

Report from China NEAMPAN sites

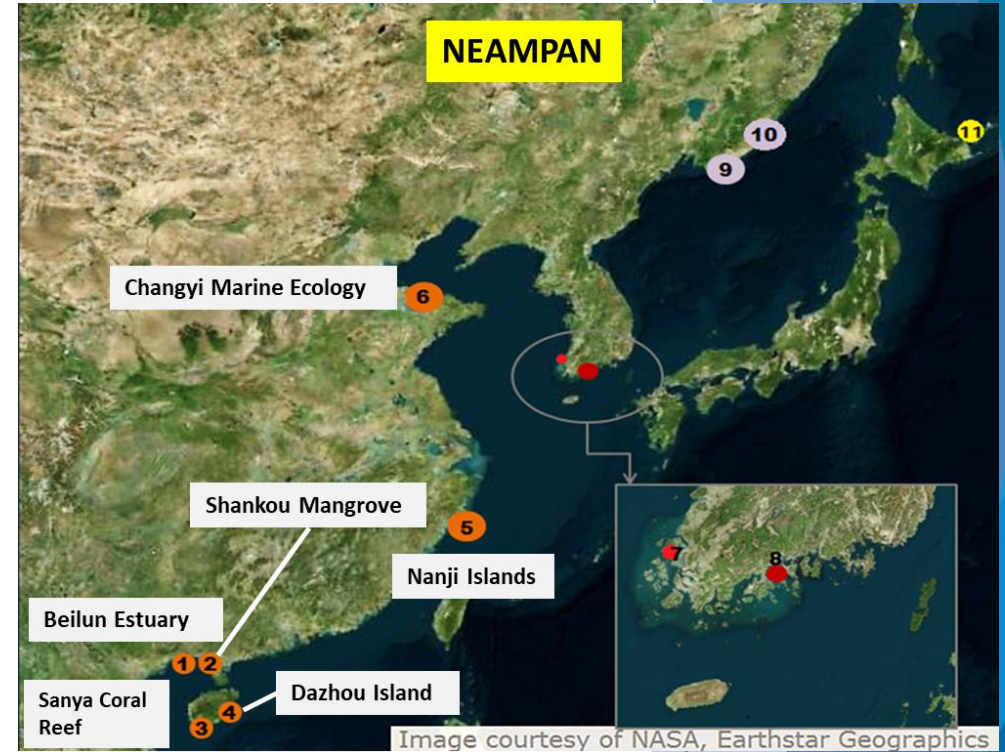
Dr. ZHANG Zhaohui,
First Institute of Oceanography,
Ministry of Natural Resources of China

1. Review of management plans / strategies of the selected NEAMPAN site

Basic information of the target MPAs (related to outline 1.1)

NEAMPAN sites in China

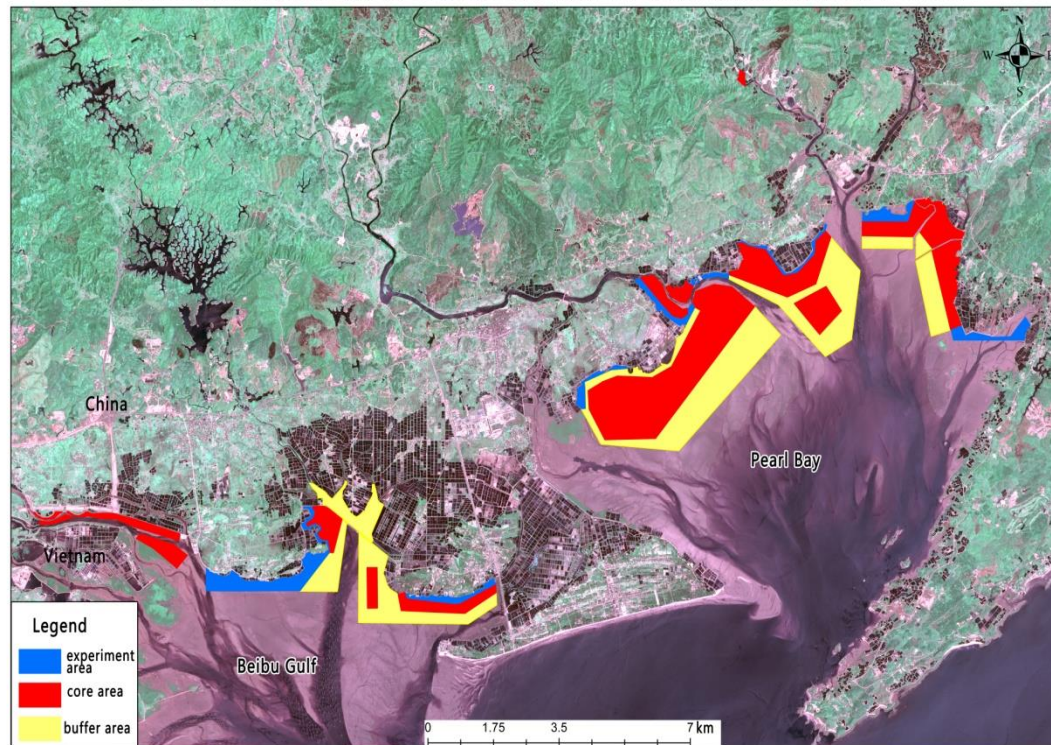
China		
1	Beilun Estuary National Marine Nature Reserve	Ramsar site (2008)
2	Shankou Mangrove National Marine Nature Reserve	UNESCO-MAB Biosphere Reserve (2000); Ramsar site (2002)
3	Sanya Coral Reef National Nature Reserve	
4	National Nature Reserve of Dazhou Island Marine Ecosystems	
5	Nanji Islands National Marine Nature Reserve	UNESCO-MAB Biosphere Reserve (1998)
6	Changyi National Marine Ecology Special Protected Area	



NEAMPAN sites in China

1. Beilun Estuary National Marine Nature Reserve

FUNCTIONAL REGIONALIZATION OF GUANGXI BEILUN ESTUARY NATIONAL NATURE RESERVE



Year designated: 2000

Conservation status: MNR

Area: 30,000 hm²

Range: 21° 31'00" - 21° 37' 30" N

108° 00'30" - 108° 16'30" E

Location: Fangchenggang, Guangxi Province

Key Protected species: Mangrove ecosystem, Coastal wetlands ecosystem, and Seagrass beds ecosystem

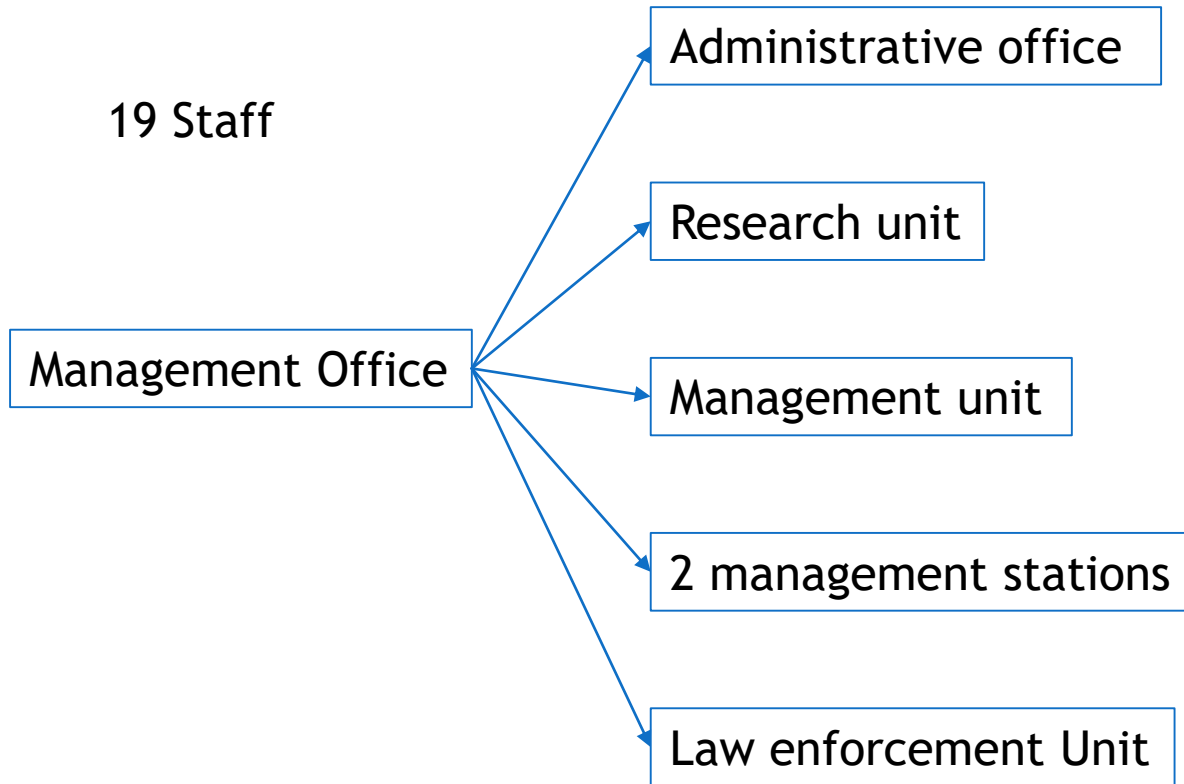
NEAMPAN sites in China

There was 3337.9 hm² mangrove forest in 1990s, and reduced to 1131hm², because of aquaculture, harbor, bank, and reclamation.



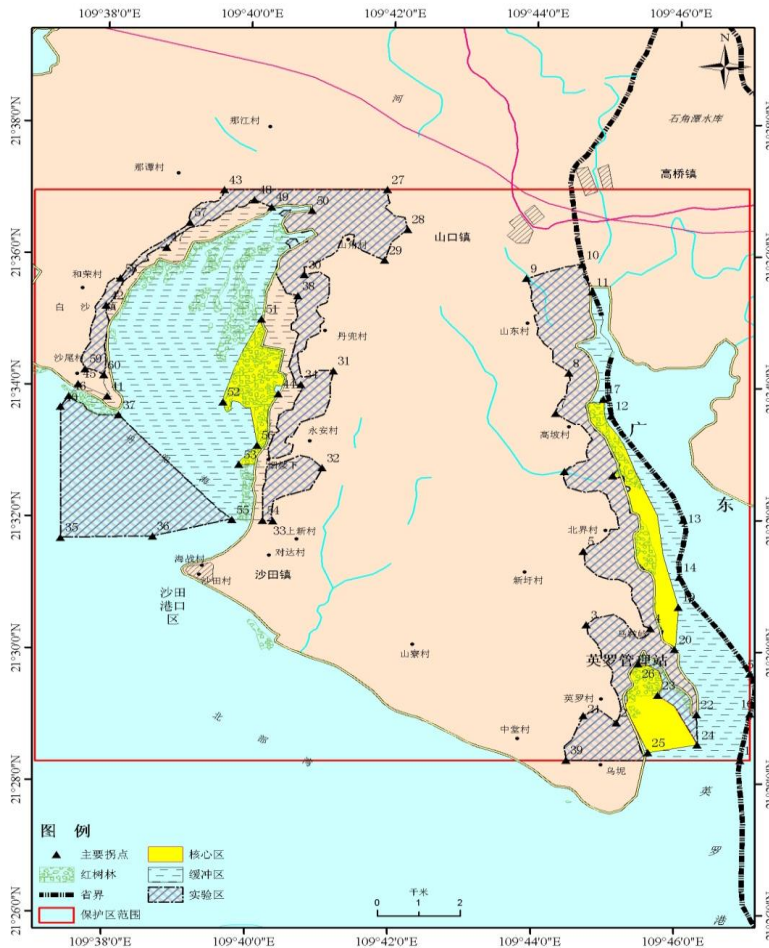
NEAMPAN sites in China

19 Staff



NEAMPAN sites in China

2. Shankou Mangrove National Marine Nature Reserve



Year designated: 1990

Conservation status: MNR

Area: 8000 hm²

Range: 109° 37'00"E-109° 47'00"E,
21° 28'22"N-21° 37'00"N

Location: Beihai, Guangxi Province

Key Protected species: Mangrove ecosystem,

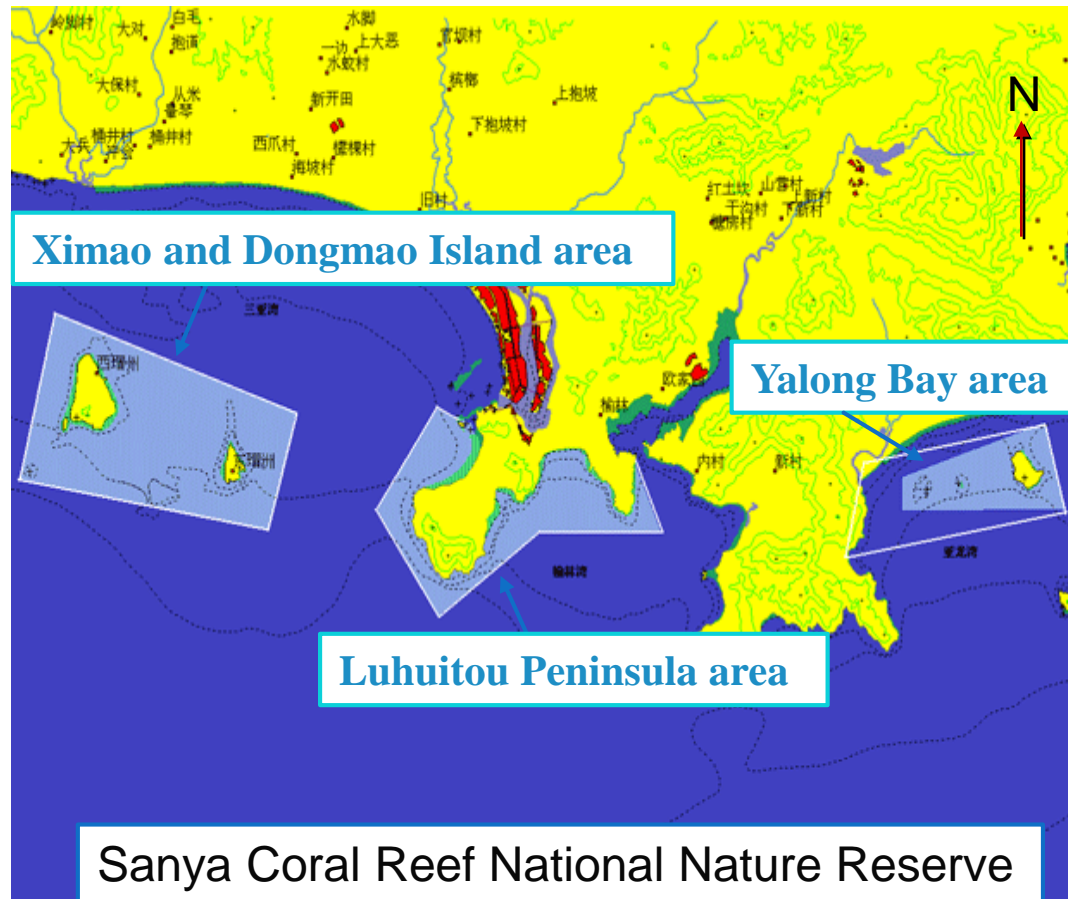
NEAMPAN sites in China

15 species mangrove, 13 species protected birds, dugong etc.



NEAMPAN sites in China

3. Sanya Coral Reef National Nature Reserve



Year designated: 1990

Conservation status: MNR

Area: 8500 hm²

Range: 109° 20'50"E-

109° 40'30"E

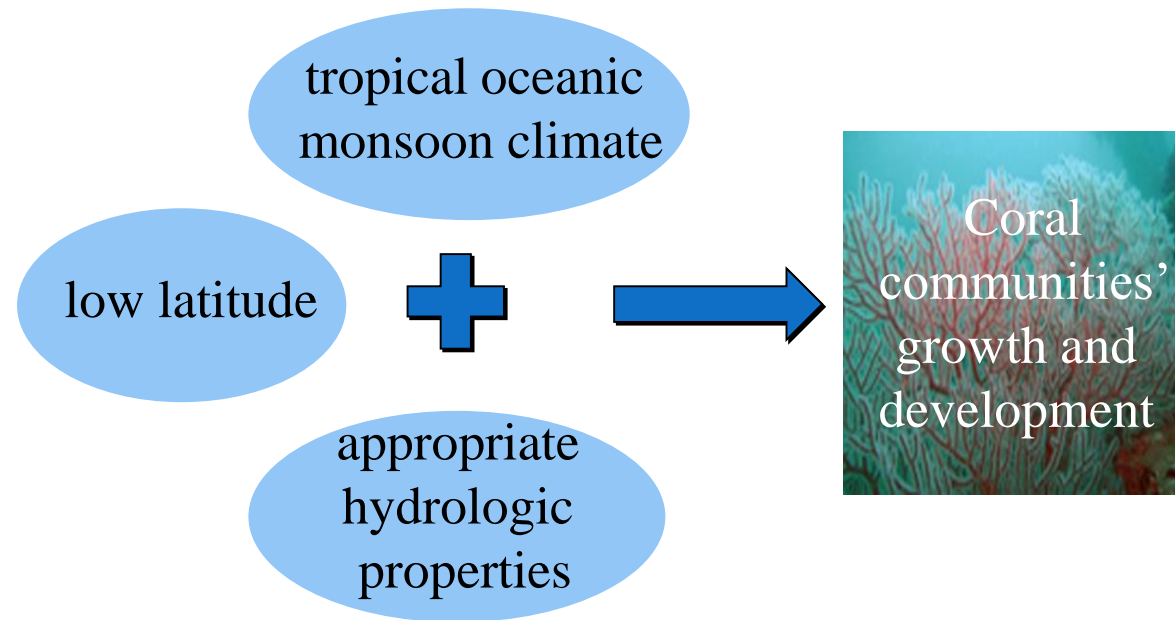
18° 10'30"N-18° 15'30"N

Location: Sanya, Hainan Province

Key Protected species: Coral reef and the marine ecological system

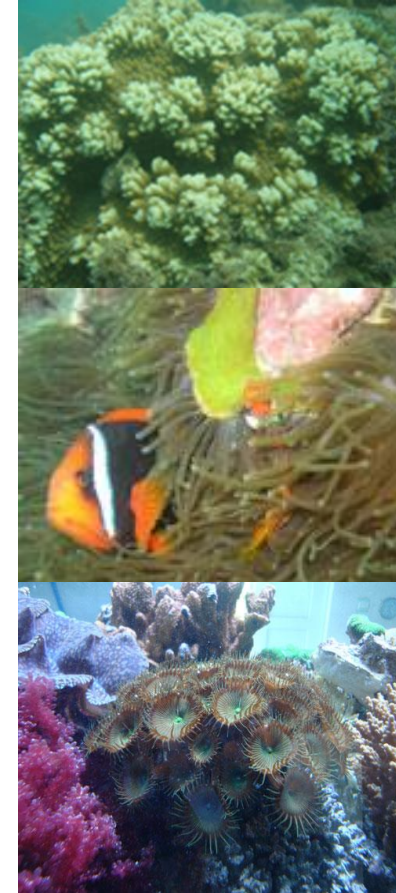
NEAMPAN sites in China

Feature of nature reserve



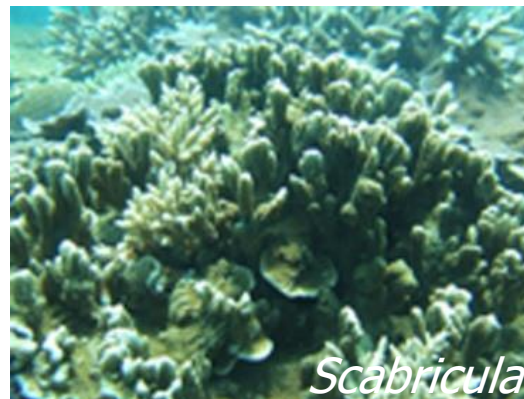
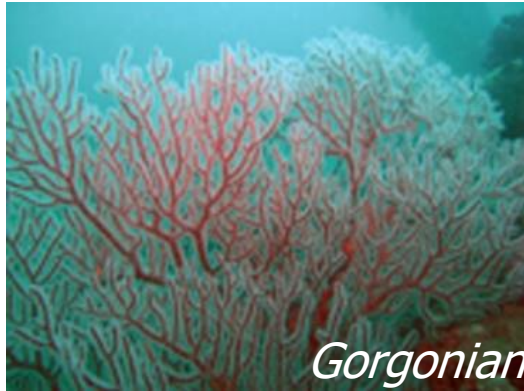
□ Coral Reefs

□ Marine organism living with coral reef



NEAMPAN sites in China

Part of main coral species



Sanya Coral Reef National Nature Reserve <http://www.sycoral.com.cn/>

NEAMPAN sites in China

4. National Nature Reserve of Dazhou Island Marine Ecosystems



Year designated: 1990

Conservation status: MNR

Area: 7000 hm²

Range: 110° 26'50"E-110° 32'06"E ,
18° 37'06"N-18° 43'54"N

Location: Wanning, Hainan Province

Key Protected species: Swiftlet, its habitat and the marine ecological system

NEAMPAN sites in China

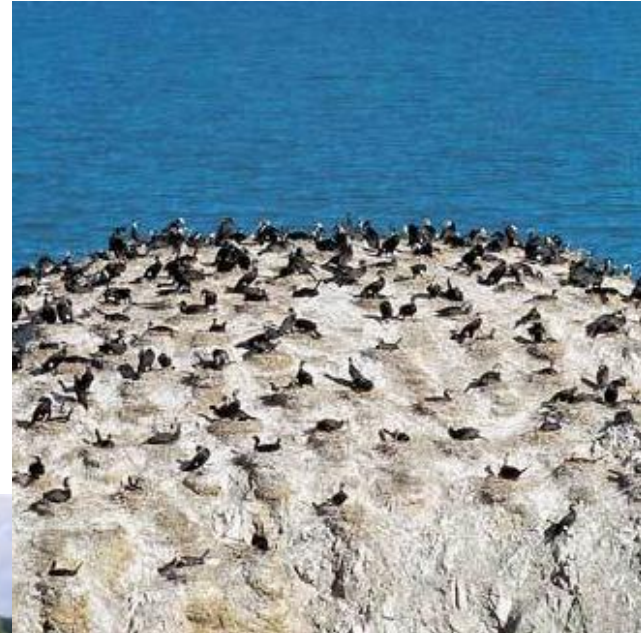
Feature of nature reserve

- **Typical marine ecosystem of Island**
Be abundant of plant resources
Be rich of animal resources, especially the swiftlet
Marine organism around the Island
- **Swiftlet** has been the endangered species.
Dazhou Island provides them habitat environment.
- **Swiftlet's nests** are famous as the eastern curiosity and rare medicine.



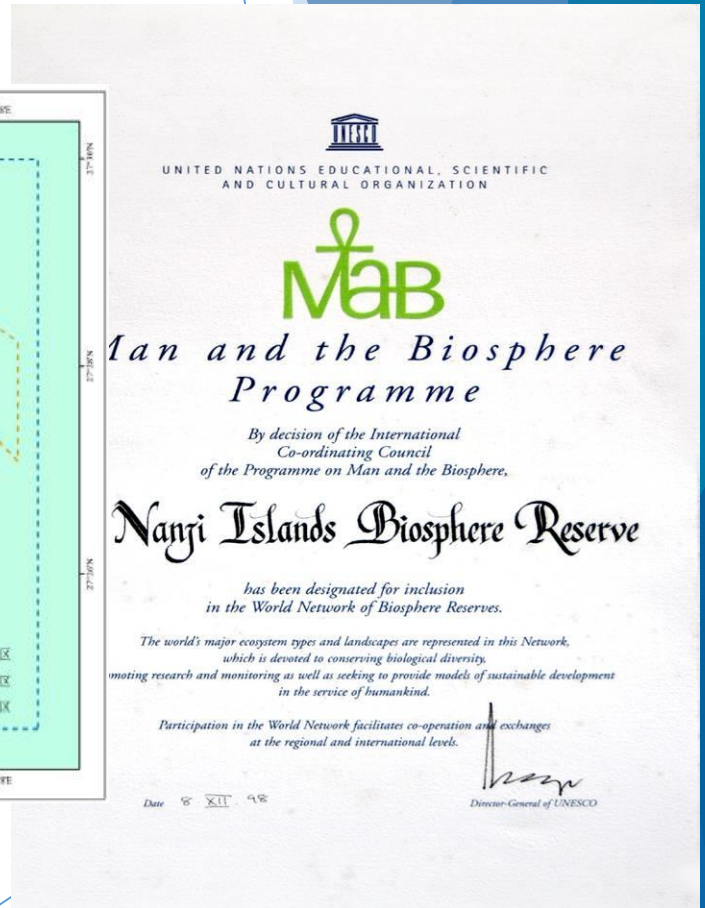
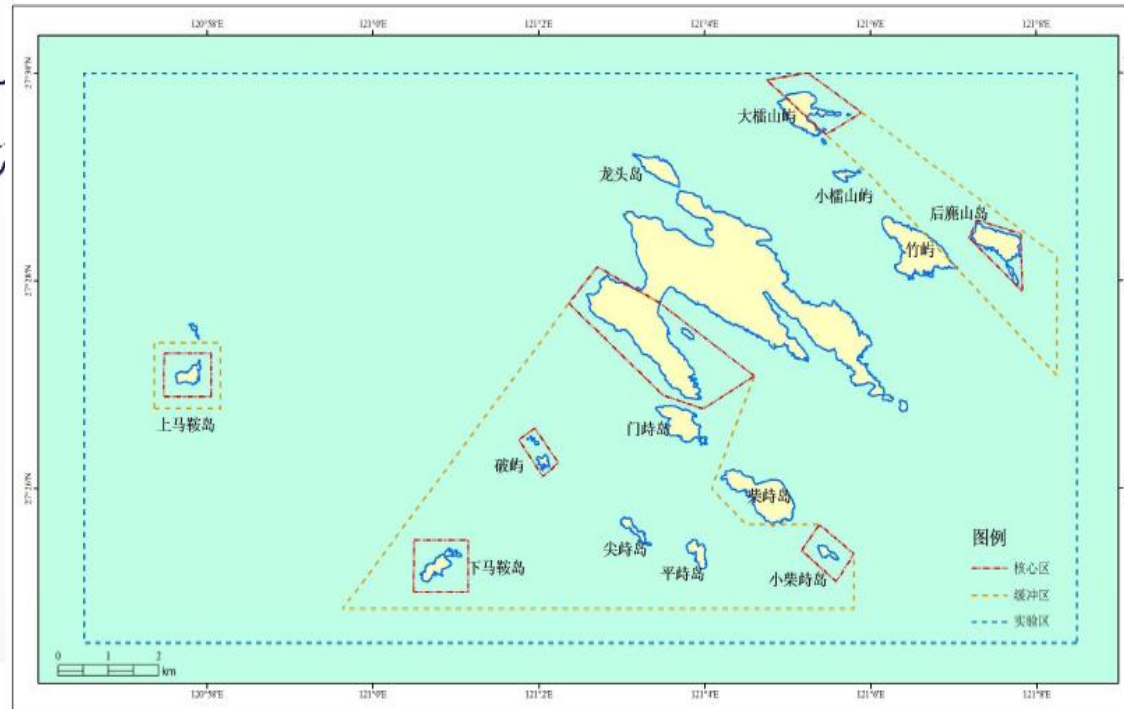
NEAMPAN sites in China

Swiftlet and the marine ecological environment



NEAMPAN sites in China

5. Nanji Islands National Marine Nature Reserve



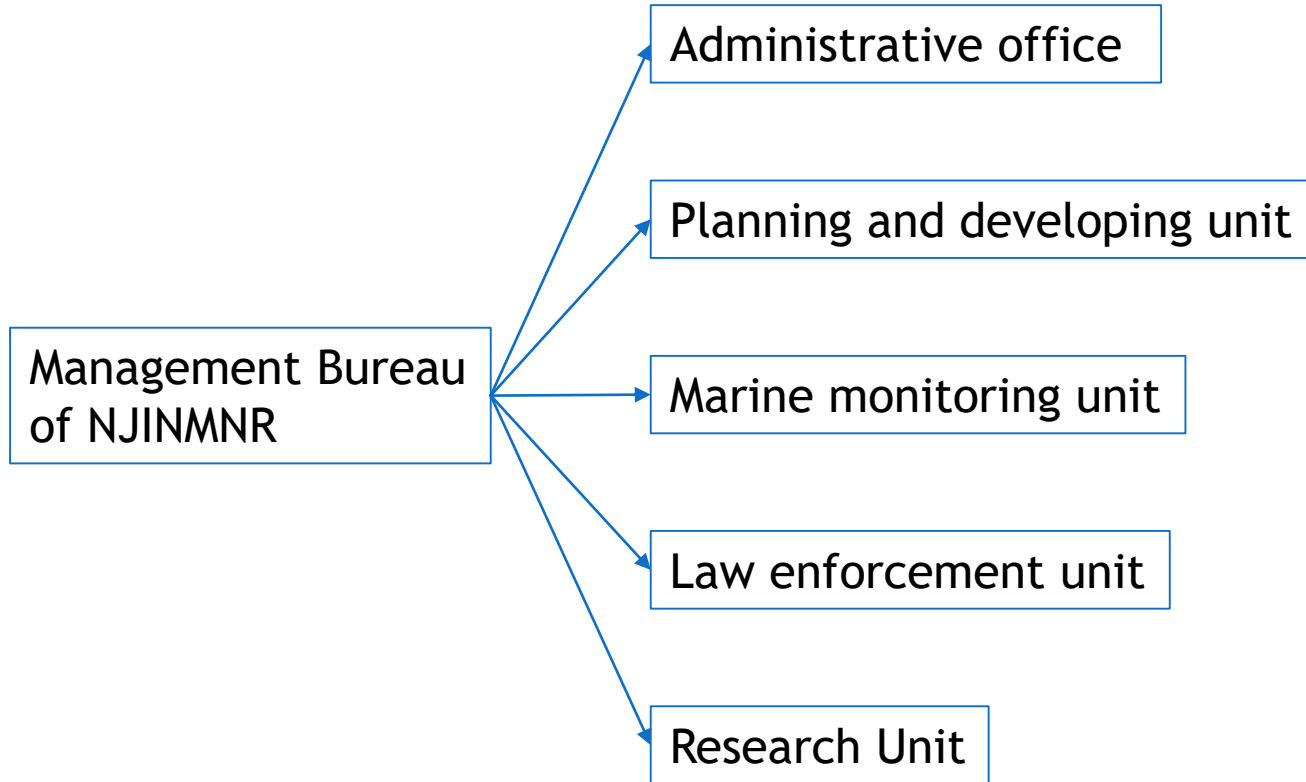
201.06 km², including 189.93 km² of sea waters

NEAMPAN sites in China

- ◆ **Target: marine shellfish and algae, birds and ecosystem**
- ◆ **1876 marine species in total**
- ◆ **Shellfish:**
 - 427 species, 15% of known species of shellfish in China
 - 36 species are endemic species
- ◆ **Algae:**
 - 637 species (seaweeds 178 species, microalgae 459 species), 25% of known species of algae in China
 - reported 3 new species and 22 rare species
- ◆ **Fish 397 species, crustaceans 257 species, and other 158 species**
- ◆ **Kingdom of shellfish and algae, and most important gene pool for marine organism in China**

NEAMPAN sites in China

◆ 42staff, 4 boats

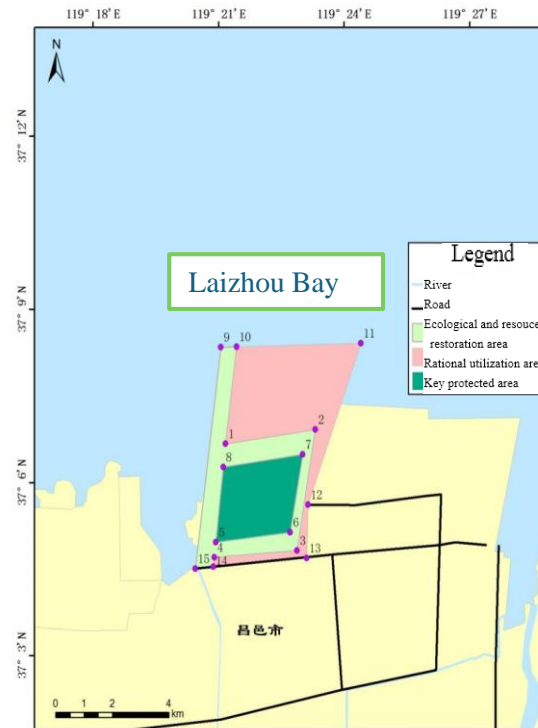


NEAMPAN sites in China



NEAMPAN sites in China

6. Changyi National Marine Ecology Special Protected Area



Year designated: 2007

Conservation status: MSPA

Area: 2929.28 hm²

Range: 119° 20'09.30"E-119° 24'13.21"E 、
00000037° 04'25.74"N-37° 08'15.47"N

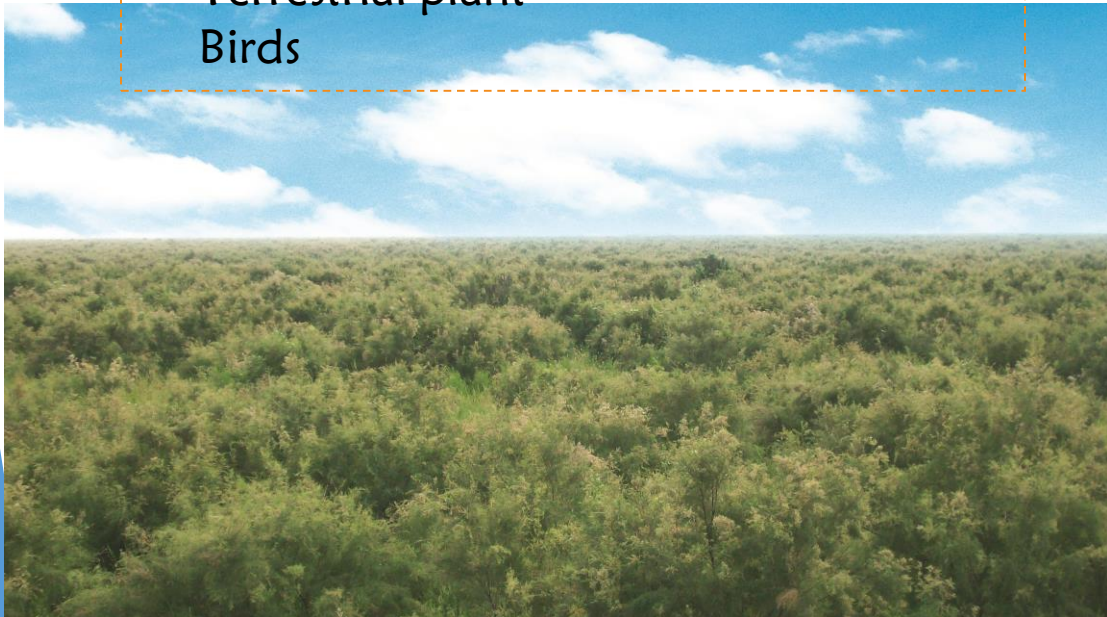
Location: Changyi, Shandong Province

Key Protected species: tamarisk (*Tamarix chinensis*), marine organisms and coastal wetland ecosystems

Natural wild tamarisk forest 2070 hm², 71% of the total MPA,
the only tamarisk forest area in China coast
North mangrove

NEAMPAN sites in China

- ❖ Diversity of wetland types
 - Shallow sea
 - Tideland
 - Saltmarsh
 - Tamarisk wetland
- ❖ Be abundant of biological resources
 - Marine organism
 - Terrestrial plant
 - Birds



半滑舌鳎



鰕虎鱼

图 2.4 海洋生物—鱼类



三疣梭子蟹



对 虾

图 2.5 海洋生物—虾蟹类



NEAMPAN sites in China



Tamarisk



Terrestrial plant

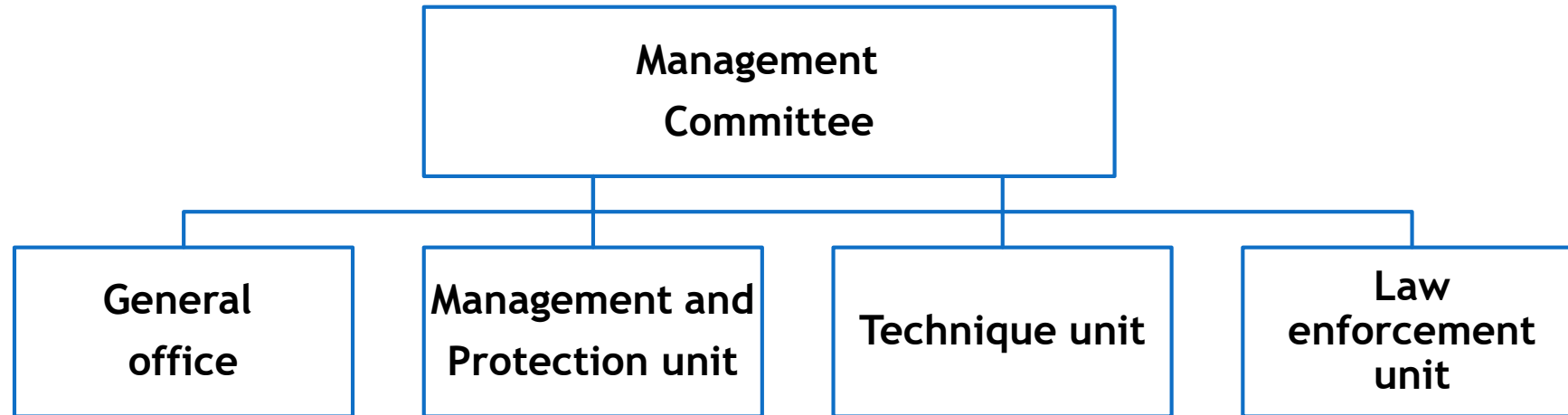


Wild animal and birds



NEAMPAN sites in China

14 staff



Preliminary review of the strategic / management plan of the target MPA (related to outline 1.2-1.4)

Nanji Islands National Marine Nature Reserve

Master plan objective

- (1) to protect the natural ecological habitats and islands for the marine shellfish, algae, birds, and wild island flora;
- (2) to protect the endangered species for survival and reproduction;
- (3) to protect natural resource, biodiversity, and ecosystem stability from human disturbance;
- (4) to harmonize the relations between short-term and long-term, partial and overall, MPA and local community, human and nature, ecological benefits and economic benefits;

Nanji Islands National Marine Nature Reserve

Master plan Contents

- 6.1 infrastructure developing plan
- 6.2 capacity building and patrolling plan
- 6.3 human resource and administration plan
- 6.4 public awareness and education plan
- 6.5 scientific research and monitoring plan
- 6.6 pollution control, ecosystem protection and restoration plan
- 6.7 mariculture developing plan
- 6.8 ecotourism developing plan

Nanji Islands National Marine Nature Reserve

Monitoring and assessment

1. Ecological assessment
2. Management evaluation
3. Protection value assessment
4. Protection target evaluation

表 3-1 南麂自然保护区历年贝藻类数量调查结果

项 目 年 份	1974~1976	1992~1993	2003~2004	2006~2007
贝类总数 (种)	122	143	105	85
藻类总数 (种)	94	121	85	47
断 面 数 (条)	4	14	10	8
调 查 者	上海自然博物馆	海洋二所	海洋二所	浙江海洋水产养 殖研究所

Changyi National Marine Ecology Special Protected Area

Master plan objective

- (1) to protect the coastal wetland and its services, the habitat for living species, and the biodiversity;
- (2) to recovery the tamarisk forest 70 ha, and the coverage increased by 2025;
- (3) to increase the capacity building and infrastructure for the MPA's patrolling, monitoring, education, research, and routine management;
- (4) to sustainable develop the eco-agriculture industry and increase the local community income;
- (5) to perfect the scientific research and monitoring data support for the restoration and management actions;
- (6) to develop the co-management mechanism for MPA;

Changyi National Marine Ecology Special Protected Area

Master plan content

- 6.1 capacity building planning
- 6.2 infrastructure building planning
- 6.3 Resources sustainable use planning
- 6.4 Ecological industry developing
- 6.5 scientific research and monitoring planning
- 6.6 ecosystem protection and restoration planning
- 6.7 public education and awareness promotion
- 6.8 co-management planning

Changyi National Marine Ecology Special Protected Area

Monitoring and assessment

1. Infrastructure assessment
2. Management evaluation:
 - management body
 - regulation/protocol
 - routine working
 - capacity
3. Protected target assessment:
 - tamarisk coverage,
 - ecological parameters

2. Monitoring and assessment of designated MPAs

Monitoring parameters (related to outline 2.1)

Assessment of data (related to outline 2.2)

Monitoring parameters

Water quality

Population of key species

Most MPA no visitor data and economic data (Nanji island based on boat tickets)

Qualified agency to conduct the monitoring

Data owned by MPA authority

Not available for the public

Assessment of data

National standard for sea water quality

No criteria for population of key species

Qualified agency to conduct the assessment

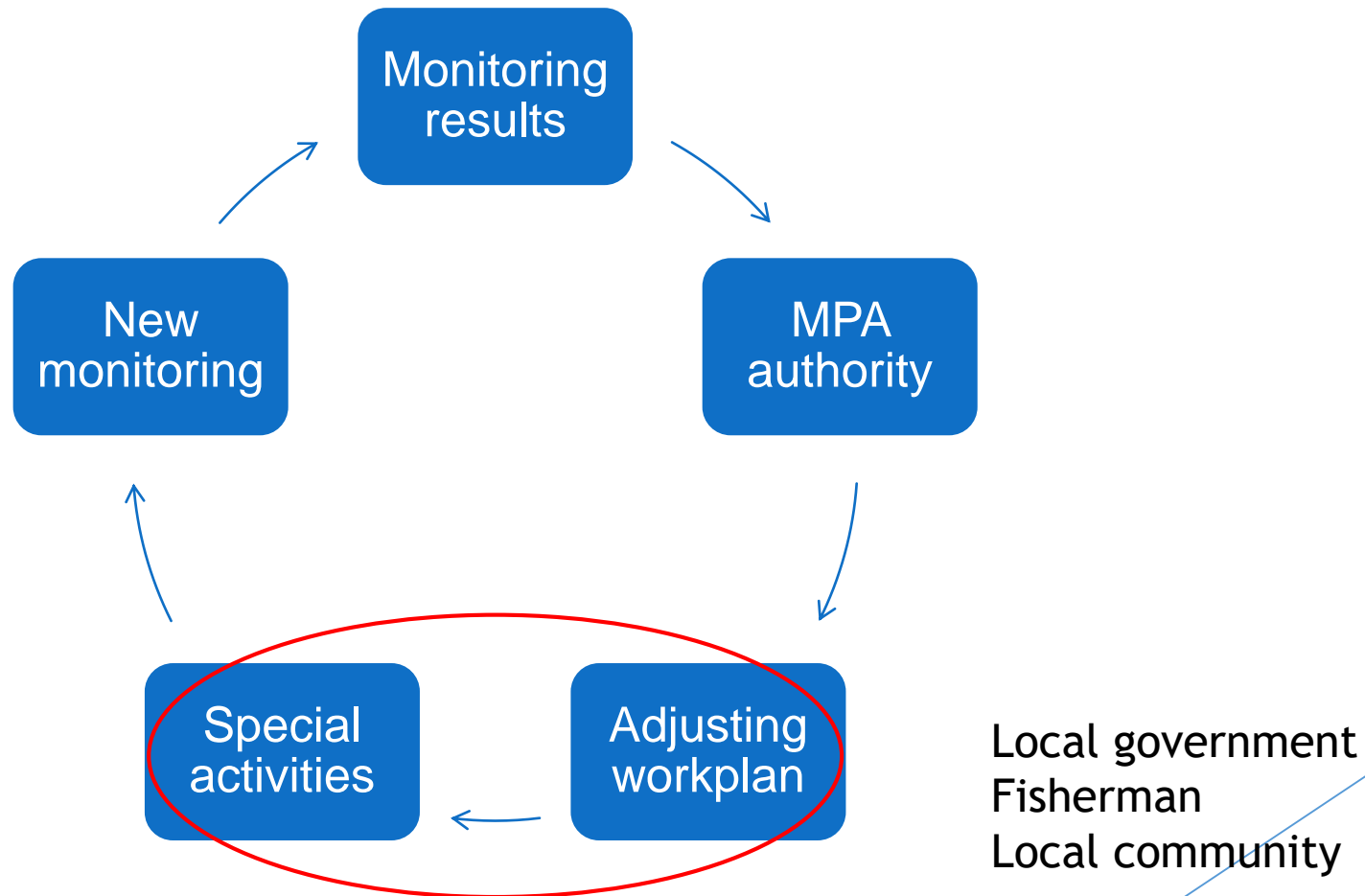
Evaluation report by monitoring agency

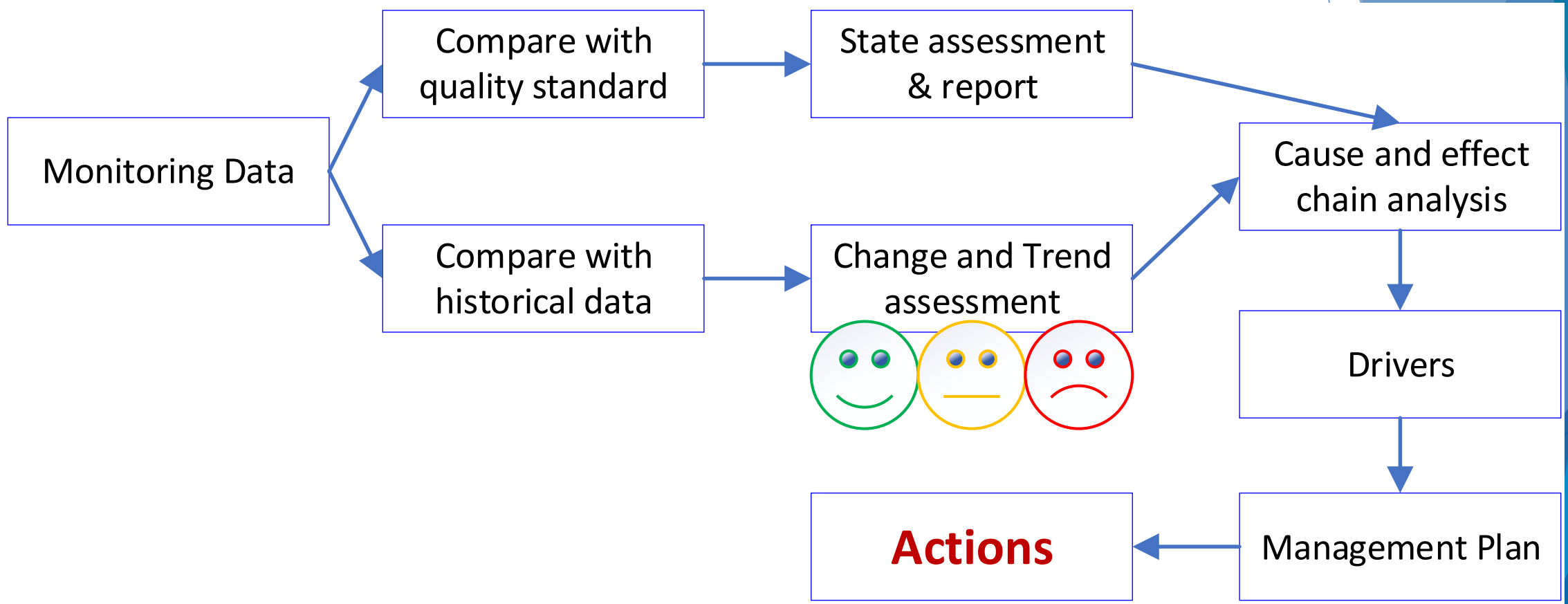
Monitoring parameters for different types of MPAs

保护区分类	保护对象名称	保护对象监测指标	影响因素*					
			水质	沉积物	生物质量	其他		
海洋生物物种类	珍稀濒危动物	文昌鱼	栖息密度、生物量	pH、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	粒度、有机碳、石油类、重金属	—	生物多样性水平；人为因素	
		松江鲈鱼	密度、生物量	pH、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	有机碳、石油类、重金属	大肠菌群、石油类、重金属		
		珊瑚	活珊瑚盖度、种类、死亡率	pH、悬浮物、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	有机碳、石油类、重金属	—		
		江豚	数量、频次	—	—	—		
		海龟		pH、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	粒度、有机碳、石油类、重金属	—		
		金丝燕		—	—	—		
		中华白海豚		—	—	—		
	具有重要经济价值动物	西施舌	密度、生物量	pH、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	有机碳、石油类、重金属	大肠菌群、石油类、重金属		
		沙蚕						
		刺参						
		贝类	种类、密度、生物量					
		蛭类						
	鱼类							
	植物	红树	种类、密度、面积	—	有机碳、石油类、重金属	—		气候因素；虫害；外来生物入侵；人为因素。
		怪柳	密度、面积					
		野生水仙花						
		羊栖菜						
鸟类	种类、数量	—	—	—	生物多样性水平；人为因素。			

保护区分类	保护对象名称	保护对象监测指标	影响因素*			
			水质	沉积物	生物质量	其他
海洋自然景观类	贝壳堤	面积、完整性	—	—	—	风暴潮； 海水动力影响； 人为因素
	海岸沙丘	面积、高程				
	牡蛎礁	面积、完整性				
	海底古森林					
	沙滩					
	陆连岛砂堤					
	岛礁					
生态系统保护区	海湾	生物多样性及其系统代表生物种类、密度和生物量	pH、溶解氧、化学需氧量、无机磷、无机氮、石油类、重金属	有机碳、石油类、重金属	—	生物多样性水平； 人为因素
	海岛					
	河口					
	浅滩湿地					
	海草床	种类、密度、盖度、面积	—	有机碳、石油类、重金属	—	气候因素； 虫害； 外来生物入侵； 人为因素。

Links between monitoring / assessment results and management





3. Feedback of assessment results to management plans and practices

Any foreseeable challenges in this study?

There is no standard procedure/template to guide the MPA using the results in China

Such as biodiversity decline how much will lead a special action?

4. Case studies

Preliminary assessment on the selection of NEAMPAN site for the case study?

The monitoring data and evaluation reports are under collecting for two MPAs

Thanks for your attentions!

Outline 1.2 - 1.4

MPA Management policies, strategies, and plans

Monitoring and evaluation plan

Outline 3

Outline 2.3

Reflection of the assessment results in management and monitoring plans?

Outline 2.2

Monitoring parameters

Monitoring data

For example,

- Water quality
- Water temperature
- Population and habitat of target species (e.g., fish, sea birds, marine mammals)
- Tourism arrival
- Fishery data
- ...

Evaluation of data

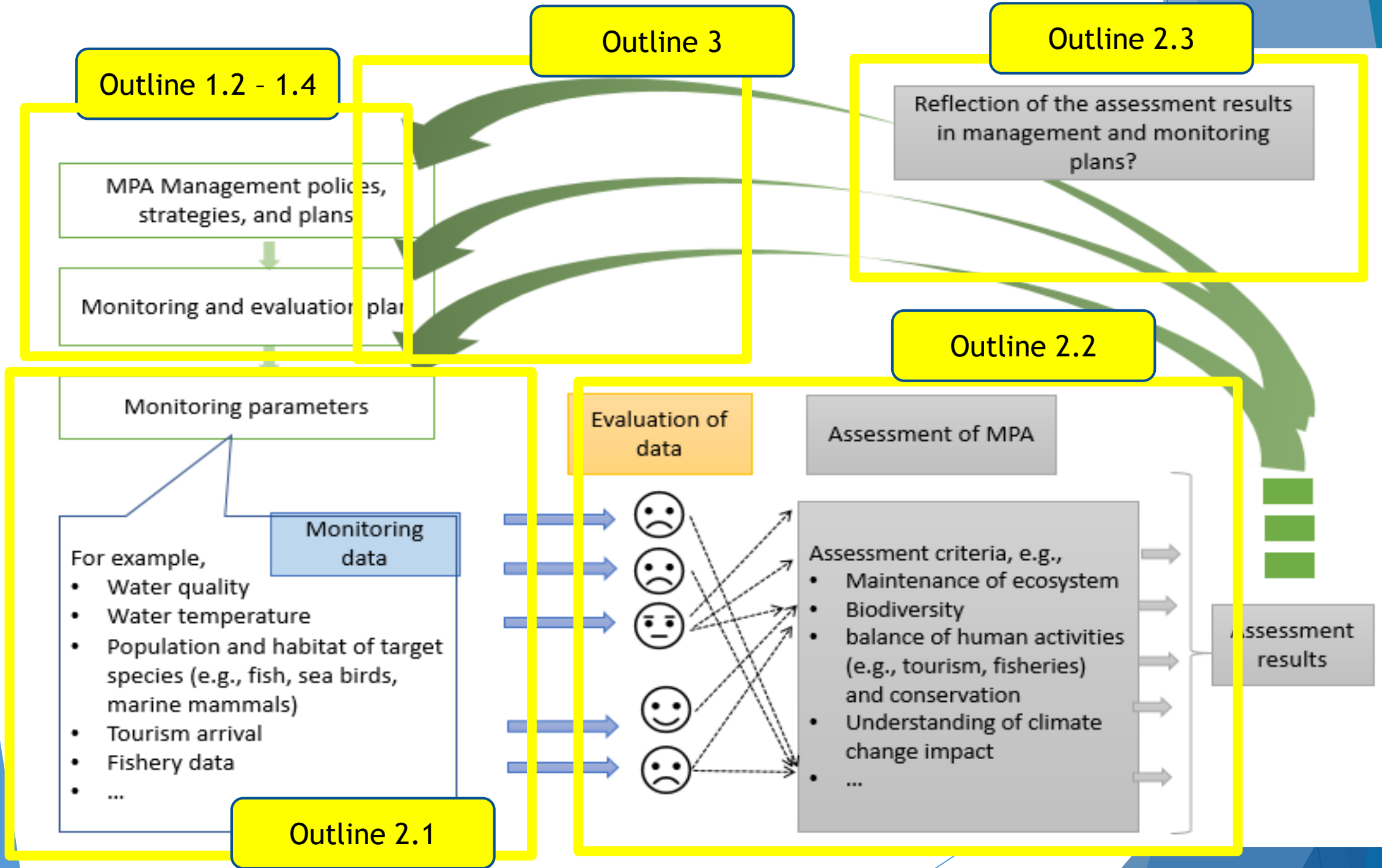


Assessment of MPA

- Assessment criteria, e.g.,
- Maintenance of ecosystem
 - Biodiversity
 - balance of human activities (e.g., tourism, fisheries) and conservation
 - Understanding of climate change impact
 - ...

Assessment results

Outline 2.1



For information:

Meeting objectives

1. To ensure the coherence of the studies
2. To share preliminary view of the study
3. To share availability of information and expected challenges in the study
4. To discuss any adjustments needed for the outline of the study

Outline of the study (as in the TOR)

- 1. Review of management plans / strategies of the selected NEAMPAN site**
 - 1.1 Basic information of the target MPA
 - 1.2 Background of strategic / management plan of the target MPA
 - 1.3 Objective of MPA management plan
 - 1.4 Key contents of the management plans
- 2. Monitoring and assessment of designated MPAs**
 - 2.1 Monitoring parameters
 - 2.1.1 Areas addressed by the monitoring parameters: biological, socio-economic, environmental
 - 2.1.2 Monitoring bodies and collection of data
 - 2.2 Assessment of data
 - 2.2.1 Assessment criteria and responsibilities: How and who evaluate the monitored data
 - 2.2.2 Assessment against goals and indicators: How the evaluation / assessment is made against goals / indicators identified (if any) in the strategic / management plan
 - 2.3 Links between monitoring/assessment results and management
 - 2.3.1 Use of monitoring data: How it used for assessment, how monitoring results are followed up or reflected in the future plans / strategies
 - 2.3.2 Institutional aspects: Parties involved in the management of MPAs (implementation of plans, monitoring the implementation, etc.)
- 3. Feedback of assessment results to management plans and practices**
- 4. Case studies – monitoring and assessment results and corresponding measures in the selected MPA**