

# Ramsar Information Sheet

Published on 11 April 2023

# **China**Jiangsu Huai'an Baima Lake Wetlands



Designation date 28 October 2022 Site number 2514

Coordinates 33°11'35"N 119°07'39"E

Area 2 796,10 ha

# Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

# 1 - Summary

#### Summary

Huai'an Baima Lake is located in the lower reaches of the Huaihe River Basin, one of China's seven major basins. The Site receives water from Hongze Lake, the largest lake in the Huaihe River Basin, then the water flows to the south through Baoying Lake and Gaoyou Lake, then finally into the Yangtze River. It is an important ecological node of the Huaihe River water system and Yangtze River.

The Site has a relatively independent sub-basin of the Huaihe River Basin. With stable water source and excellent water quality, it serves as an important water regulation and storage lake and the water source for the East Route of China's South-to-North Water Transfer Project.

Due to the relatively independent hydrological unit, the lake is characterized by small water level change, shallow water depth and high water transparency, where submerged plant communities such as Potamogeton crispus, Hydrilla verticillata and Whorl-leaf watermilfoil (Myriophyllum verticillatum) are well developed, covering 50% of the wetland. It provides important habitat for rare and endangered fishes such as the Japanese Eel (Anguilla japonica). With adequate water volume and intertwined beaches and islands, the Site supports 210 bird species, including rare birds such as baer's pochard, oriental stork, and common pochard. It provides habitat for overwintering migratory birds on the East Asian – Australasian Flyway, which is of international significance.

The Site serves as a station for shallow macrophytic lakes research in the plain area of East China. As a macrophytic lake, it has important ecological functions in the biogeographic region, such as homogenizing floods, regulating regional climate, supplementing groundwater, and ensuring water for surrounding industries and agricultures. The Site is situated in the geographical transition area between North and South China - Qinling Mountains and Huaihe River. Therefore, it is serves as a secondary water source for the central urban area of Huai'an City.

By implementing restoration activities such as aquaculture removal, the capacity of the Site to hold and drain water has increased. The hydrological and water purification functions of the wetland has also improved, guaranteeing ecological security for the watershed and the Water Transfer Project.

# 2 - Data & location

# 2.1 - Formal data

# 2.1.1 - Name and address of the compiler of this RIS

## Responsible compiler

Institution/agency | Management Office of Huai'an Baima Lake Wetland Park

6th floor, Fenghui Plaza

Huaihai East Road 1#, 223005

Postal address Huai'an City

Jiangsu Province

P.R. China

#### National Ramsar Administrative Authority

Institution/agency Ramsar Administrative Authority of the People's Republic of China

No.18 Hepingli East Road

Postal address | Dongcheng District Beijing 100714

P.R. China

# 2.1.2 - Period of collection of data and information used to compile the RIS

From year 2019

To year 2021

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or

Jiangsu Huai'an Baima Lake Wetlands

# 2.2 - Site location

# 2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Former maps 0

# Boundaries description

The Site is completely located inside the Huai'an Baima Lake National Wetland Park, and the wetland park is in the south of Baima Lake. The boundary of the Site is basically consistent with that of the wetland park which includes the southern Baima Lake area and the Caoze River, accounting for 90% of the total wetland park area. The boundary of the site extends to Huaijin Highway in the west, to the Baima Lake embankment in the east, to the Lakeside Ring Road of Baima Lake in the south, and to the Shanyang River, Duitouji village and municipal administrative boundary of Huan'an – Yangzhou City in the north.

As the Site lies within the boundaries of the wetland park, it is managed by the Management Office of the Huai'an Baima Lake National Wetland Park. The boundaries of the Site are allocated in the manner that allows efficient management of the Site which indirectly also supports conservation of the larger Baima Lake.

#### 2.2.2 - General location

a) In which large administrative region does the site lie? Jinhu County and Hongze District, Huai'an City, Jiangsu Province, P. R. China

b) What is the nearest town or population centre?

# 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries?

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party?

#### 2.2.4 - Area of the Site

Official area, in hectares (ha): 2796.1

Area, in hectares (ha) as calculated from 2795.639 GIS boundaries

# 2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Udvardy's Biogeographical Provinces	Evergreen sclerophyllous forests, scrubs or woodlands, Oriental Deciduous Forest Province, Palaearcitc Realm

# 3 - Why is the Site important?

# 3.1 - Ramsar Criteria and their justification

☑ Criterion 1: Representative, rare or unique natural or near-natural wetland types

Located in the east of Hongze Lake in the lower reaches of Huaihe River basin, Baima Lake receives water from Hongze Lake and the surrounding surface runoff through more than ten rivers entering the lake. The water flows out of the lake from Ruanqiao River and Bichengou River in the south, and then flows into the Yangtze River through Baoying Lake and Gaoyou Lake. Therefore, a relatively independent sub-basin was formed with a stable water source and excellent water quality.

The Site is a shallow lake, with a historical maximum water level of 8.16 m and minimum water level of 5.42 m. The multi-year catchment area has currently reached 900 km2. The normal impounded area is 42.1 km2, the impounded level is 6.50 m and the corresponding storage capacity is 54.73 million m3. The drainage water level is 7.50 m and the corresponding storage capacity is 83.99 million m3. The flood control water level is 8.00 m and can store flood of 89.94 million m3. The water depth is 1.0-1.5 m, and the water transparency is 50-150 cm. These hydrological features support hydrological services such as flood regulation and storage, groundwater replenishment, and drought resistance.

Hydrological services provided

Baima Lake is also the transit channel of the East Route of the South-to-North Water Transfer Project. The project delivers water from the Grand Canal to Baima Lake through the Beiyunxi River, and into the North Jiangsu Irrigation Channel through the Xinhe River and the Huai'an Fourth Station. The project after that transports water northward. Restoration measures such as limiting aquaculture have expanded the effective flood retention volume of the Site, improved the flood retention and drainage capacity of the whole Baima Lake, and increased the normal water storage capacity to 105 million m3. As a regulatory and storage lake of the Huaihe River and as a water transmission line of the East Route of the South-to-North Water Transfer Project, the Site not only improves the hydrological functioning and water quality of the wetlands but also stabilizes its water volume and quality, and ensures the ecological safety of the downstream region of the Huaihe River Basin.

The Site is a typical shallow macrophytic lake in the plain area of East China, which is different from neighbouring Hongze Lake (a water-carrying lake), Gaoyou Lake Wetland (a river track depression lake), and Lixiahe Wetland (a freshwater swamp in East China) in terms of hydrological process, vegetation characteristics, and biodiversity. As a relatively independent hydrological unit, the lake is characterized by small water level change, shallow water depth and high water transparency, where submerged plant communities such as Potamogeton crispus, Hydrilla verticillata and Myriophyllum verticillatum are well developed, covering more than 50% of the Site. It is a unique wetland in the lower reaches of the Huaihe River basin and the plain area of East China, and is one of the regional biodiversity hotspots.

Other ecosystem services provided

Abundant aquatic plants endow the Site with strong water purification function. They can absorb nutrients in the lake water, control phytoplankton biomass, provide shelter for zooplankton and benthos, regulate fish population structure, and reduce sediment resuspension to the water column. Moreover, the aquatic plants are maintaining the clear water state of Baima Lake.

Criterion 2 : Rare species and threatened ecological communities

There are 316 species of higher vascular plants, 68 species of fishes, 22 species of amphibians and reptiles, 210 species of birds and 14 species of mammals recorded in Baima Lake Wetland.

In this Site, there are 13 threatened species, such as Baer's pochard (Aythya baeri, CR), yellow-breasted bunting (Emberiza aureola, CR), oriental stork (Ciconia boyciana, EN), saker falcon (Falco cherrug, EN), Reeves' turtle (Mauremys reevesii, EN), Japanese eel (Anguilla japonica, EN), common pochard (Aythya ferina, VU), rustic bunting (Emberiza rustica, VU), swan goose (Anser cygnoid, VU), Chinese softshell Optional text box to provide further | turtle (Pelodiscus sinensis, VU), Peking gecko (Gekko Swinhonis, VU) and common carp (Cyprinus information carpio, VU), Wuchang bream (Megalobrama amblycephala). See Section 3.3 for details.

Rivers, lakes, marshes, ecological islands, woodlands, shrubs and other rich habitats create a suitable environment for foraging, nesting, hiding and breeding for threatened birds with different habitat needs, such as migratory birds, wading birds, and aquatic birds. Large-area and high-quality lake waters also provide high-quality habitat for threatened aquatic organisms such as Japanese eel (Anquilla japonica), Chinese soft-shelled turtle (Pelodicus sinensis), common carp (Cyprinus carpio) and Wuchang bream (Megalobrama amblycephala).

# Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further

Migratory birds (passing, summer and winter birds) in the Site are dominant with 164 species, among which winter birds account for the highest proportion. The number and meeting frequency of birds are the highest in the winter and autumn migration periods. Habitats such as rivers, lakes, marshes, ecological islands, woodlands, and shrubs have created suitable environment for birds with different habitat needs to forage, nest, shelter and reproduce, including threatened birds, such as Baer's pochard (Aythya baeri), oriental storks (Ciconia boyciana), saker falcon (Falco cherrug), and common pochard (Aythya ferina). Every year, there are a large number of waterbirds migrating, staying and overwintering in the Site. The Site is an important overwintering and resting place on the East Asian - Australasian Flyway. According to the bird monitoring data of the Wetland Park from 2019 to 2021, an annual average of 20 Baer's pochard (Aythya baeri) individuals overwinter here, reaching 4% of its regional population. In the year of 2021, 221 Taiga Bean Goose (Anser fabalis) individuals were recorded in the Site for overwintering. reaching 2% of its regional population. However, further investigations are needed to validate the stability of these populations. Bird residence types are included in Appendix 1 of Section 6.1.2.

The Site is one of the important waterfowl habitats in the East Asian – Australasian Flyway and East

#### ☑ Criterion 5 : >20.000 waterbirds

Overall waterbird numbers 25780

Start year 2019

End year 2021

Source of data: Bird survey reports of Jiangsu Huai'an Baima Lake National Wetland Park in 2019-2021

China. The waterbird numbers supported by the Site are increasing year by year. According to the bird Optional text box to provide further survey data of the Wetland Park, the total bird numbers in 2019-2021 were 22208 (2019), 20581 (2020) information and 34551 (2021) respectively. Among them, wild geese and ducks, herons and waders are particularly abundant, and Anatidae, Ardeidae and Emberizidae are the the dominant families, See also Appendix 2

of Section 6.1.2 for more information.

# Criterion 7 : Significant and representative fish

The northern part of the Site is connected to the "Baima Lake Weather Loach (Misgurnus anguillicaudatus) and He Chuan Sha Tang Li (Odontobutis potamophila) National Aquatic Germplasm Resources Reserve". There are as many as 68 fish species of 51 genera under 16 families distributed in the Site, containing local fish species (accounting for 77% species and 89% families) and threatened fishes such as Japanese eel (Anguilla japonica, EN) and common carp (Cyprinus carpio, VU). There are 18 species endemic to China, such as nigripinnis (Sarcochelichthys nigripinnis), Shorthead catfish (Pelteobagrus europogon), and he chuan sha tang li (Odontobutis potamophila). Among them, Odontobutis potamophila prefers to live in the bottom layer and near the shore of rivers and lakes where Justification the area is rich in vegetation and has high water transparency and quality. The fishes in the Site involve five fauna types but the Site is mainly composed of river plain complex and tropical plain complex species (both accounting for 79.4% of total fish speceis). The existence of these fishes reflects the warm temperate conditions of the area. In addition, on the basis of the composition of fishes, species under Gobioninae, Culterinae and Acheilognathinae are relatively prosperous, showing the typical characteristics of plain hydrostatic type of fish fauna. The majority of the native fish species complete their whole life cycle from spawning, hatching to growth and development within the Site. The Site is an important freshwater fish germplasm resource bank in East China and is of great significance to the maintenance of biodiversity in the biogeographic region.

3.2 - Plant species whose presence relates to the international importance of the site

<no data available>

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion	Species contributes under criterion 3 5 7 8	Pop	Period of pop. Est.		IUCN Red List	CITES Appendix I	CMS Appendix	Other Status	Justification
Others											
CHORDATA/ REPTILIA	Gekko swinhonis		0000	]			VU				
CHORDATA/ REPTILIA	Mauremys reevesii		0000	]			EN				
CHORDATA/ REPTILIA	Pelodiscus sinensis		0000	]			VU				
Fish, Mollusc	and Crustacea										
CHORDATA/ ACTINOPTERYGI	Anguilla japonica			)			EN				Crit 7: Rare and indigenous fish
CHORDATA/ ACTINOPTERYGI	Cyprinus carpio			]			VU				Crit 7: Rare and indigenous fish
CHORDATA/ ACTINOPTERYGI	Megalobrama II amblycephala			]			VU				Crit 7: Rare species and Chinese endemic fish species
CHORDATA/ ACTINOPTERYGI	Odontobutis II potamophila			]							Crit 7: Chinese endemic fish species
CHORDATA/ ACTINOPTERYGI	Pelteobagrus eupogon			]							Crit 7: Chinese endemic fish species
CHORDATA/ ACTINOPTERYGI	Rhodeus sinensis			]			LC				Crit 7: Chinese endemic fish species
CHORDATA/ ACTINOPTERYGI	Sarcocheilichthys nigripinnis	0000		]							Crit 7: Chinese endemic fish species
Birds	·			·		<u>'</u>					
CHORDATA/ AVES	Anser cygnoid		0000	]			VU		✓		
CHORDATA/ AVES	Aythya baeri			20	2019-2021		CR		<b>₽</b>	National Protection Class I	Crit 4: Overwintering in the Site
CHORDATA/ AVES	Aythya ferina			84	2019-2021		VU				Crit 4: Overwintering in the Site
CHORDATA/ AVES	Ciconia boyciana			6	2019-2021		EN	<b>√</b>	V	National Protection Class I	Crit 4: Overwintering in the Site
CHORDATA/ AVES	Emberiza aureola	Ø000		2	2019-2021		CR		V	National Protection Class I	
CHORDATA/ AVES	Emberiza rustica			240	2019-2021		VU				Crit 4: Overwintering in the Site
CHORDATA/ AVES	Falco cherrug			2	2019-2021		EN		<b>₽</b>	National Protection Class I	

<sup>1)</sup> Percentage of the total biogeographic population at the site

Appendix 2 document in Additional Material Section has the list of all bird species and their populations from 2019 to 2021 which were used for Criterion 5.

The Additional Material Section also comprises a list of all fish species found in the Site.

# 3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

# 4 - What is the Site like? (Ecological character description)

# 4.1 - Ecological character

Huai'an Baima Lake Wetlands is located in the biome of evergreen sclerophyllous forests and Oriental Deciduous Forest Biogeographic Province in the Palaearcitc Realm. The Site has a humid subtropical climate with dry and hot summer. The altitude is 5~7 masl. The soil types are mainly paddy soil and tidal soil. The Site consists of permanent freshwater lake, permanent river, and ditches, among which the permanent freshwater lake is the main wetland type.

The Site is mainly composed of large open lake areas, lake beaches, estuarine beaches, ecological islands and other habitats, with main wetland plants such as Phragmites australis, Potamogeton crispus, yellow floatingheart (Nymphoides peltatum), and Paspalum paspaloides. The aquatic and swamp vegetation provide important habitats and food sources for birds. The aquatic vegetation is mainly composed of emergent plants, submerged plants and floating plants. Floating leaf plants such as Hydrocharis dubia and Yellow floatingheart (Nymphoides peltate), as well as emergent plants such as Oriental Lotus (Nelumbo nucifera), Phragmites australis, Typha orientalis and Paspalum distichum marsh vegetation, constitute the freshwater marsh habitat, which is mainly distributed in the coastal zone of the lake and the grass beach area.

The Site is a typical shallow macrophytic wetland ecosystem in East China. It is an important habitat, breeding and overwintering place for many threatened birds, and is an important stopping place for migratory birds in spring and autumn. The birds taxa distributed in the Site include waders, herons, wild geese, ducks, gulls and other wetland birds such as Eurasian spoonbill (Platalea leucorodia), reed parrotbill (Paradoxomis heudei), yellow breasted bunting, and rustic bunting. Submerged plants such as Potamogeton crispus and Hydrilla verticillata are the dominant species and are distributed in the open waters of the lake, providing food sources for threatened birds such as tundra swan (Cygnus columbianus), Baer's pochard, common pochard, and swan goose. These plants also provide habitat for spawning and breeding of Japanese eel (Anguilla japonica, EN), common carp (Cyprinus carpio, VU) and other endemic fishes in the Germplasm Resource Protection Reserve.

In the late 1980s, when the area of Baima Lake in Huai'an was reduced due to land reclamation and polder cultivation, projects such as returning polders to the lake, dredging, and restoring habitat were adopted in 2013. These restoration acts enhanced the regulation and storage function of the lake and ensured the sustainability of biodiversity. The Site plays an important role in flood storage, drought resistance, and biodiversity maintenance in East China and the biogeographic region. The rich wetland plant groups degrade pollutants and play an important role in regulating the water quality in and around the lake area. The Site helps in ensuring the industrial and agricultural production, and ecological safety of the basin and the downstream region. Other ecological functions of the Site include water and soil conservation, water conservation, and climate regulation.

# 4.2 - What wetland type(s) are in the site?

#### Inland wetlands

	nana watana						
Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1			
Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks		2	25.86				
Fresh water > Lakes and pools  >> O: Permanent freshwater lakes		1	2704.18	Representative			

#### Human-made wetlands

Turnar made wetanae							
Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type				
9: Canals and drainage channels or ditches		3	0.66				

# 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species

Other noteworthy plant species						
Phylum	Scientific name	Position in range / endemism / other				
TRACHEOPHYTA/MAGNOLIOPSIDA	Glycine max soja	National Protection Class II				
TRACHEOPHYTA/MAGNOLIOPSIDA	Nelumbo nucifera	National Protection Class II				
TRACHEOPHYTA/MAGNOLIOPSIDA	Trapa incisa	National Protection Class II				

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/MAGNOLIOPSIDA	Alternanthera philoxeroides	Actual (minor impacts)
TRACHEOPHYTA/MAGNOLIOPSIDA	Cabomba caroliniana	Actual (minor impacts)
TRACHEOPHYTA/MAGNOLIOPSIDA	Solidago canadensis	Actual (minor impacts)

There are four criteria for the selection of species in the List of Wild Plants under Key State Protection: 1, endangered species with very small number and narrow distribution range; 2, endangered and rare species with important economic, scientific and cultural values; 3, wild populations of important crops and related species with genetic value; 4, the species with important economic value, and resources are sharply reduced due to over-exploitation and utilization.

# 4.3.2 - Animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATAVAVES	Accipiter gentilis				National Protection Class
CHORDATA/AVES	Accipiter gularis				National Protection Class
CHORDATA/AVES	Accipiter nisus				National Protection Class
CHORDATA/AVES	Aix galericulata				National Protection Class
CHORDATA/AVES	Alauda arvensis				National Protection Class
CHORDATA/AVES	Anas formosa				National Protection Class
CHORDATA/AVES	Anser albifrons				National Protection Class
CHORDATA/AVES	Asio flammeus				National Protection Class
CHORDATA/AVES	Asio otus				National Protection Class
CHORDATA/AVES	Buteo japonicus				National Protection Class
CHORDATA/AVES	Centropus bengalensis				National Protection Class
CHORDATA/AVES	Circus aeruginosus				National Protection Class
CHORDATA/AVES	Circus cyaneus				National Protection Class
CHORDATA/AVES	Circus melanoleucos				National Protection Class
CHORDATAAVES	Circus spilonotus				National Protection Class
HORDATA/ACTINOPTERYGII	Coreius heterodon				Chinese endemic species
CHORDATA/AVES	Cygnus columbianus				National Protection Class
CHORDATA/AVES	Elanus caeruleus				National Protection Class
CHORDATA/AVES	Falco amurensis				National Protection Class
CHORDATA/AVES	Falco peregrinus				National Protection Class
CHORDATA/AVES	Falco subbuteo				National Protection Class
CHORDATA/AVES	Falco tinnunculus				National Protection Class
HORDATA/ACTINOPTERYGII	Hemisalanx brachyrostralis				Chinese endemic species
CHORDATA/AVES	Hydrophasianus chirurgus				National Protection Class
HORDATA/ACTINOPTERYGII	Leptobotia taeniops				Chinese endemic species
CHORDATA/AVES	Limicola falcinellus				National Protection Class
CHORDATA/AVES	Luscinia svecica				National Protection Class
HORDATA/ACTINOPTERYGII	Neosalanx tangkahkeii				Chinese endemic species
CHORDATA/AVES	Numenius arquata				National Protection Class
CHORDATAAVES	Numenius minutus				National Protection Class
CHORDATAVES	Pandion haliaetus				National Protection Class
	Paracanthobrama				Chinese endemic species
HORDATA/ACTINOPTERYGII	guichenoti				
CHORDATA/AVES	Paradoxornis heudei				National Protection Class
CHORDATA/AVES	Platalea leucorodia				National Protection Class

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/ACTINOPTERYGII	Pseudobagrus tenuis				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Pseudobrama simoni				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Pseudolaubuca engraulis				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Rhinogobio typus				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Rhinogobius cliffordpopei				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Squalidus nitens				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Tachysurus nitidus				Chinese endemic species
CHORDATA/ACTINOPTERYGII	Toxabramis swinhonis				Chinese endemic species

#### Optional text box to provide further information

Wild animals have important ecological value. The State Council of the People's Republic of China has approved and issued the list of rare and endangered wild animals under national key protection, and the protection of these wild animals has been raised to the legal level.

# 4.4 - Physical components

# 4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cwa: Humid subtropical (Mild with dry winter, hot summer)

4.4.2 - Geomo	phic	settina
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.4.2 Coomorphic solaring	
a) Minimum elevation above sea level (in metres)	5
a) Maximum elevation above sea level (in metres)	7
	Entire river basin
	Upper part of river basin
	Middle part of river basin □
	Lower part of river basin 🗹
	More than one river basin $\Box$
	Not in river basin
	Coastal 🗆
Please name the river basin or basins. If the	site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.
Huaihe River Basin	

# 4.4.3 - Soil

Mineral ✓
Organic □

No available information □

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)?

Yes ○ No ●

# Please provide further information on the soil (optional)

The Site is located in the single diameter division of geological structure in Northern Jiangsu, belonging to Hongze Valley. The ground of the fault zone was generated by the Yanshan movement in the late Mesozoic, with a height of about 10 m. The ground is covered with Holocene fluvial and lacustrine sediments, up to 3 ~ 5 m thick. The underlying sediments are late Pleistocene loess containing iron and manganese. The Site belongs to the Yellow River, Huaihe River and the Yangtze alluvial plains, and the soil types are mainly paddy soil, tidal soil, sandy black soil, yellow brown soil, basic rock soil and limestone soil. The content of organic matter is low, generally less than 0.2%, and the pH value is between 7-8.

# 4.4.4 - Water regime

Water permanence

Presence?		
Usually permanent water present	No change	
Source of water that maintain	s character of the site	
Presence?	Predominant water source	
Water inputs from precipitation	<b>✓</b>	No change
Water inputs from surface water	<b>✓</b>	No change
Water inputs from groundwater		No change
Water destination		
Presence?		
Feeds groundwater	No change	
To downstream catchment	No change	

No change

Stability of water regime

Presence?

Water levels largely stable

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Baima Lake is located in the lower reaches of the Huaihe River Basin. There are more than ten rivers entering the lake in the west, such as Caoze River, Shanyang River, Taoyuan River, Xunhe River, etc., receiving the water from Hongze Lake and nearby surface runoff. The rivers flowing out of the lake are Ruanqiao River and Bichen River in the southeast, and successively enters Baoying Lake, Gaoyou Lake, Shaobo Lake, reaching the Yangtze River at Yangzhou Sanjiangying. The Site is an important ecological node of the Huaihe River system into the Yangtze River. On the northeast side, water is diverted into the lake from the Beijing-Hangzhou Grand Canal through the Yunxi River, and turned over from the Xinhe River through Huai'an Station into the North Jiangsu Irrigation Canal, then transported to the north. It is an important regulation and storage lake on the water transmission line of the East Route of the South-to-North Water Transfer Project.

Baima Lake is a typical plain shallow water lake, 17.8 km long from north to South and 6.4 km wide from east to west. The average annual water level is 6.56 m, the historical highest water level is 8.16 m, and the historical lowest water level is 5.42 m. Except for the historical highest and lowest water levels, the water level of Baima Lake changes slightly in most years, and the difference between high and low water levels is just about 0.5 m. The lake bottom elevation is generally 5-5.5 m and the water depth is 1-1.5 m.

The water of Baima Lake depends on surface runoff and lake precipitation, and the recharge coefficient is 8.8, which is greatly affected by the river flow in the recharge area. In 2012 (before returning fishing to wetland), the normal water storage area of Baima Lake was 42.1 km2, the storage capacity was 54.73 million cubic meters. After the completion of the second phase of Baima Lake fishing returned project, the water storage area was doubled to 82.68 km2, with a storage capacity of 105 million m3.

storage area was doubled to 82.68 km2, with a storage capa	acity of 105 million m3.
4.4.5 - Sediment regime	
Significant erosion of sediments occurs on the site $\Box$	
Significant accretion or deposition of sediments occurs on the site $\ensuremath{\checkmark}$	
Significant transportation of sediments occurs on or through the site $\Box$	
Sediment regime is highly variable, either seasonally or inter-annually $\Box$	
Sediment regime unknown	
4.4.6 - Water pH	
Acid (pH<5.5) □	
Circumneutral (pH: 5.5-7.4 ) ✓	
Alkaline (pH>7.4) ✓	
Unknown □	
Please provide further information on pH (optional):	
Water pH: 6.07-8.88.	
4.4.7 - Water salinity	
Fresh (<0.5 g/l) ☑	
Mixohaline (brackish)/Mixosaline (0.5-30 g/l) □	
Euhaline/Eusaline (30-40 g/l) □	
Hyperhaline/Hypersaline (>40 g/l) ☐	
Unknown □	
4.4.8 - Dissolved or suspended nutrients in water	
Eutrophic 🗆	

Mesotrophic ☑
Oligotrophic ☐

Dystrophic	
Unknown $\square$	

Please provide further information on dissolved or suspended nutrients (optional):

The average daily dissolved oxygen (DO) concentration of the Site fluctuates between  $6.19 \sim 6.49$  mg/L, and the change trend is not obvious. The pH value of the water is between 6.07 and 8.88, and the pH value shows a certain seasonal variation trend, which is lower in spring and higher in autumn. The conductivity is 38.4-61.7 S/m. According to the national surface water environmental quality standard, the annual water quality in the Site is Class III, with total nitrogen 0.34-0.98 mg/L, ammonia nitrogen 0.04-0.15 mg/L, total phosphorus 0.03-0.05 mg/L, and permanganate index 2.7-5.9 mg/L.

# 4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  $\odot$  ii) significantly different O site itself:

# 4.5 - Ecosystem services

# 4.5.1 - Ecosystem services/benefits

**Provisioning Services** 

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Low
Fresh water	Drinking water for humans and/or livestock	Low
Wetland non-food products	Reeds and fibre	Low

Regulating Services

Regulating Services			
Ecosystem service	Examples	Importance/Extent/Significance	
Maintenance of hydrological regimes	Groundwater recharge and discharge	Medium	
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	Low	
Erosion protection	Soil, sediment and nutrient retention	High	
Pollution control and detoxification	Water purification/waste treatment or dilution	High	
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	High	
Hazard reduction	Flood control, flood storage	High	

## **Cultural Services**

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	Low
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High

**Supporting Services** 

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Sediment retention	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Carbon storage/sequestration	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High

Within the site:	10s
Outside the site:	10000s

Have studies or assessments been made of the economic valuation of Yes O No ● Unknown O ecosystem services provided by this Ramsar Site?

# 4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland	
ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland	

#### Description if applicable

Baima Lake is an ancient lagoon. In ancient times, it was a low-lying area with many small lakes. At the end of the Eastern Han Dynasty, a waterway was dug to connect Baima Lake, Jieshou lake, Gaoyou Lake and other ancient lakes. So far, it connected the Yangtze River and the Huaihe River. And Baima Lake had become an important shipping route connecting the north and the south. In 1128 (early Southern Song Dynasty), after the Yellow River moved south and occupied the Huaihe River course, Baima Lake and other lakes received the water from the Huaihe River, and gradually connected into lakes. In 1855 (Qing Dynasty), the Yellow River moved north. In 1957, the Huaihe River improvement project was started, building the Huaihe River system into Yangtze River, Baima Lake dike and Dashanzi dike, so that Baima Lake and Baoying Lake were separated and controlled, and the water level was gradually stabilized.

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples	]
iv) relevant non-material values such as sacred sites are present and	2
their existence is strongly linked with the maintenance of the ecological 🗷	J
character of the wetland	

#### Description if applicable

Huai'an, formerly known as Huaiyin, takes the meaning of south of Huaihe River. In ancient times, Huai'an flourished because of water and became the "Four Metropolises" on the Grand Canal, which was called together with Yangzhou, Suzhou and Hangzhou. Modern Huai'an regenerated due to water.

The major towns in Huai'an are all flourished based on water, most names of which come from water, such as Hongze, Jinhu, Qinghe, etc. The famous Beijing-Hangzhou Grand Canal runs north and south, the Huaihe River and the ancient Yellow River run east and west, and Hongze Lake, Baima Lake, Gaoyou Lake and Baoying Lake are inlaid. The rich poems truly record the historical origin of Huaishui culture and reveal the author's praise for the customs of Huai'an waters.

Huaiyang cuisine developed from the pre Qin Dynasty to the Han and Jin Dynasties, and it was especially prosperous in the Sui, Tang and Ming and Qing Dynasties. The reason why Huaiyang cuisine has been formed in Huai'an is that it is geographically located at the junction of North and South, and the throat of water transportation between South ships and North horses. People from all parts of the country come and go, and food from all parts of the country blends with each other. Finally, Huaiyang food is famous all over the world.

Huai'an is located in the land of the Yangtze and Huaihe Rivers. Aquatic products, poultry and vegetables continue throughout the year. The selection of materials stresses seasonal freshness, and the proportion of raw materials is large. It can be said that the origin and development of Huaiyang cuisine are closely related to wetlands.

# 4.6 - Ecological processes

<no data available>

# 5 - How is the Site managed? (Conservation and management)

# 5.1 - Land tenure and responsibilities (Managers)

# 5.1.1 - Land tenure/ownership

lic owners	

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	✓	✓

# 5.1.2 - Management authority

agency or organization responsible for	Management Office of Huai'an Baima Lake Wetland Park
managing the site:	
Provide the name and/or title of the person or people with responsibility for the wetland:	Weijia ZHU, Director
or people with responsibility for the wettand.	
	6th floor, Fenghui Plaza, Huaihai East Road No.1, 223005
Poetal address:	Huai'an City Jiangsu Province
r Ostar address.	Jiangsu Province
	P. R. China

E-mail address: zwj13952318833@qq.com

# 5.2 - Ecological character threats and responses (Management)

# 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non- timber crops	Low impact			✓

# Transportation and service corridors

Transportation and cornecto				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Low impact		✓	✓

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Low impact		V	✓

# Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Low impact		<b>A</b>	✓

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Low impact		<b>1</b>	✓

### Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents		Low impact		<b>2</b>

# 5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Wetland Park	Jiangsu Huai'an Baima Lake National Wetland Park		partly

# 5.2.3 - IUCN protected areas categories (2008)

	la Strict Nature Reserve
	lb Wilderness Area: protected area managed mainly for wilderness protection
¥	Il National Park: protected area managed mainly for ecosystem protection and recreation
	III Natural Monument: protected area managed mainly for conservation of specific natural features
	IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
	V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
	VI Managed Resource Protected Area: protected area managed mainly

# 5.2.4 - Key conservation measures

# Legal protection

Ecgal protection		
Measures	Status	
Legal protection	Implemented	

# Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Improvement of water quality	Partially implemented
Habitat manipulation/enhancement	Partially implemented
Hydrology management/restoration	Partially implemented
Re-vegetation	Partially implemented

# Species

Measures	Status
Threatened/rare species management programmes	Proposed
Control of invasive alien plants	Partially implemented
Control of invasive alien animals	Partially implemented

# Human Activities

Measures	Status
Management of water abstraction/takes	Implemented
Regulation/management of wastes	Implemented
Fisheries management/regulation	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

Other:

In 2014, the Baima Lake Planning and Construction Management office promoted the returning polders to the lake and ecological restoration initiatives. The southern part of Baima Lake was built as Jiangsu Huai'an Provincial Wetland Park. In 2015, with the approval of the State Forestry Administration, it officially became Jiangsu Huai'an Baima Lake National Wetland Park (pilot). Huai'an Baima Lake Wetland Park Management Office was established in 2016 to be responsible for the protection, restoration and management of the Wetland Park. The Wetland Park passed the pilot acceptance and evaluation in 2020.

By the end of 2014, all the polders and seine nets in the wetland park were cleared over 947 ha. The lake wetted area and lake volume have been effectively restored. 233 households and nearly 900 professional fishermen have been properly resettled. In 2016, 10 main inflow rivers were ecologically restored and dredged at the basin scale to ensure that the source water flowing into the lake is clean. The wetland habitats such as coastal zones, beaches, deep water area and ecological islands have been restored, and the diversity of wetland habitats in the Site has been improved, providing a good habitat for wetland animals, especially waterfowl. From 2020, in order to further protect the ecological resources of Baima Lake, a ten-year long-term ban on fishing was implemented.

Huai'an Municipal People's government has promulgated "the Administration Measures for Jiangsu Huai'an Baima Lake National Wetland Park" on February 1, 2021. The Wetland Park has established and improved the wetland management system, administrative management system and other long-term working mechanisms, and prepared the "Jiangsu Huai'an Baima Lake National Wetland Park Management Plan". The wetland park and the municipal local maritime bureau carried out inspections tackle illegally operated ships in the lake area.

Wetland science popularization and education centre has been built. The installation of outdoor science popularization and education and navigation system have been completed. The Wetland Park implemented relevant laws and regulations and carried out publicity and education campaigns such as "Wildlife Protection Publicity Month" and "Bird Love Week" to improve the awareness of surrounding people about nature protection.

#### 5.2.5 - Management planning

Is there a site-specific management plan for the site? In preparation

Has a management effectiveness assessment been undertaken for the

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning Yes O No 

processes with another Contracting Party?

#### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

# 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Soil quality	Implemented
Plant community	Implemented
Plant species	Implemented
Animal community	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

The monitoring work were carried out step by step in accordance with "the Master Plan of Jiangsu Huai'an Baima Lake National Wetland Park", "the Technical Guide for Wetland Ecological Monitoring in Jiangsu Province", "the Technical Guide for Ecological Monitoring of National Wetland Park" and other documents. In 2017, the Wetland Park started monitoring. In order to orderly promote the monitoring work, in 2019, the Wetland Park prepared "the Implementation Plan for Ecological Monitoring of Huai'an Baima Lake National Wetland Park", which defined the ecological monitoring indicators, points, methods and frequencies of the Wetland Park, and guided the follow-up monitoring work of the Wetland Park.

At present, the Wetland Park has implemented and set up a set of ecological monitoring system, including a set of ecological monitoring and management big data platform, one integrated automatic monitoring point, four small water quality automatic monitoring points, two insect automatic monitoring points, one meteorological / soil / air quality automatic monitoring point, three video monitoring points, and two LED display screens of ecological monitoring results. The wetland park carried out a continuous biodiversity survey from 2019 to 2021, built laboratories and hired professional monitoring personnel.

In cooperation with Nanjing University and other scientific research institutions, the research on the structure and function of the ecosystem of Baima Lake and the value evaluation of ecological services were carried out to explore the effective mechanism for maintaining the stable state of macrophytic lakes in shallow lakes.

# 6 - Additional material

# 6.1 - Additional reports and documents

# 6.1.1 - Bibliographical references

Jiangsu Provincial Forest Resources Monitoring Center. 2015. Jiangsu Huai'an Baima Lake National Wetland Park Master Plan (2016-2020). Huai'an Baima Lake Wetland Park Management Office. 2020 Jiangsu Huai'an Baima Lake National Wetland Park Management Plan (2020-2030).

Li Qiang, Han Chengyin, et al. 2019. Distribution characteristics and evaluation of nitrogen and phosphorus forms in surface sediments of northwest Baima Lake. Jiangsu Water Conservancy, (12): 11-17, 22.

Udvardy, M. 1975. Classification of the Biogeographical Provinces of the World. IUCN Occasional Paper No. 18.

# 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<3 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

# 6.1.3 - Photograph(s) of the Site

#### Please provide at least one photograph of the site:



Aythy a ny roca amd Aythy a baeri ( *Peipei Cao*, 24-12-2019 )



Ay thy a baeri ( Rongsheng



Tringa nebularia ( Shua Zhang, 13-11-2019 )



Baima Lake Wetland ( The Wetland Park, 23-09-2019 )



Lake charm ( The Wetland Park, 14-07-2020 )



Cygnus columbianus ( The Wetland Park, 14-01-2017



Wild ducks ( The Wetland Park, 26-12-2021 )



Submerged plants ( The Wetland Park, 19-05-2019 )

# 6.1.4 - Designation letter and related data

#### Designation letter

<1 file(s) uploaded>

Date of Designation 2022-10-28