

Conserving and restoring valuable coastal wetlands of the Yellow Sea

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CONVENERS:



Florida International
University



Xiamen University



Korea Institute of Ocean
Science and Technology



East Asian
Australasian Flyway
Partnership



UNDP/GEF Yellow Sea
Large Marine Ecosystem
Phase II Project

Iloilo · Philippines · 2018-11-28

A critical review of 25 years of land reclamation in East Asia

Organizers:

Florida International University, Xiamen University, Korea Institute of Ocean Science & Technology, East Asian-Australasian Flyway Partnership, and UNDP/GEF Yellow Sea Large Marine Ecosystem Phase II Project

Discussion questions & some preliminary thoughts:

1. *What are the main drivers of land reclamation projects today?*
 - o The main drivers of land reclamation have changed over time. Today, more reclamation projects intend to build high-value real estate properties. Economic growth of a city or a town often serves as a rationale for launching new reclamation projects. Apart from large-scale reclamation projects, we also need to pay attention to smaller ones that especially affect ecologically important areas.
2. *How can we reduce the impacts of land reclamation?*
 - o Ecological, social, and cultural impacts need to be closely monitored and documented. Decision-making processes have to be democratic and the voices of socially marginalized populations should be fully represented. The impacts of reclamation last long and affect nearby areas, not just the reclamation site itself. A cumulative impact assessment system could better evaluate the long-term impacts of reclamation.
3. *What can marine spatial planning (MSP) do to control/restrain reclamation?*
 - o MSP seeks an integrative governance of coastal and marine space. As such, MSP might be able to consider the various dimensions of land reclamation hitherto overlooked. For example, sea-level rise would make the built environments on reclaimed land vulnerable to coastal disasters. Preserving natural wetlands by discouraging reclamation can be thought as a way to reduce coastal hazard risk. Wetlands restoration (also called as 'reverse-reclamation' when tearing down a seawall) is another area that MSP should better consider as a way to strengthen long-term resilience of coasts.
4. *How can we monitor the status and trends of land reclamation in East Asia and promote regional cooperation?*
 - o Knowledge on reclamation practices and impacts in East Asia has so far been scattered and not understood in a comprehensive manner. We may wish to create a regional 'reclamation watch' program or a regional research collaborative. An example of such a communication platform that we may learn from is the 'Dredging Research Collaborative' (<http://dredgeresearchcollaborative.org/>).

Discussion suggestions from Rae:

2 How can we reduce the impact of land reclamation?

Reclamation has been prohibited recently in China, but in the last 25 years, it is a fact in our life, learn to live with it, before it is completely abandoned by us.



- Administrative region contains: Liaoning, Hebei, Tianjin, Shandong, Jiangsu
 - Population (the 6th national census in 2010): 302, 991, 000 (22.62%)
 - GDP (2015): 20813.203 billion (30.4%)
- Under High Human Pressures:
 - Reclamation,
 - Industries (oil mining, salt industry),
 - Sea-water aquiculture, etc.



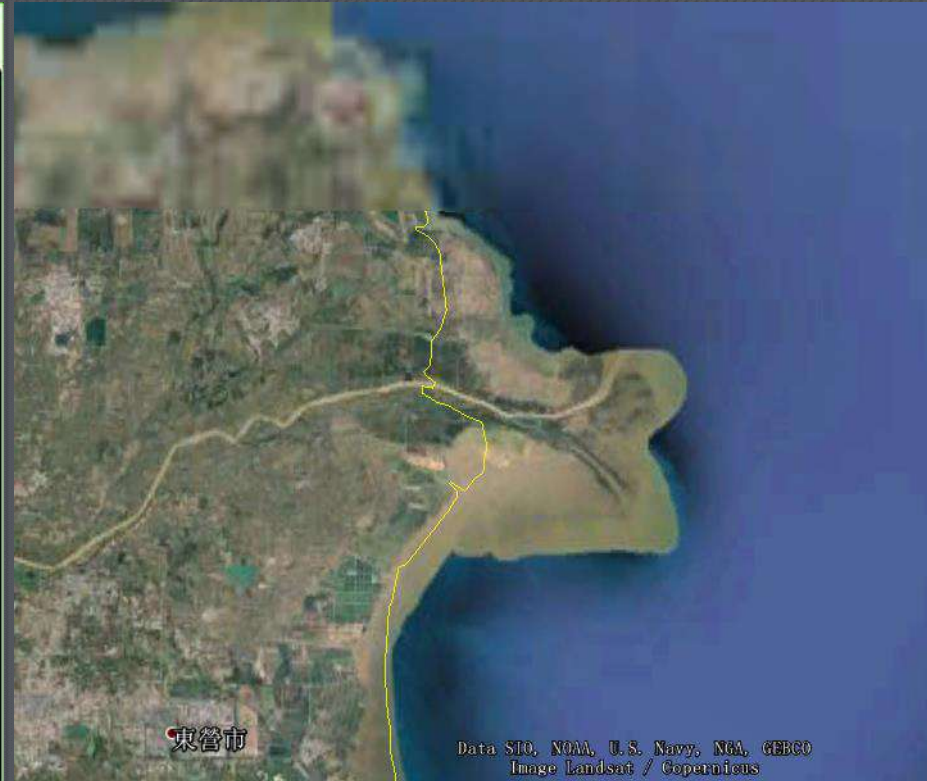
1 BACK HOME

2 SHORTENED WETLANDS

3 ECO-UTILIZATION OF THE WASTE

WELCOME BACK: Seagrass, *Zostera japonica*

山东黄河三角洲国家级自然保护区图



Length: 25~30 km

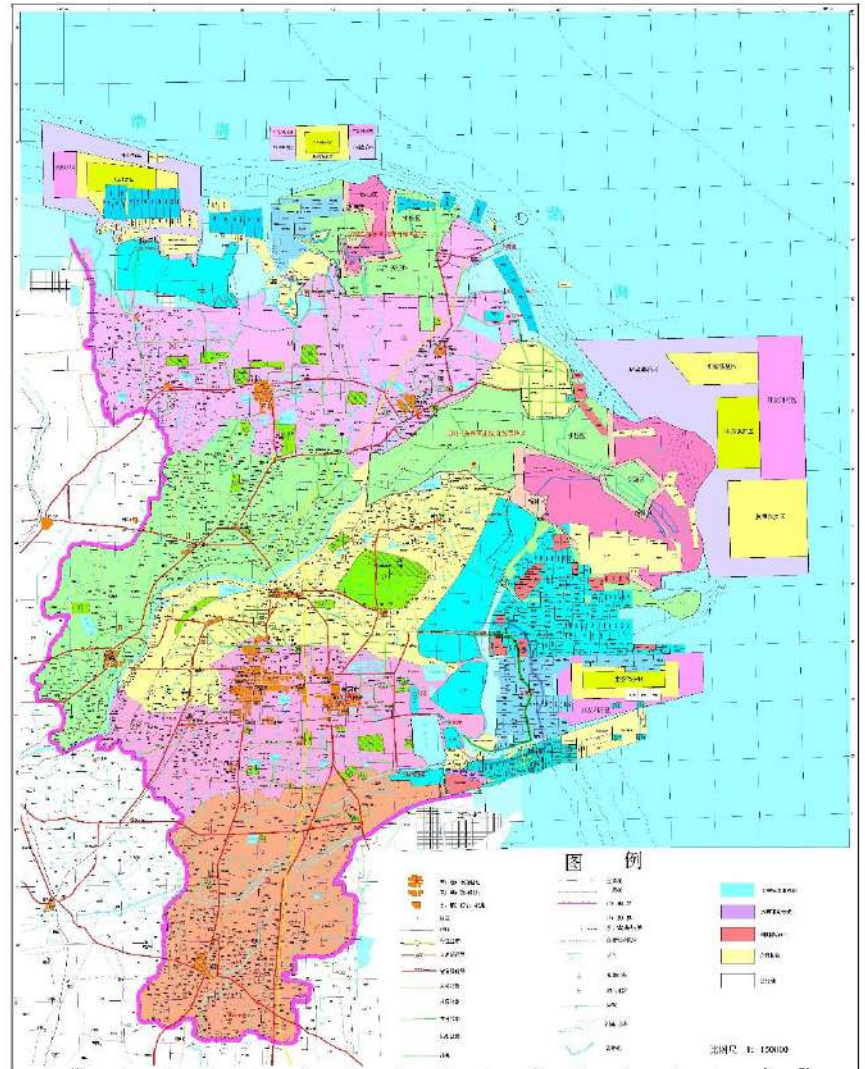
Width: 200~500 m

Area: over 10 km²

WELCOME BACK: Oyster reef, *Ostrea rivularis*



东营市养殖用海现状图



1 : 6000000



per capita water availability



图例(2016年)

每平方公里3000以上	每平方公里800~3000人
每平方公里800~3000人	每平方公里300~800人
每平方公里300以下	

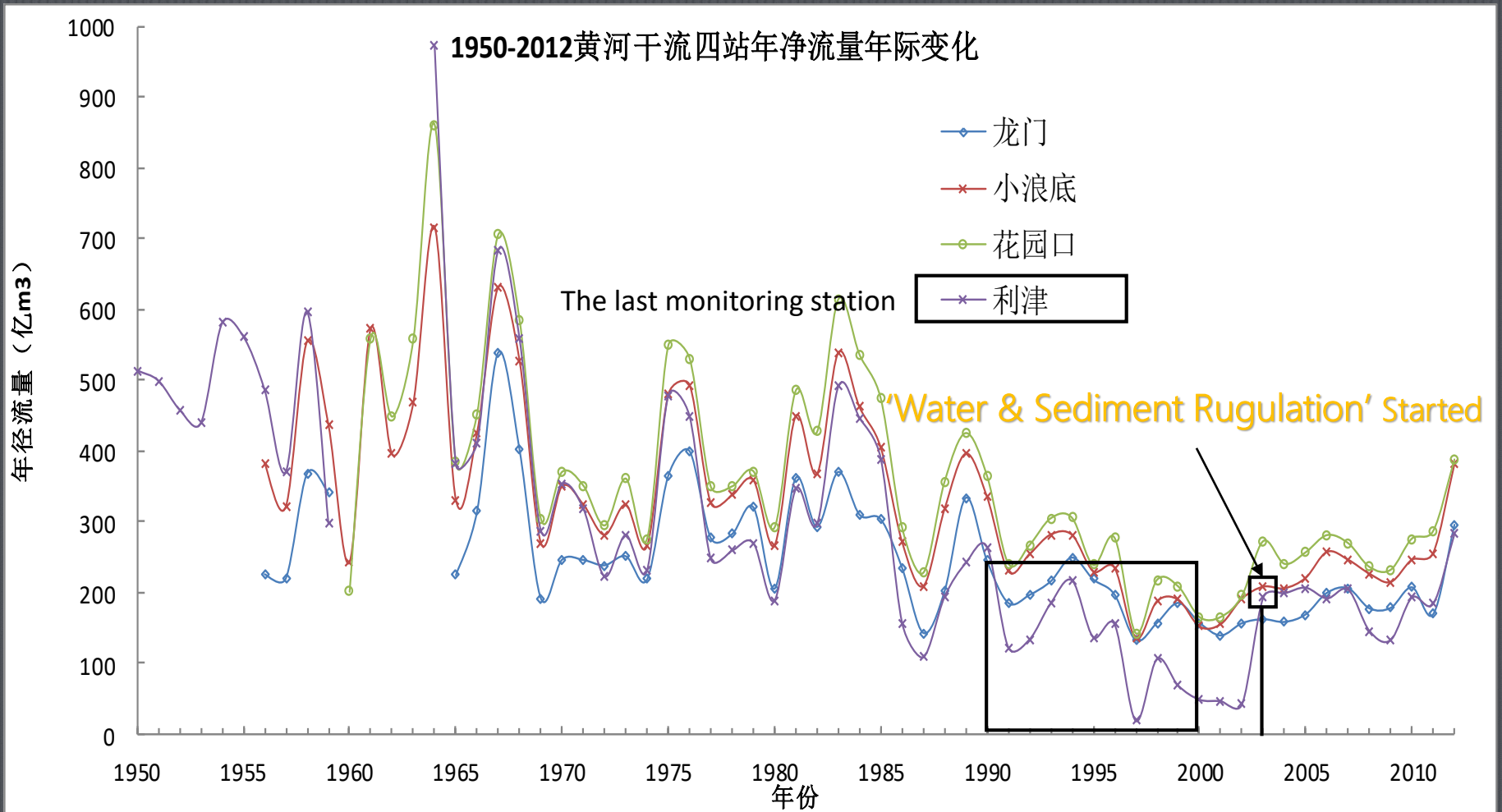
中国地图出版社 2017年9月 2017年11月 1米 经纬度: 120.294, 36.509

BACKGROUND:

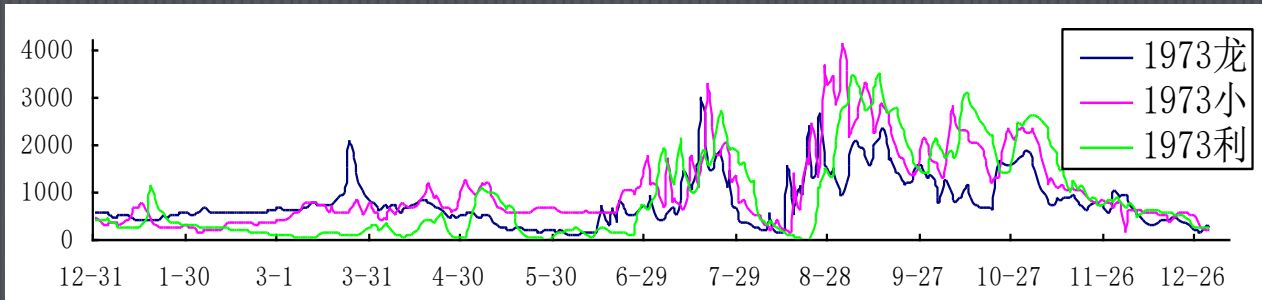
We need healthy coastal wetlands, but,

The sea is thirsty, and even a little dirty.

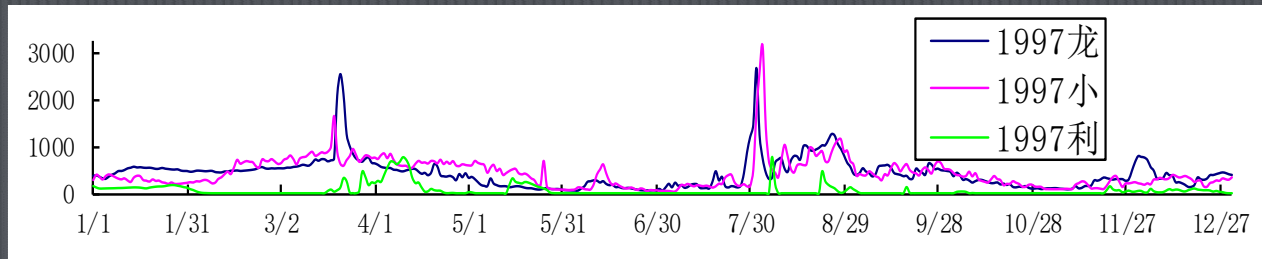
Runoffs of Yellow River



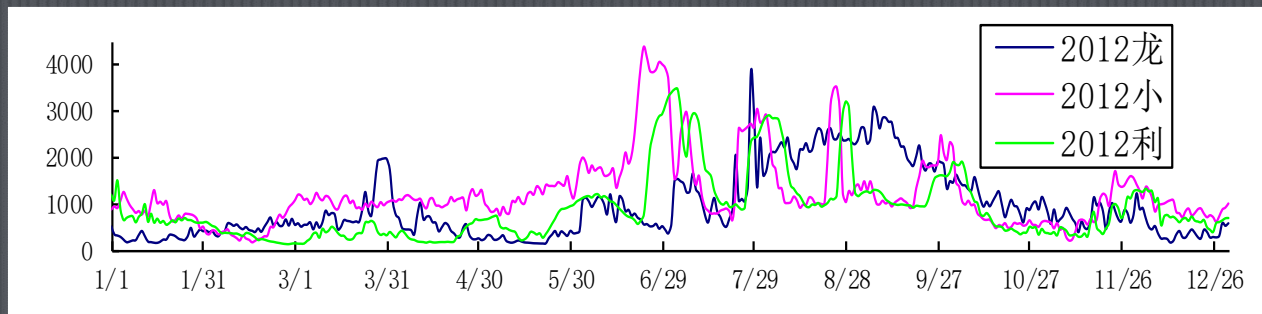
Seasonal Variations – Spring flood



Spring flood is first blocked by Sanmenxia Reservoir in 1973



Even in 1997, Spring flood also existed.



Even in 'Water and Sediment Regulation' period, Spring flood was also neglected.

Summary:

The sea is thirsty, especially in spring!

Large-scale Ecological regulation

techniques are necessary!

The shorten wetlands

REVEGETATION: *Suaeda salsa* (Key species)

红滩湿地生态修复工程一期布局示意图

名称	施工单位	面积(亩)
第一项目段	中国科学院海洋研究所	1200
第二项目段	东营市黄河口滨海旅游开发公司	600
第三项目段	东营市金海有限责任公司	1200

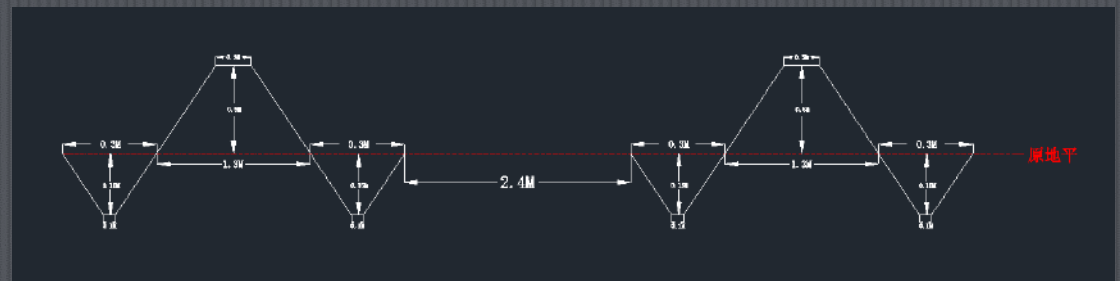
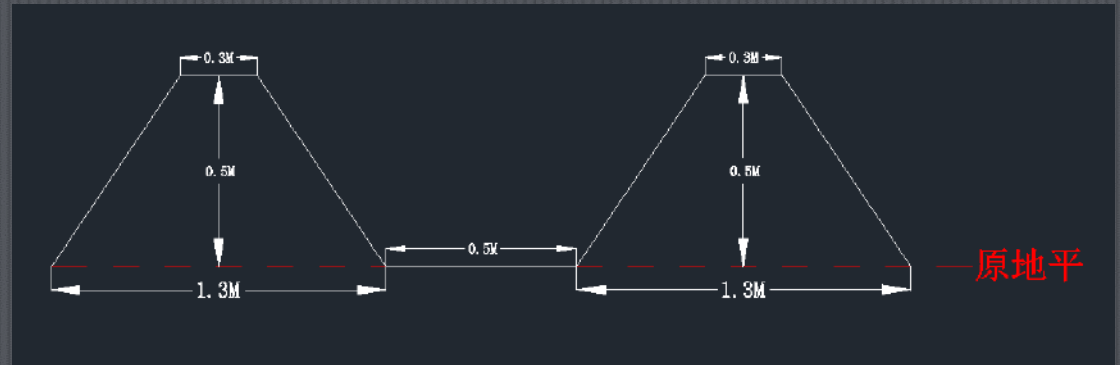


REVEGETATION: *Suaeda salsa*





Plough & Ridge



2017



2017



2017



2018, Intervention stopped



REVEGETATION: *Suaeda salsa*

红滩湿地生态修复工程一期布局示意图



REVEGETATION: 2018



REVEGETATION: 2018



Saunders's Gull

Saundersilarus saundersi,



Umbrella species

Strict with the breeding habitat.

Coverage of *S. salsa*: 20%-60%; Height of *S. salsa*: 5-25cm,

Hatching periods: 13-14 days; Safe distance > 500m;

Benthos biomass > 300 g/m²; Distance from the fresh water: 500-1000 m.

Range

- Extant (breeding)
- Extant (non breeding)
- Extant (resident)

Compiled by:

BirdLife International and Handbook of the Birds of the World (2016)



IUCN Red List: 7100-9600 individuals



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

Typical habitats for *Recurvirostra avosetta*





起飞盘旋、鸣叫示警



雄鸟警戒



鸟接近：振翅



浅水方便幼鸟获取食物



雏鸟行动力弱，啃食碱蓬肉质叶可补充淡水



NEW SETTERLLER: *S. anglica* & *S. alterniflora*



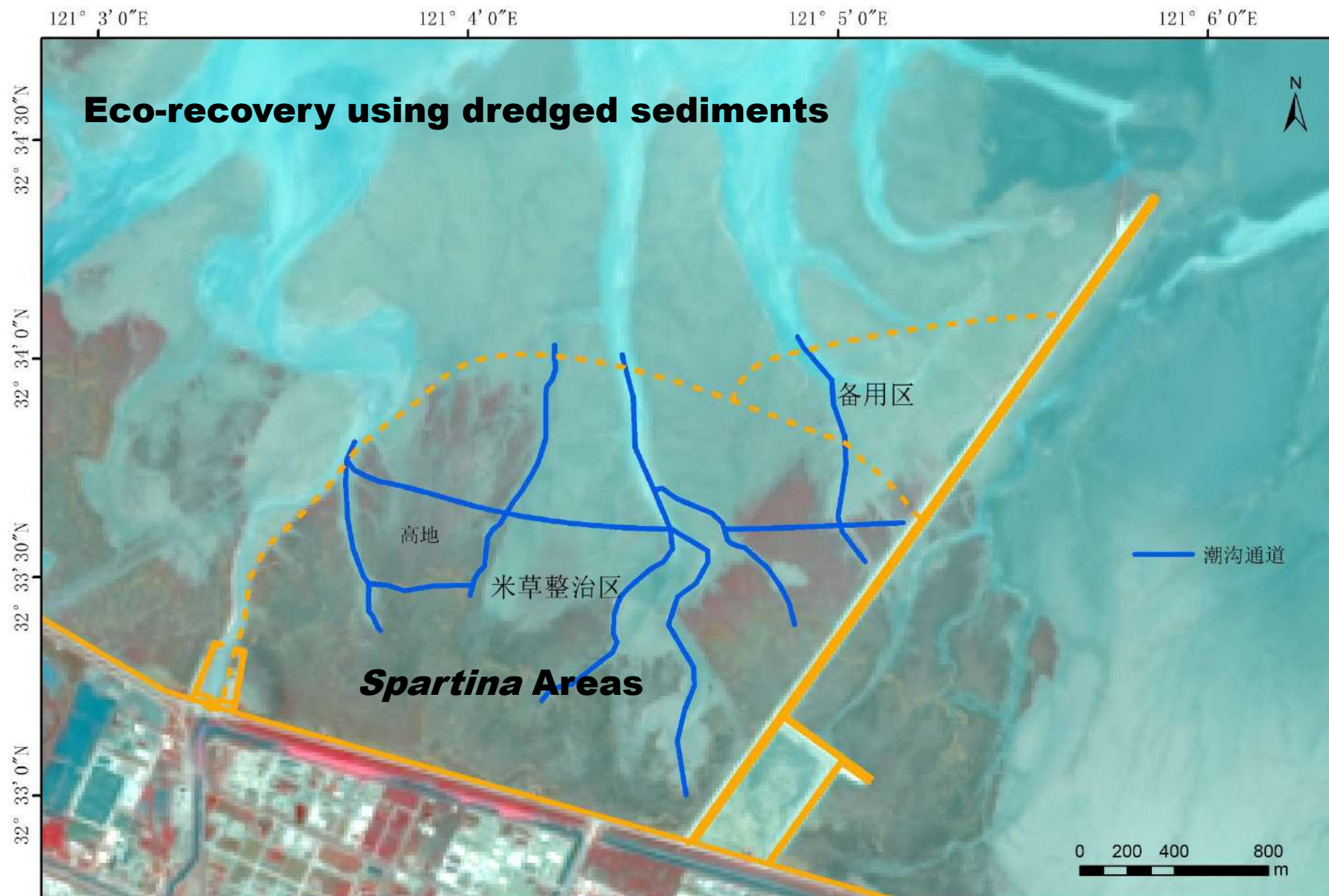
NEW SETTERLLER: *Spartina*



Xiaoyangkou wetland, Rudong, Jiangsu Province

Spoon-billed Sandpiper





Can abandoned aquaculture ponds be eco-utilized?



Thank you!



丹顶鹤 (EN)

Grus japonensis



东方白鹳 (EN)

Ciconia boyciana

Summary & Review

- ❑ Large-scale ecological regulation techniques should be further studied and developed.
- ❑ Identify the umbrella species, make it clear about their demands for habitats.
- ❑ Dredging materials and abandoned reclamation structures may be useful for eco-restoration/construction, learn and try to use them!
- ❑ Cooperation at all levels, local, national and regional scale, should be encouraged! Sea As One, work together!