

North-East Asian Marine Protected Areas Network (NEAMPAN)

NEAMPAN report on Management Plans, Monitoring and Assessment of MPAs

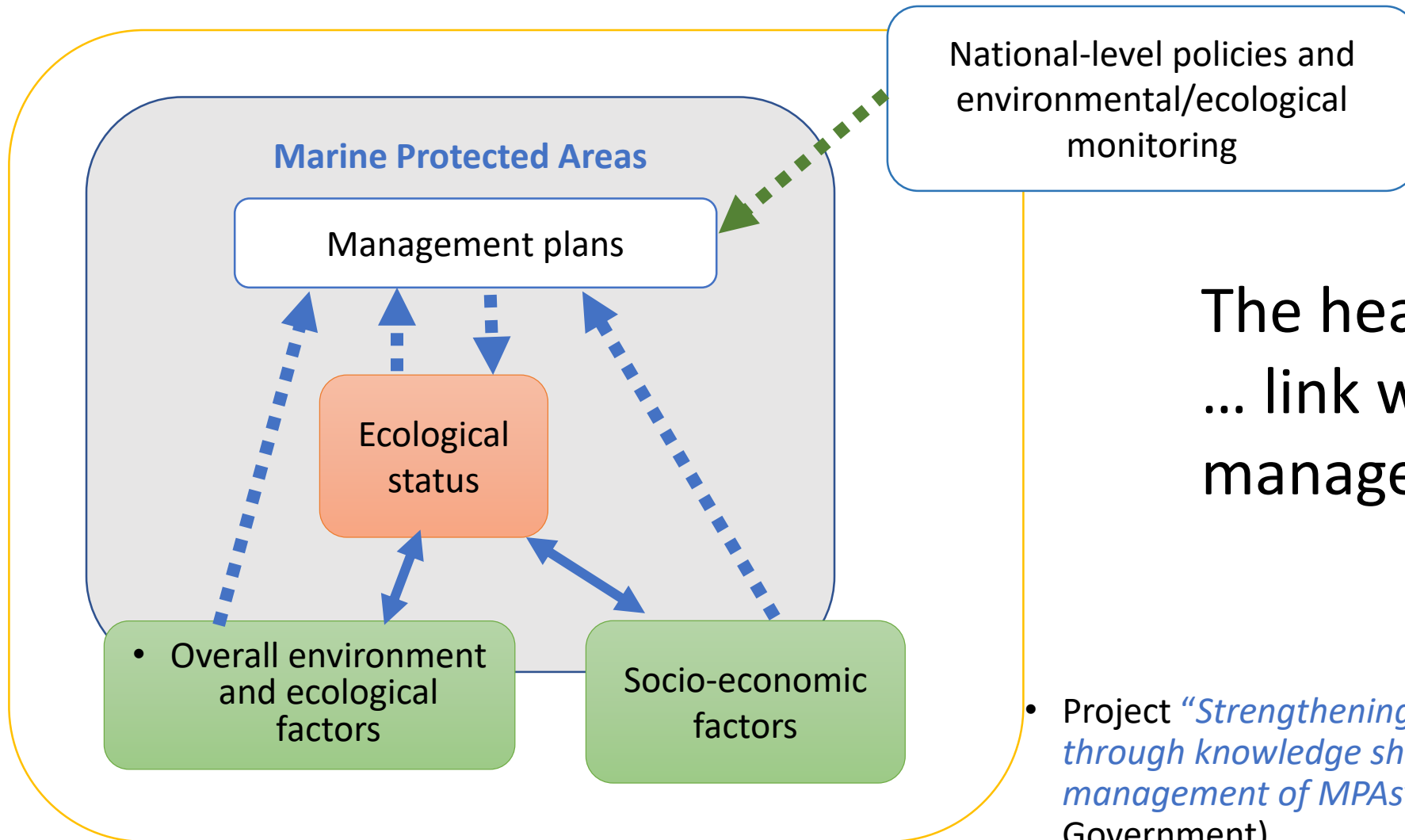
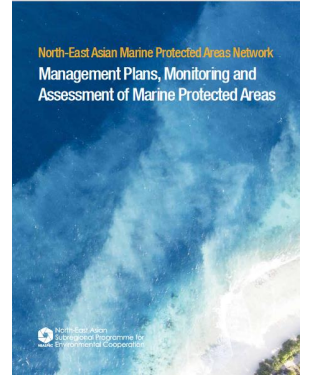


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15 July 2021

NEAMPAN Study:

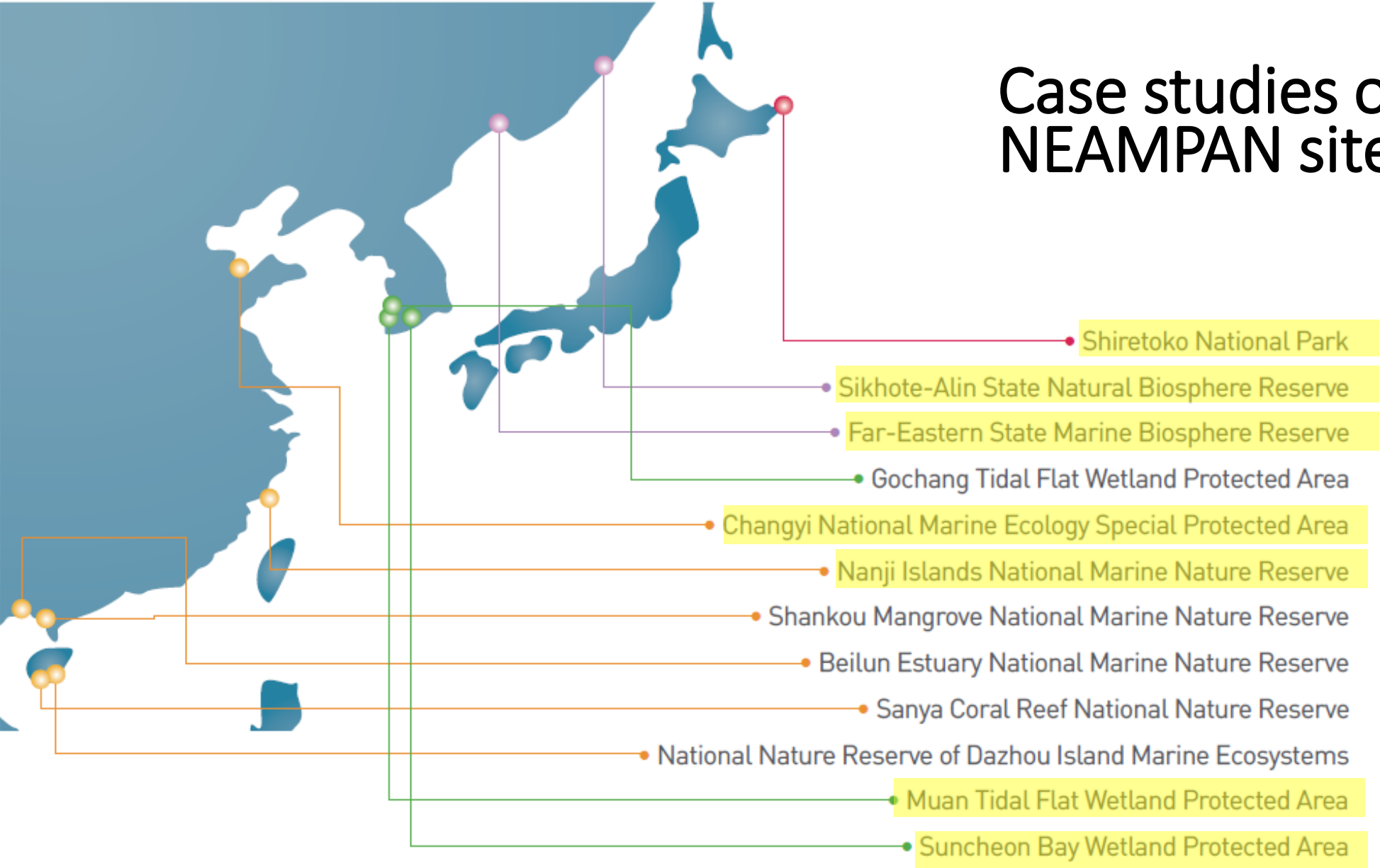
Management Plans, Monitoring and Assessment of MPAs



The health of MPAs...
... link with MPA
management?

- Project *“Strengthening the subregional cooperation through knowledge sharing on sustainable management of MPAs”* (funded by the Russian Government)

Case studies on selected NEAMPAN sites



Management objectives

“Strict protection”



“Sustainable use”

Management objectives

“Sustainable use of resources”

“Conservation”

“coexistence of wetland and human in harmony”

“Conservation and stable fisheries”

Who monitors the status of NEAMPAN MPAs?

China: MPA management offices

Japan: Monitoring data from various sources

ROK: National level (Ministry of Ocean and Fisheries) /
MPA management offices (citizen monitoring,
research)

Russia: National level agency (regular monitoring) /
MPA (inventory, research)

Monitoring of MPAs

- Monitoring on protected targets and factors influencing MPAs
- **Standard parameters** by technical guidelines + MPA specific parameters

Table 5 The Monitoring Parameters for MPAs of Endangered Marine Organism

Protected target	Monitoring parameter of affecting factors *
Lancelet (<i>Amphioxus</i>)	
Songjiang Perch (<i>Trachidermus</i>)	
Coral (<i>Anthozoa</i>)	

Table 6 The Monitoring Parameters for MPAs of High Valued Animals

Protected target	Monitoring parameter
Surf Clam Shell (<i>Macra antiquata</i>)	Density, biomass
Clam Worm (<i>Nereis succinea</i>)	
Sea Cucumber (<i>Stichopus japonicus</i>)	
Shellfish	Species

Table 7 The Monitoring Parameters for MPAs of Plants

Protected target	Monitoring parameter	Monitoring parameter of affecting factors *	
		Water quality	Sediment quality
Mangrove (<i>Rhizophora apiculata</i>)	Species, density and area	—	DOC, petroleum, and heavy metals
Chinese Tamarisk (<i>Tamarix chinensis</i>)	Density, and area		

Monitoring of MPAs

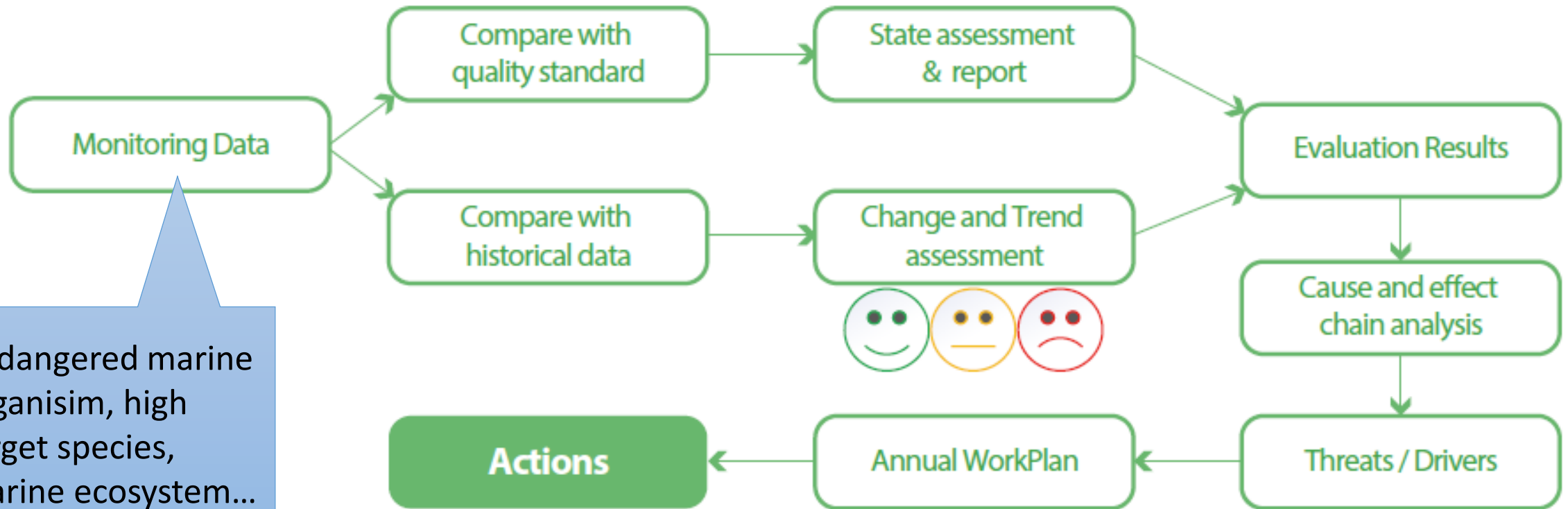
- Monitoring on protected targets and factors influencing MPAs
- Standard parameters by technical guidelines + **MPA specific parameters**

Table 10 The Monitoring Parameters for Each MPA

No.	MPA's name	Protected targets	Monitoring parameters
1	Nanji Islands National Marine Nature Reserve	Marine shellfish and algae as well as their habitats	Density, biomass, and area plus water/sediment/ biological/other parameters in Table 6 and 7
2	Shankou Mangrove National Marine Nature Reserve	Mangrove ecosystem	Species, density and area, plus sediment/other parameters in Table 7
3	Beilun Estuary National Marine Nature Reserve	Mangrove ecosystem	Species, density and area, plus sediment/other parameters in Table 7
4	National Nature Reserve of Dazhou Island Marine Ecosystems	Swiftlet, its habitat and the marine ecological system	Quantity, and frequency, plus water/sediment/other parameters in Table 5
5	Sanya Coral Reef National Nature Reserve	Coral reef and the marine ecological system	Coverage of live corals, species, and death rate, plus water/ sediment/other parameters in Table 5
6	Changyi National Marine Ecology Special Protected Area	Tamarix chinensis, marine organisms and coastal wetland ecosystems	Density, and area, plus sediment/ other parameters in Table 7

Links between monitoring results and management

The Use of Monitoring Data

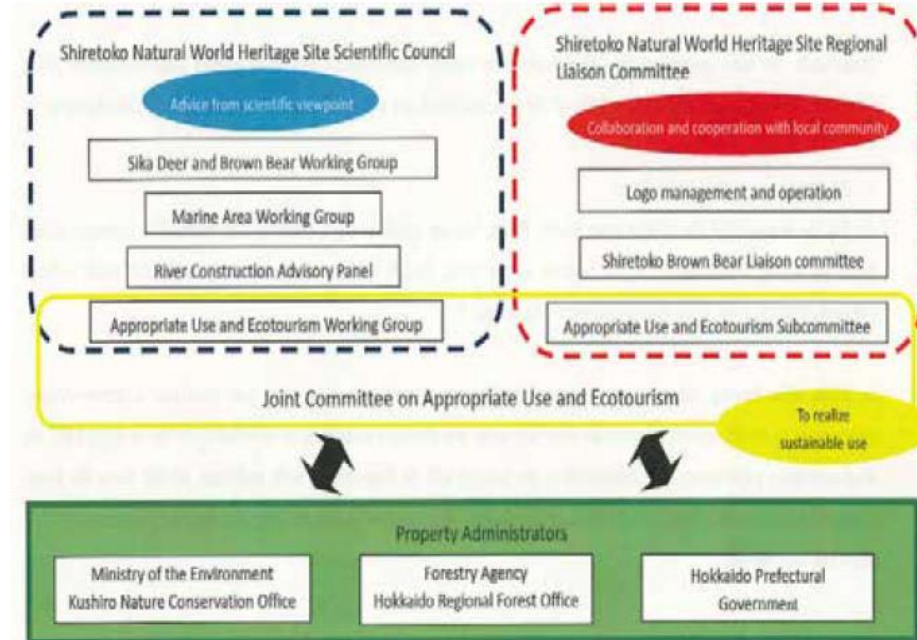


Endangered marine organism, high target species, marine ecosystem...

Management of MPA (Shiretoko) in Japan

Marine management plan ↔ Management plan for Shiretoko WNH

- *Objective*: conservation and stable fisheries through the sustainable use
- Management of the marine area
 - **Administration** – National and Local Gov
 - **Stakeholders** - Regional Liaison Committee
 - **Scientists** - Scientific Council



Monitoring of MPA (Shiretoko)

Monitoring data from various sources at national, local level, research, etc

(i) Monitoring items implemented by relevant government agencies		
1		Observation of water temperature and chlorophyll-a using satellite remote sensing
2		Fixed-point observation of water temperature using marine observation buoys
3		Seal habitation survey
4		Marine flora and fauna and habitation survey (periodic shallow sea survey)
(ii) Monitoring items implemented in cooperation with local governments, related bodies, experts, and other government agencies besides those ministries		
5		Shellfish quality survey
6	①	Aerial observation of sea ice distribution
7	②	Biological survey of ice algae
8	③	Tracking of changes in fish catches compared to Hokkaido Suisan Gensei [Statistics on Fisheries in Hokkaido]
9	④	Ascertainment and assessment of walleye pollock stock (survey used to set total allowable catch [TAC])
10	⑤	Walleye pollock spawning survey
	⑥	Survey of number of Steller sealions migrating to Japan seacoast, number killed due to human actions (by gender),

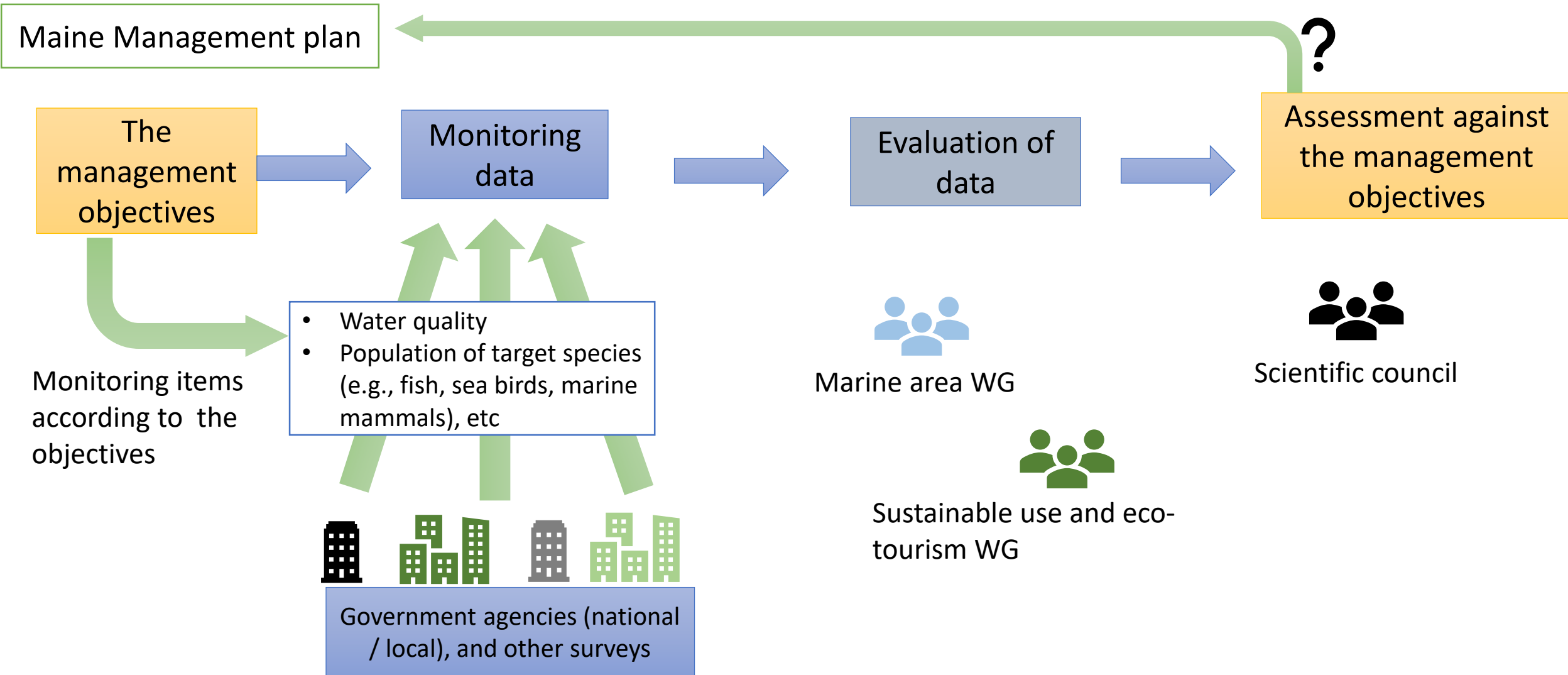
Ministry of environment

Hokkaido prefecture

Coast guard

Fisheries agency

Monitoring and evaluation of Shiretoko MPA

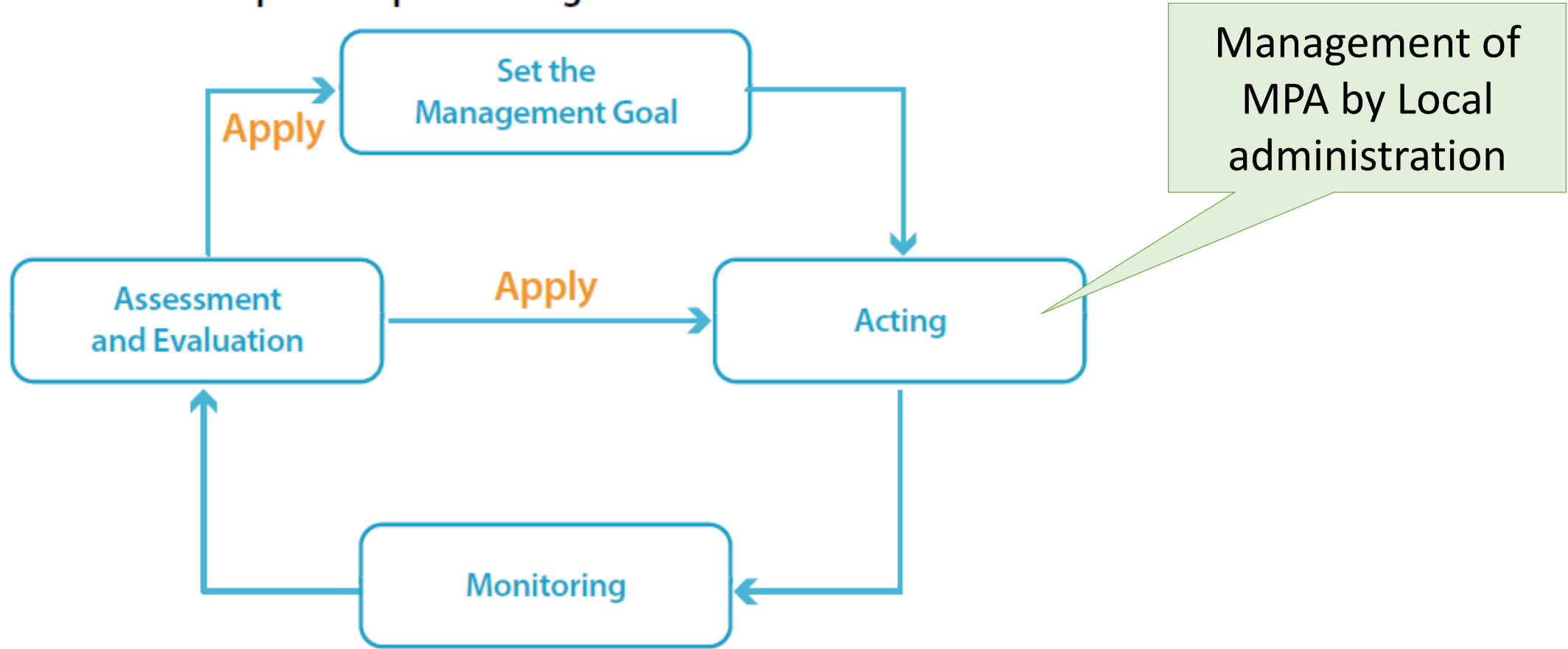


Management of Wetland Protected Areas in ROK

Offices	Key responsibilities	Remarks	
Ministry of Oceans and Fisheries and KOEM	Integrated Management	MPA Management Regulations	Monitoring at national level
	Monitoring	<ul style="list-style-type: none"> National marine ecosystem monitoring Program MPA citizen monitoring Program 	
	Awareness raising	<ul style="list-style-type: none"> World Wetland day Ceremony 	
Regional Offices of Ministry of Oceans and Fisheries	Management authority of the NEAMPAN sites	<ul style="list-style-type: none"> Establishment of Basic Management Plan Provision of Subsidies Assessment of Subsidies 	Conservation plan by regional offices of Min. Ocean & Fisheries
	Tidal flat WPA: Suncheon bay Muan Gochang	<ul style="list-style-type: none"> (Conservation plans) 2019-2023 2017-2021 2020-2024 	
Provincial/Local Government	Site management and Implementation of the annual management plans	<ul style="list-style-type: none"> Creation and operation of regional commission Implementation of Management Plan Inspection on restrictions Raising Awareness (local level) 	MPA Management by local government

Feedback of monitoring results into plans and practice

Concept of Adaptive Management of Wetland Protected Areas



Management of NEAMPAN MPAs in Russia

- *Management plan* – for Specially Protected Area (SPA) including marine area
- *Key activities* include -
 - Territory protection (e.g., prevention of poaching)
 - Scientific activity (monitoring of natural communities, etc)
 - Environmental education (work with local population, tourist activity, etc)
- *Monitoring of the Reserve:*
 - ROSHYDROMET – regular environmental monitoring
 - Reserves – monitoring biological system in the form of research, inventory of species,

Environmental monitoring – biological parameters

- Studies by the Reserves
- Inventory and long term trends of marine ecosystem

- Fish
- Sea birds
- Marine mammals
-

Fish of the Sikhote-Alin Reserve			Class Actinopterygii (cont.)			
Class Petromyzontida		Order Petromyzontiformes	2 species	Order Gasterosteiformes		
The Results of the Chronicles and Biota Census of the FEMBR						
	Regnum	Phylum	# Species	Regnum	Phylum	
Class Chondrichthyes	Animalia	Annelida	248	Chromista	Bacillariophyta	
Order Lamniformes		Arthropoda	825		Cercozoa	
Order Carchariformes		Brachiopoda	1		Cryptophyta	
Order Squaliformes		Bryozoa	16		Foraminifera	
Order Rajiformes		Cephalorhyncha	1		Haptophyta	
Order Acipenseriformes		Chaetognatha	5		Myxozoa	
		Chordata	528		Ochrophyta	
		Cnidaria	41		Fungi	Ascomycota
		Ctenophora	4			Basidiomycota
		Echinodermata	38		Plantae	Bryophyta
		Mollusca	340	Charophyta		
		Nematoda	121	Chlorophyta		
		Nemertea	22	Glaucophyta		
		Phoronida	2	Marchantiophyta		
	Platyhelminthes	12	Rhodophyta			

Environmental monitoring...

- Conducted by the Federal Service on Hydrometeorology and Environmental Monitoring (ROSHYDROMET)

Monitoring of

- Air
- Water
- Sediments
- Soils
- Radioactive contamination of ecosystems

Environment	Number of items	Periodicity of observations	Controlled parameters
Atmospheric air	12	At 3 terms Daily	NO, NO ₂ , CO, CO ₂ , SO ₂ , H ₂ S, Dust, SO ₄ ⁼ , NH ₃ , C ₆ H ₅ OH, Heavy metals, benz (a) pyrene
Atmospheric precipitation and snow cover	22	Monthly and seasonal	Specific electro conductivity, pH, SO ₄ ⁼ , NO ₃ ⁻ , HCO ₃ ⁻ , Na ⁺ , K ⁺ , Ca ⁺⁺ , Mg ⁺⁺ , Zn
Surface water	34	Every 10 days, Monthly Seasonal	Gas composition, main ions, N, P, K, O ₂ , pesticides, detergents, heavy metals, fluorides, hydrogen sulfide,
Sea water and sediments	37	Every 10 days, Monthly Seasonal	Oxygen, N, P, K, phenols, oils, pesticides, detergents, heavy metals, Phyto-zoo-plankton,
Marine hydrobionts stations	39	Seasonal	Phyto-zoo-plankton, benthos
Freshwater hydrobionts points	29	Seasonal	Phyto-zoo-plankton, benthos

Identifying causes of environmental hot spots around NEAMPAN sites

Example. Environmental monitoring around Primorsky Kray

- Water contamination ←← industrial and municipal sewage, pollution from port/ships,
- Seasonal eutrophication and marine litter ←← unorganized recreation activity
- Loss of high value species ←← Poaching, over exploitation

Environmental Hot Spots in Coastal Waters near Russian MPA of NEAMPAN

Location	Problems	Roots of problems
Some localities of the Amurskii Bay near FESBR	Elevated concentration of POPs, metals, nutrients in coastal waters, plankton, bottom sediments, organisms. Depletion of oxygen content. Deterioration of benthic and plankton communities. Marine litter and oil slicks.	Water contamination by industrial and municipal sewage due to lack of treatment. Weak port management of pollution from ships and/or port facilities.
Small bays in the southern	Seasonal eutrophication and marine litter	Contamination due to unorganized

Some takeaways of the study

- Monitoring parameters
 - More tailor-made for the local context
 - Need to incorporate human dimension (fisheries, marine tourism sector, etc)
- Utilization of data
 - for research and planning
 - Availability
 - Capacity to utilize
- Links with monitoring data and planning
- Importance of adaptive management

**THANK YOU 谢谢 та бүхэнд баярлалаа
ありがとうございます 감사합니다 спасибо**



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 North-East Asian
Subregional Programme for
Environmental Cooperation

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North-East Asian Marine Protected Areas Network Workshop 2021

*“Sharing experiences and challenges in
sustainable management of MPAs”*

15 July 2021 || 11:00-17:00 (GMT+9)

NORTH-EAST ASIAN
MARINE PROTECTED
AREAS NETWORK
WORKSHOP 2021
NEAMPAN workshop will be organized
virtually on 15 July 2021 under the theme
of “Sharing...”

<http://www.neaspec.org/article/north-east-asian-marine-protected-areas-network-workshop-2021>