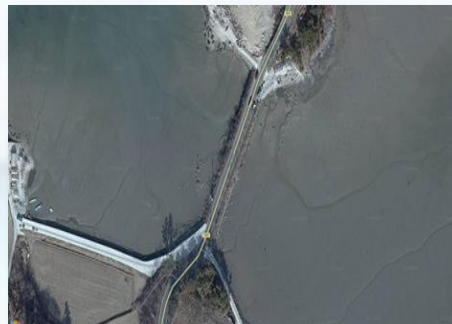
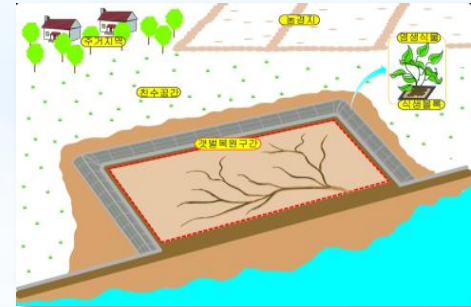
III Marine habitat conservation

Restoration program

Tidal flat ecosystem restoration



Expansion of Tidal flat ecosystem restoration project



THANK YOU

Korea's future lies in the Ocean,

We don't live in the ocean. But we need the ocean to live.



Ministry of Oceans
and Fisheries



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