

**CONSERVATION ACTIONS OF ENDANGERED WATERBIRDS AND THEIR HABITATS IN THE
YELLOW SEA ECOSYSTEM**

NARRATIVE REPORT

Introduction.....	1
Summary Activity Target vs. Progress.....	2
Comments	3
1. Inception report	3
2. Fishmen training report	6
3. Waterbirds habitat quality report on Important Bird Areas(IBAs) in YSLME and along waterbird flyway.....	8
4. Mapping of flyways and sites of the 4 identified endangered species.....	16
5. 10 reports about the conservation actions on influential media	18
6. WeChat public account of YSLME	20
Problems & Challenges.....	21
Conclusion	21
Appendix 1:.....	22

Introduction

[Brief Introduction summarizing progress]

The coast wetland along EAAF is key stopover site for waterbirds, and it supports majority of waterbirds population stopover, breeding and wintering in these areas. However, the waterbirds population have a decreased trend in recent years according to waterbirds survey data. Among reasons, the natural wetland loss is the most important factor. The natural wetland was damaged from human factor and natural factor, the human factor is the largest factor. Waterbirds is the important indicator species, it is necessary to conduct conservation actions for endangered waterbirds and their habitat, and maintain the stability of waterbirds population.

In view of this, the project of “conservation actions of endangered waterbirds and their habitats in the Yellow Sea ecosystem” was signed between UNOPS and IGSNRR on April 19. The goal of the project is to improve the understanding of the waterbird habitat quality of IBAs in YSLME and along waterbird flyway, and to understand ecological connectivity, life history and migration pattern of the above-mentioned four endangered bird species, improve the capacity of NGOs in terms of project cycle management, etc., raise awareness of the local communities, in particular the youngsters, in protecting natural wetlands and endangered waterbirds, explore the practices of balancing sustainable management of nearshore aquaculture and conservation of endangered waterbirds and their key habitats in YSLME, and improve the replication and application of the outputs in other project areas.

We had done a lot of work since the project agreement was signed. The inception workshop was launched on June 21. The fishmen training report was conducted on June 22 in Qinghe River Estuary Wetland, Lianyungang, 10 fishmen were accepted about training. Waterbirds habitat quality report on Important Bird Areas (IBAs) in YSLME and along waterbird flyway had been done, We supplemented 14 new IBAs involved with four provinces or municipalities: Liaoning, Hebei, Tianjin, Jiangsu mainly along the coast of study area, the index of habitat suitability (HIS) of the habitats of the new IBAs reduced and have suffered serious natural wetland loss due to long-term coastal reclamation. 16 key flyways and stopover sites of 4 identified endangered species, Great knot, Relict, Black-faced Spoonbill, Oriental Stork were identified along the coasts of Yellow sea and Bohai sea in China in YSLME. 10 videos about protection actions, including locations, people, events, and results was created. WeChat public account of YSLME was created. Below was the detail introduction of each report.

Summary Activity Target vs. Progress

[What did you plan to do this quarter? What did you actually do]

Activity	Planned [What had you planned to do for each activity in the reporting period?]	Actual [What did you actually do for each activity in the reporting period?]	Notes [Add any relevant notes]
Inception workshop	Introduce the project objectives, case areas and outcomes to the participants	At the inception workshop on June 21, Project manager Xiubo Yu introduced the project objectives, case areas and outcomes to the participants, and received suggestions from the participants, more 20 participants	
Fishermen training	Improve public awareness of waterbird conservation along the coast of YSLME; and then minimizing the destruction of endangered waterbirds by human activities, and achieve sustainable development of fisheries development and waterbird conservation.	Local fishermen have an understanding of endangered waterbird species, and new insights into waterbird protection have helped reduce the number of endangered waterbirds.	
Identifying the new IBAs and their habitat status in Yellow sea and Bohai sea in China in YSLME	Identifying the new IBAs and their habitat status in Yellow sea and Bohai sea in China in YSLME	14 new IBAs was identified along coasts of Yellow sea and Bohai sea in China, They covered 38 waterbirds species that meet the IBA one or more criterion. including 11 Threatened species, these species were found in 12 new IBAs. 8 species that had not been discovered in existing IBAs	

		were found in 9 new IBAs. Index of habitat suitability of 14 new IBAs decreased from 2000 to 2015, this trend was consistent with natural wetland changes of these sites.	
Mapping of flyways and sites of the 4 identified endangered species	Mapping of flyways and sites of the 4 identified endangered species	16 key flyways and stopover sites of 4 identified endangered species, Great knot, Relict, Black-faced Spoonbill, Oriental Stork were identified along the coasts of Yellow sea and Bohai sea in China in YSLME.	
10 reports about the conservation actions on influential media	10 reports about the conservation actions on influential media	10 videos about the conservation actions on influential media	
Create a WeChat public account on the wetland conservation of YSLME	Create a WeChat public account on the wetland conservation of YSLME	A WeChat public account named “Coastal Wetland Conservation Network” was created and the project can release news, information and knowledge about YSLME on it.	

Comments

[Add any additional comments / photos / explanations / information on Output, above.]

1. Inception report

The launching of the “Conservation Actions of Endangered Waterbirds and Their Habitats in the Yellow Sea Ecosystem” project (hereinafter referred to as the “Project”) was held on June 21, 2019 in the Conference Room C421 of the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences. The project manager Yu Xiubo, professor of the Institute of Geographical Sciences and Resources of the Chinese Academy of Sciences, and core members of the project team, 21 people (9 males and 12 females) participated in the meeting.

At the kick-off meeting, the project leader Yu Xiubo first introduced the project objectives, case areas and outcomes to the participants. Secondly, the meeting invited the US eBird database project coordinator Ian Davies to share the successful experience of the US eBird database in the construction of the Waterbird Mobile APP and the Waterbird Database. The participants presented valuable suggestions and opinions on the project team's post-production work on database compatibility, database post-maintenance, waterbird warehousing photos and quality control of observation records.



Fig.1.1 Project manager Yu Xiubo introduced the project framework to the participants



Fig.1.2 The participants of the Inception Workshop

Tab.1.1 YSLME Project inception workshop check-in form

Name	Gender	Position
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Yu Xiubo	male	Institute of Geographic Sciences and Natural Resources Research, CAS
Zhong Jia	female	China Birdwatching Association
Qian Fawen	male	National Bird Banding Centre
Zhang Xiaohong	female	Wetland International
Zhang Qiong	female	SEE Foundation
Zhang Shen	female	Shan Shui Conservation Center
Sun Yulu	female	National Forestry and Prairie Bureau GEF Project Office
Luo Ze	male	Computer Network Information Center, CAS
Liu Shenghua	male	Institute of Computing Technology, CAS
Wang Jianmin	male	Jiangbei Wetland Protection Center in Tianjin Binhai New Area
Gan Xiaojing	female	Paulson Institute
Dong Peng	male	Institute of Remote Sensing Applications, CAS
Xu Zhaonan	male	Institute of Geographic Sciences and Natural Resources Research, CAS
Wang Rui	female	Institute of Software, CAS
Xia Shaoxia	female	Institute of Geographic Sciences and Natural Resources Research, CAS
Dou Yuehan	female	Institute of Geographic Sciences and Natural Resources Research, CAS
Teng Jiakun	female	Institute of Geographic Sciences and Natural Resources Research, CAS
Duan Houlang	male	Institute of Geographic Sciences and Natural Resources Research, CAS
Zhao Ning	female	Hebei Agricultural University
Wan Ding	male	Harbin Institute of Technology
Chen Jingyi	female	Institute of Software, CAS

2. Fishmen training report

The Qingkou River Estuary of Lianyungang are the migration routes of East Asian-Australian birds and an important supply station and habitat for the Yellow Sea in China. Every time the migration season, tens of thousands of waterfowl stop here to replenish their physical fitness to continue their migration. In May 2019, the Waterbird Joint Investigation Team in China, in the Qingkou River Estuary-Linhong River Estuary, recorded 100,000 species of waterbirds, of which 18,000 were more than 80% of the global population. In recent years, the construction of the city and the development of tidal flats, the protection and publicity of the Qingkou River Estuary is imminent.

Over the recent years, the conflict between the growth of fishery resources and waterbird conservation in Qinghe River Estuary Wetland has become more intense. Fish ponds, as key alternative habitats for waterbirds in their migration, play an important role in providing staging and foraging sites for waterbirds. Unfortunately, the unsustainable, intensive aquaculture practice has severely polluted the environment of nearshore fish ponds. A large number of benthic organisms in the fish ponds were killed by pollutants, leading to the reduced food resources of waders. On the other hand, pollution also poses a threat to the survival and safety of waterbirds, and is considered a key factor behind the reduced population of endangered waterbirds in the area. Therefore, it is urgently needed to address how to balance sustainable management of fishery resources and protection of endangered migratory waterbirds in the area.

This training is mainly to promote waterbirds conservation for local fishermen. The purpose is to improve the fishermen's understanding of waterbird protection, Let fishermen can identify endangered waterbirds and other waterfowls, and minimizing the disruption of endangered waterbirds by human activities in the presence of endangered waterbirds.

On June 22, 2019, we visited and preached 15 birds in the aquaculture area (the climax stop of the genus) in the mouth of the Qingkou River Estuary. Through interviews, we can understand the farmers' personal knowledge about bird migration and discuss the rules of their work style (the high and low law of the water level of the aquaculture pond) for the use of waterfowl habitats during the high tide.

2.1 Training date:

June 22, 2019

2.2 Training handout:

Appendix 1: 100 species of common birds in the Yellow Sea

2.3 Training object:

Qingkou River Estuary

Tab 2.1 The list of the fishmen trained in the Qingkou River Estuary

Date	Location	Trainer	Trainee	Contact information	Remarks
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Xiang Baojia		Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Xiang Erping	13186461109	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Qi Jianqiang	13655145200	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Fang Jiajie	13655147281	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Li Jiabo	13775466246	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Qi Demao	13655141205	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Qi Dachang	13064950059	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Liu Gang	15950780838	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Song Zhongfeng	13775418508	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Chen Maoren	15351808682	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Qi Changcheng	13064958088	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Zheng Mingyun	13775426266	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Zheng Mingri	15950701011	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Song Shizuo	13815682000	Breed owner
June 22, 2019	Qingkou River Estuary	Han Yongxiang	Qi Changzhi	13003479883	Breed owner

2.4 Training Location:

Coastal aquaculture area in Qingkou River Estuary, Lianyungang City, Jiangsu Province

2.5 Training schedule of the fishermen trained in the Qingkou River Estuary:

Date	Content	Form	Speaker
June 22, 2019	The current crisis facing coastal wetlands and the key role of coastal wetlands	Publicity	Han Yongxiang
	Understanding of endangered species of waterfowl	Publicity	Han Yongxiang
	Public's understanding about the relative importance of endangered waterbird conservation and sustainable aquaculture	Publicity	Han Yongxiang

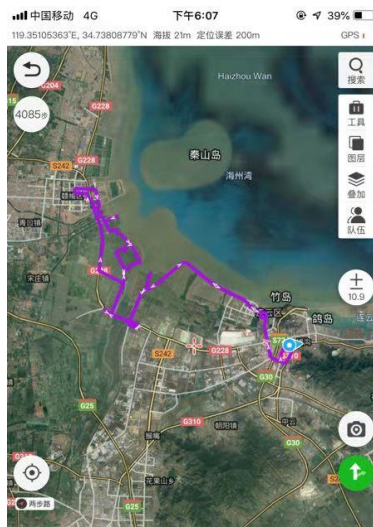


Fig.2.1 Survey route along the coasts of the Qingkou River Estuary



Fig.2.2 The Interviewed fishmen in Qingkou River Estuary
© Han Yongxiang

3. Waterbirds habitat quality report on Important Bird Areas (IBAs) in YSLME and along waterbird flyway

Study area

The coasts of the Yellow Sea and the Bohai Sea, China encompasses five provinces or municipalities: Liaoning; Hebei; Tianjin; Shandong and Jiangsu (Fig.1). The region is 80 700 km from east to west and 800 km from north to south. The wetland is mainly of the permanent shallow marine type (defined as having water with a depth of less than 6 m at low tide, according to the Ramsar Convention) and it is an important breeding, stopover and wintering area for waterbirds on the EAAF (Chen et al., 2015). There were 19 important bird areas were identified in this scale until 2009 by Birdlife International in 2009. These sites support important endangered species and huge number of waterbirds population number. More waterbirds survey was conducted along coast of Yellow sea and Bohai sea in China after 2009. It is necessary to supplement new IBAs and monitoring the habitat change during large-scale reclamation projects along these areas.

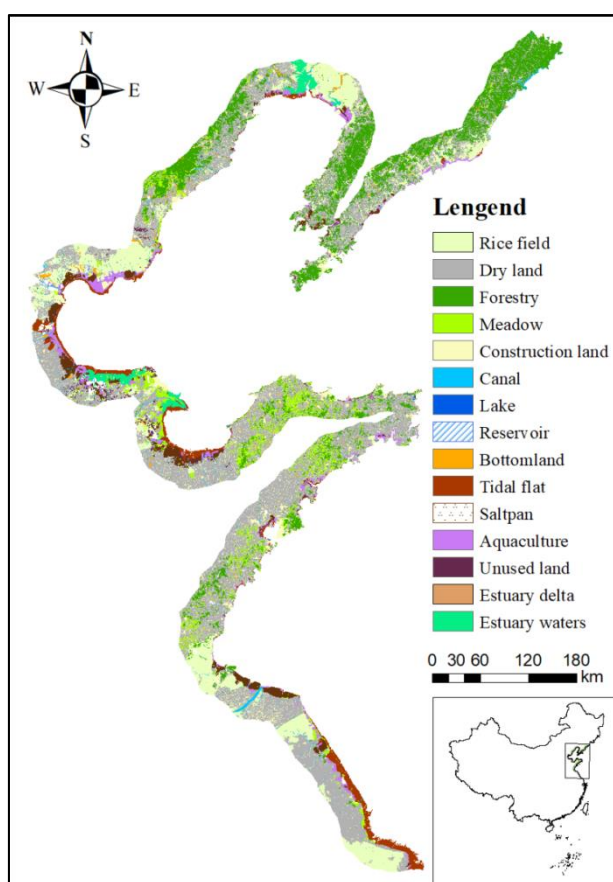


Fig.3.1 Land type of Yellow sea and Bohai sea in China

Data on distribution of waterbirds

In order to create a comprehensive set of sites of waterbirds conservation significance (meet the IBA criterion) in Yellow sea and Bohai sea in China in the case of lacking long-term systematic monitoring data. We combined data from multiple sources. It includes published literature data, citizen science data include two parts, part of that data from the database of e-Bird in the USA (<https://ebird.org/home>), the Global Biodiversity Information

Network(GBIF) (<http://www.gbifchina.org/>), and BirdReport in China (<http://www.birdreport.cn/>) and part from China Coastal Waterbird Census Group that a professional survey team spread across the coast in China. The occurrence records include the species name, longitude, latitude, place name, survey date and population sizes.

We excluded observations made before 2009 because we need to identify the new IBA after 2009. Observations recorded in database are made by different people at different times meaning that the occurrence could contain some bias as the survey method lacks the systematic spatial and temporal coverage of traditional scientific surveys. Firstly, we checked whether the coordinates matched the place name, and verified any coordinates that deviated significantly from the actual place name manually using Google Maps (<https://www.google.com/maps>). Secondly, we unified place name of occurrences that same longitude and latitude coordinates have different place name according to the place description derived from data of China Coastal Waterbird Census Group. Figure. 2 is a schematic of the data cleaning process.

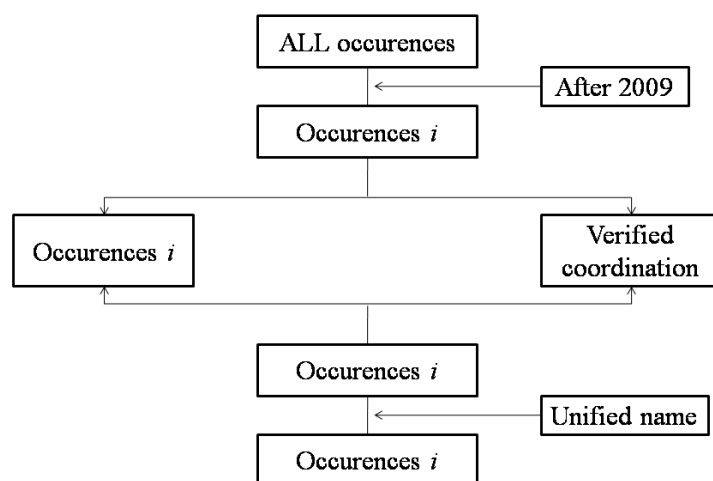


Fig.3.2 Data cleaning procedure of citizen science data

Criteria for identification of IBAs

In order to determine important bird areas based on standardised and widely accepted criteria, we adopted following three criteria among the worldwide identification standards of IBAs (Chan et al., 2009):

Criterion 1 (C1): A site should be considered as important bird area if it supports vulnerable(VU), endangered(EN), or critically endangered(CR) species.

Criterion 2 (C2): A site should be considered as important bird area if it regularly supports 20,000 or more waterbirds.

Criterion 3 (C3): A site should be considered as important bird area if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

The boundary of new IBAs

According to the Dictionary of Important Bird Area (mainland) published by BirdLife International in 2009, 19 Important Bird Areas (IBAs) have been identified along Yellow sea and Bohai sea coast in China, and these are delineated by circles with the same area (Chan et al., 2009). We used following methods to identified area of new IBAs. (1) Searching the area of region in published literatures according to specific site name. (2) Inquiring the local waterbirds investigators from China Coastal Waterbird Census Group and field survey according to specific site name if the first method can not acquire information. We followed the method of BirdLife International in 2009 to identified the boundary of new IBAs based on the area of specific site name.

Habitat change of new IBAs

We acquired the land use and land cover data in our study area in 2000 and 2015 (with spatial resolution of 100 m × 100 m) from Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences. The land type included rice filed, dry land, forestry, meadow, construction land, canal, lake, reservoir, bottomland, tidal flat, saltpan, aquaculture, unused land, estuary delta and estuary waters.

For new IBAs, the index of habitat suitability (HSI) was used to evaluate the habitat change of new IBAs from 2000 to 2015 during a long time and a wide range of reclamation plan, and it was calculated as follows:

$$HSI_i = \frac{\sum W_j HA_j}{TA_i} \quad (1)$$

HSI_i is the index of habitat suitability for IBA(i), W_j is the weight factor for habitat type(i), HA_j is the area of habitat type(i) and the TA_i is the total area of IBA(i). The habitat type included natural wetland (Little land was occupied by estuary delta, estuary waters and bottomland, they were merged with tidal flat into natural wetland), rice field, reservoir, aquaculture and saltpan. Excluding the non-wetland type land forestry, meadow, dry land and unused land, and we think they are poor suitable for waterbird population.

In order to defined the W_j, we used the non-parametric bootstrapping technique (randomly samples from the set of possible bootstrap samples, to approximate the distribution of bootstrap samples, Todd et al, 2016; Chernick and LaBudde, 2011) to re-sample the data cleaned in our study area. All occurrence data cleaned were randomly re-sampled 1000 times, each iteration included 10000 sample. For each iteration, the proportion of occurrence sites in five land cover categories (natural wetland, rice field, reservoir, aquaculture and saltpan) was calculated, and we selected the average value of proportion of habitat type (i) from 1000 times as W_j.

Result

Identification of new IBAs

In total, we identified 23 sites meet the IBA criterion in Yellow sea and Bohai sea in China, including existing 9 IBAs (Fig. 3, Table S1 in the supplementary material). 14 new IBAs identified (site name and boundary) included four provinces or municipalities: Liaoning, Hebei, Tianjin, Jiangsu, and these sites mainly along the coast of study area. They covered 38 waterbirds species that meet the IBA one or more criterion. Majority of threatened species including one “Critically Endangered”, four “Endangered” and six “Vulnerable”, these species were found in 12 new IBAs (Table 1). Besides, 8 species that had not been discovered in existing IBAs were found in 9 new IBAs (Table 2).

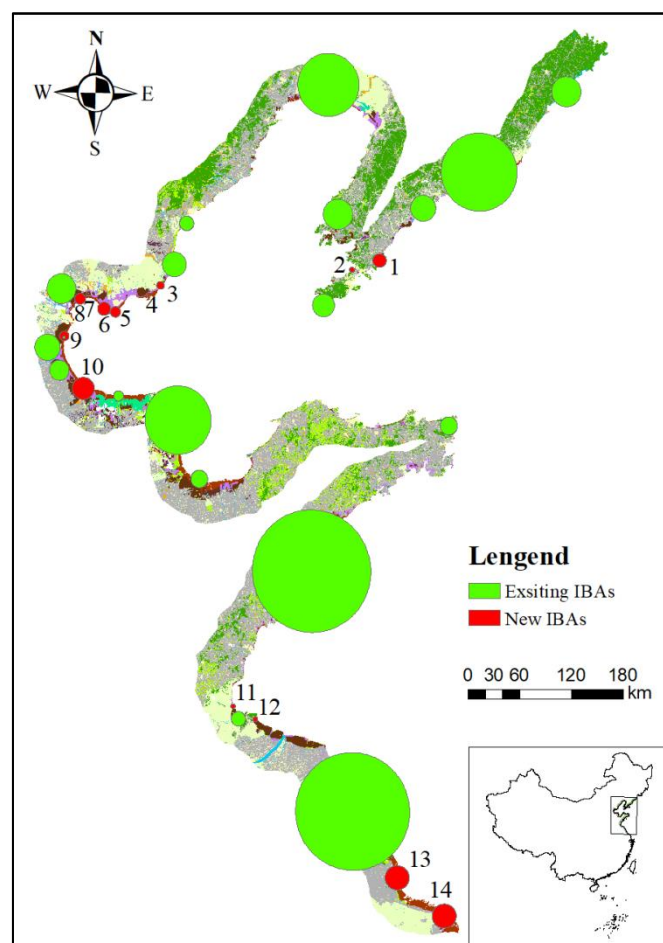


Fig.3.3 The new and existing IBAs along the coast of Yellow sea and Bohai sea in China

Tab.3.1 Site number that include threatened species in new IBAs and existing IBAs

English name	Latin name	IUCN status	Sites of new IBAs	Sites of existing IBAs
Spoon-billed	Eurynorhynchus	CR	4	0

Sandpiper	<i>pygmeus</i>			
Oriental Stork	<i>Ciconia boyciana</i>	EN	1	9
Black-faced Spoonbill	<i>Platalea minor</i>	EN	3	4
Great Knot	<i>Calidris tenuirostris</i>	EN	3	4
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	1	0
Chinese Egret	<i>Egretta eulophotes</i>	VU	1	6
Saunders's Gull	<i>Larus saundersi</i>	VU	6	0
Baikal Teal	<i>Anas formosa</i>	VU	2	3
Swinhoe's Rail	<i>Coturnicops exquisitus</i>	VU	1	0
Relict Gull	<i>Larus relictus</i>	VU	6	6
Dalmatian Pelican	<i>Pelecanus crispus</i>	VU	2	2

Tab.3.2 Species and site number that consist in new IBAs rather than existing IBAs

English name	Latin name	IUCN status	Sites of new IBAs
Spoon-billed Sandpiper	<i>Eurynorhynchus pygmeus</i>	CR	4
Swinhoe's Rail	<i>Coturnicops exquisitus</i>	VU	1
Saunders's Gull	<i>Larus saundersi</i>	VU	6
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	1
Herring Gull	<i>Larus argentatus</i>	LC	1
White-winged Tern	<i>Chlidonias leucopterus</i>	LC	1
Jack Snipe	<i>Lymnocyptes minimus</i>	LC	1
Greater Sand Plover	<i>Charadrius leschenaultii</i>	LC	1

Habitat change of new IBAs

The mean proportion of five habitat types based on 1000 times iteration by non-parametric bootstrapping technique was calculated. The natural wetland was most used by waterbirds and it had a significant difference with other habitat type. We regarded it as W_j of each habitat type, natural wetland 0.623, aquaculture 0.167, reservoir 0.089, rice field 0.073 and saltpan 0.038.

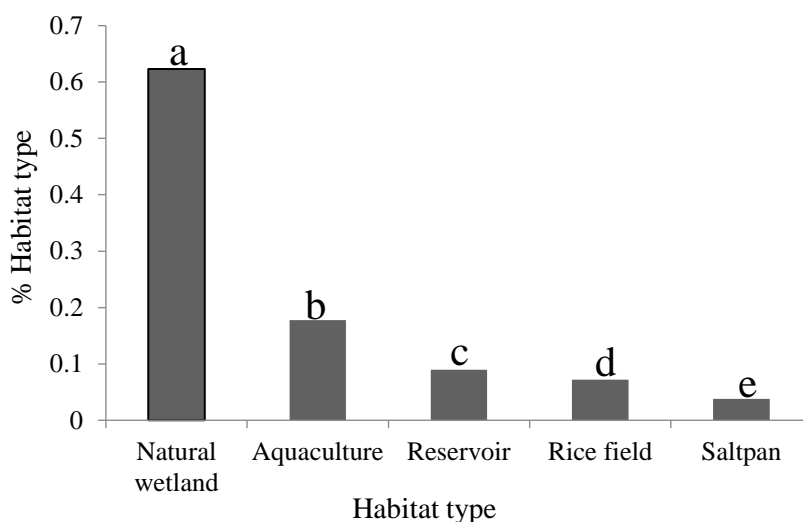


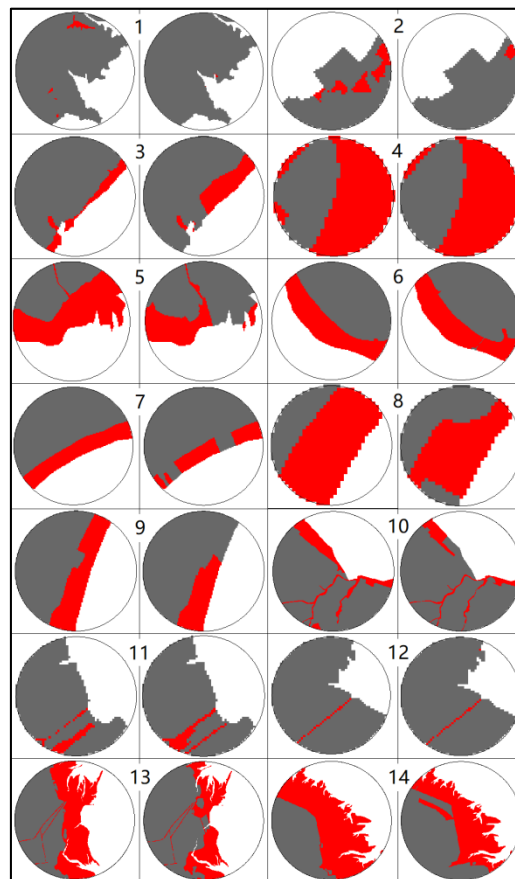
Fig.3.4 the average value of proportion of habitat type (i) from 1000 times non-parametric resample

We calculated the index of habitat suitability of 14 new IBAs in 2000 and 2015 (Table 3) and map the natural wetland change from 2000 to 2015 (Fig. 5). For all 14 new IBAs, the HSI decreased over a period of 15 years. Especially, the site Tanghai coast, Baguatan coast of Binhai new area, Haibinyuchang of Binhai new area, Dongtai Jianggang (Tiaozini) and Dongling coast. It also can be verified by natural wetland change in 14 sites (Fig. 5).

Tab.3.3 HSI change from 2000 to 2015 of 14 new IBAs

Code	Site name	Index of habitat suitability	
		2000	2015
1	Jinshitan coast	0.028	0.006
2	Jinzhou bay	0.124	0.038
3	Daqinghe saltworks	0.119	0.113
4	Happy island	0.389	0.350
5	Tanghai coast	0.424	0.223
6	Luannan Coast & Saltworks	0.325	0.322

7	Dashengtang of Binhai new area	0.185	0.128
8	Baguatan coast of Binhai new area	0.491	0.338
9	Haibinyuchang of Binhai new area	0.227	0.150
10	Huanghuagang coast	0.148	0.115
11	Ganyu Coast	0.144	0.084
12	Linhong estuary	0.047	0.043
13	Dongtai Jianggang(Tiaozini)	0.281	0.210
14	Dongling coast	0.389	0.300



Changes from 2000 to 2015
 Natural wetland ■ Other land ■

Fig.3.5 Natural wetland change from 2000-2015 of 14 new IBAs

4. Mapping of flyways and sites of the 4 identified endangered species

Study area

The coasts of the Yellow Sea and the Bohai Sea, China encompasses five provinces or municipalities: Liaoning; Hebei; Tianjin; Shandong and Jiangsu (Fig.1). The region is 80 700 km from east to west and 800 km from north to south. The wetland is mainly of the permanent shallow marine type (defined as having water with a depth of less than 6 m at low tide, according to the Ramsar Convention) and it is an important breeding, stopover and wintering area for waterbirds on the EAAF (Chen et al., 2015). There were 19 important bird areas were identified in this scale until 2009 by Birdlife International in 2009. These sites support important endangered species and huge number of waterbirds population number. More waterbirds survey was conducted along coast of Yellow sea and Bohai sea in China after 2009. It is necessary to supplement new IBAs and monitoring the habitat change during large-scale reclamation projects along these areas.

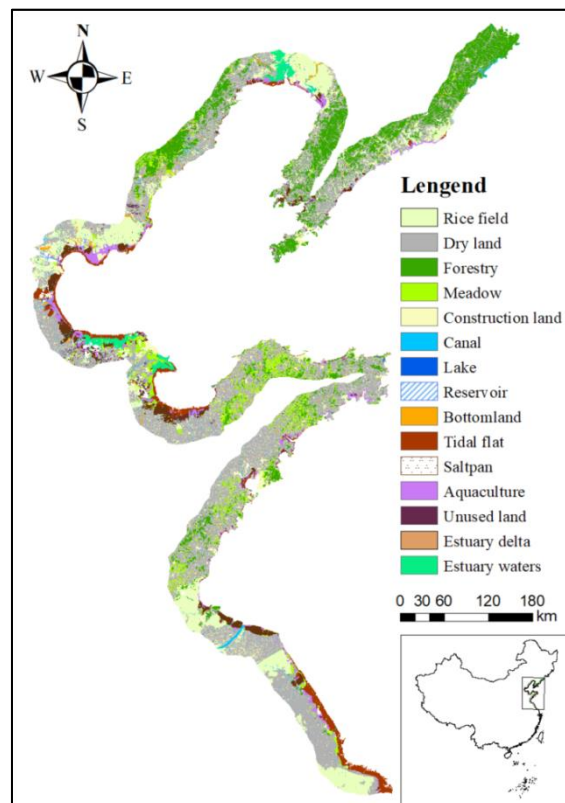


Fig.4.1 Land type of Yellow sea and Bohai sea in China

Data on distribution of waterbirds

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literature data, citizen science data include two parts, part of that data from the database of e-Bird in the USA (<https://ebird.org/home>), the Global Biodiversity Information Network(GBIF) (<http://www.gbifchina.org/>), and BirdReport in China (<http://www.birdreport.cn/>) and part from China Coastal Waterbird Census Group that a professional survey team spread across the coast in China. The occurrence records include the species name, longitude, latitude, place name, survey date and population sizes.

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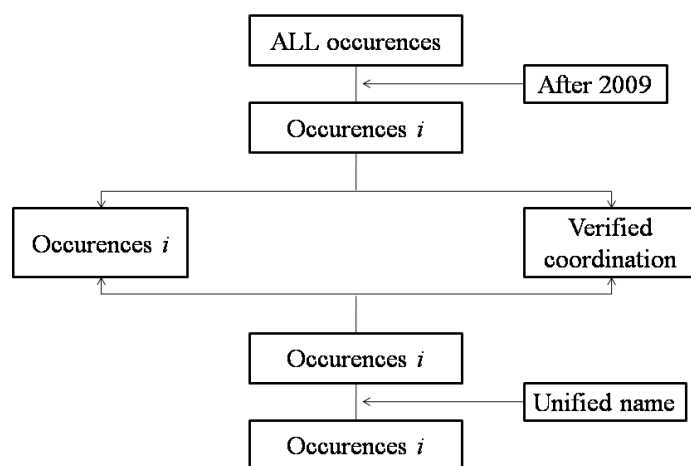


Fig.4.2 Data cleaning procedure of citizen science data

Criteria for identification of flyways and sites of the 4 identified endangered species

In order to determine sites of the 4 identified endangered species based on standardised and widely accepted criteria, we adopted following three criterions among the worldwide identification standards of IBAs (Chan et al., 2009):

Criterion 1 (C1): A site should be considered as important bird area if it supports vulnerable(VU), endangered(EN), or critically endangered(CR) species.

Criterion 2 (C2): A site should be considered as important bird area if it regularly supports 20,000 or more waterbirds.

Criterion 3 (C3): A site should be considered as important bird area if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

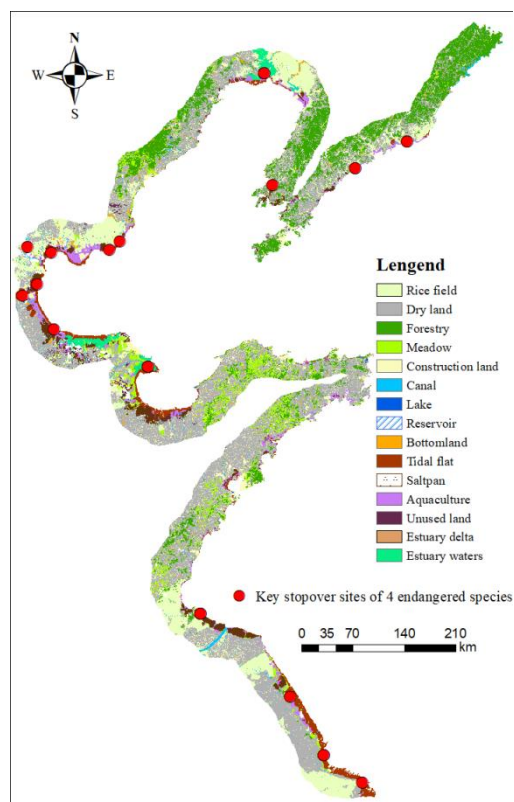


Fig.4.3 The key stopover sites of the 4 endangered species

5. 10 reports about the conservation actions on influential media

About the conservation actions we made the videos instead of reports. But because of the videos too large to upload, we provide a brief description about every video.

5.1. Weekly Feature: Seize Food from Birds

Interviewee: Wang Jianming;

Media: News Weekly, CCTV-13 News;

Incident: at the end of April 2019, more and more people flooded into the wetland of Bagua Beach, Binhai New Area of Tianjin, to dig out clams. Bagua Beach is an important habitat of the relict gull, one of China's First-class National Protected Animals. As too many people flood into Bagua Beach, the relict gull is now faced with a crisis of living environment.

5.2 Urban Reports: Free Kestrels

Interviewee: Wang Jianming;

Media: 60-min Urban Reports, TJTV-1 News;

Incident: a citizen found two injured kestrels in Binhai New Area of Tianjin. After being informed of this, Wang Jianming's bird protection team save these two kestrels and freed them to nature today.

5.3 Live News: Migrant Birds Fly North

Interviewee: Wang Jianming;

Media: Live News, CCTV-13 News;

Incident: Wang Jianming, a bird protection volunteer, and his team are monitoring and protecting migrant birds to ensure their safety during the migration season.

5.4 60-min Urban Reports

Interviewee: Wang Jianming;

Media: 60-min Urban Reports, TJTV-1 News;

Incident: Wang Jianming, a bird protection volunteer, tells stories between migrant birds and him and how he protects the coastal wetland of Tianjin.

5.5 Live News Tianjing: A First-class National Protected Animal "Oriental White Crane" Was Freed to Nature

Interviewee: Wang Jianming and Tian Zhiwei;

Media: Live News, CCTV-13 News;

Incident: a first-class national protected animal "Oriental White Crane", which has been being rescued, was freed to Beidagang Wetland after receiving intensive care provided by volunteers like Wang Jiangming.

5.6 Saving Relict Gulls from the Destroyed Habitat after Land Reclamation (Feb 8th, 2019)

Interviewee: Wang Jianming and Zhu Baoguang;

Media: CGTN;

Incident: efforts of Wang Jianming, a bird protection volunteer, and his team in protecting the coastal wetland and birds are introduced.

5.7 Tianjin Launches Emergency Measures to Preserve Habitats of Endangered Birds (May 29th 2019)

Interviewee: Wang Jianming;

Media: CGTN;

Incident: at the end of April 2019, a lot of people flooded into the wetland of Bagua Beach to dig out clams. This caused serious damage to the habitat of relict gulls, and thus affected their survival.

5.8 Morning News

Interviewee: Wang Jianming;

Media: Morning News, CCTV-13 News;

Incident: with the coming of migration season, Wang Jianming and his team begin to patrol the coastal wetland and monitor migrant birds in a frequent manner again. Their only goal is to conduct a survey of birds and ensure their safe migration.

5.9 First Observation

Interviewee: Wang Jianming;

Media: First Observation, TJTV-1 News;

Incident: stories between Wang Jianming, a bird protection volunteer, and birds are told. Wang Jianming almost devotes all his life to the wetland and birds in his homeland. He moves forward on his way to public welfare without any regret. In these stories, Wang Jianming's experiences of protecting birds and loving birds over the past years are shared. Once he almost lost one eye for protecting birds.

5.10 Today's China

Interviewee: Wang Jianming;

Media: Special Program for 19th CPC National Congress-Tianjin Has Me, TJTV-1 News;

Incident: the story about Wang Jianming, a protector of Tianjin's coastal wetland, is told. In particular, the story highlights how he protects birds.

6. WeChat public account of YSLME

We have created a WeChat public account named "Costal Wetland Conservation Network" on the wetland conservation of YSLME. We can release news about the protection of endangered waterbirds and the dissemination knowledge to appeal to everyone to join waterfowl and habitat conservation activities.

Problems & Challenges

[Describe key Problems or Challenges that occurred during the last quarter]

Fishmen training

The fishermen's aquaculture ponds are scattered and cannot carry out effective group activities.

Fishermen are not interested in bird watching. How to cultivate fishermen's interest in bird watching is recommended to give certain rewards and increase the enthusiasm of fishermen to participate in activities.

Conclusion

We have completed the tasks of this phase according to the plan, carried out the project inception workshop, completed the training of local fishermen, assessed the quality of waterbirds habitat, identified the migratory stopover sites of four endangered waterbirds, and publicized reports on the conservation actions of endangered waterbirds. WeChat public account on the waterbirds habitat conservation of YSLME has been created. At this stage we have completed six reports totally, the specific description has been given in the above comments. Overall, the progress of the project at this stage is very smooth.

On the financial side, the budget for the first phase of the project was \$16,000. We received the funds on June 13, 2019, and spent a total of \$17,755 on this phase of the mission.

Appendix 1:
Training Notes-100 species of common birds in the Yellow Sea

