

# **Information Sheet on Ramsar Wetlands**

**(RIS)**

Name of the Site: Zhaling Lake

# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

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**1. Name and address of the compiler of this form:**

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Designation date

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Site Reference Number

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**2. Date this sheet was completed/updated:**

October 10, 2004

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**3. Country:**

The People's Republic of China.

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**T4. Name of the Ramsar site:****4. Name of the Ramsar site:**

The Zhaling Lake

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**5. Map of site included:**

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): yes  -or- no

b) **digital (electronic) format** (optional): yes  -or- no

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**6. Geographical coordinates (latitude/longitude):**

34°55' N, 97°16' E

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**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

This wetland is located in the central south of Qinghai Province, about 600 kilometres to Xining, the provincial capital. The total population of Zhaling Lake Township is about 1800.

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**8. Elevation:** (average and/or max. & min.)  
4,273 meters

**9. Area:** (in hectares)  
64,920 hectares

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**10. Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Zhaling Lake is a unique type of plateau fresh water wetland with a higher elevation in China. The conservation targets of the wetland include *Grus nigricollis*, *Aquila chrysaetos*, *Gypaetus barbatus*, etc., the grade I national protected species, and fish species of *Gymnocypris eckloni*, *Platypharodon extremus*, *Chuanchia labiosa*, *Gymnodiptychus pachycheilus*, etc. endemic to Qing-Tibetan plateau, as well as the alpine wetland ecosystems. Located in the west of China, composed of water surface, marsh and meadow Zhaling Lake is the second largest lake in the sources of Yellow River, in which the wetland is faced with the menace of excessive exploitation of resources caused by the human activities. One of the major threats surrounding the wetland is overgrazing and deteriorating pasture lands.

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**11. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

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**12. Justification for the application of each Criterion listed in 11. above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

**Criterion 1:** This wetland is rich in water resources, and is important for regulating the headstream water of Yellow River, sediment retention, purifying water, flood control and storing water as well as regulating the local climate.

**Criterion 2:** There are 9 Grade I and 13 Grade II national protected species including the endangered Grade I and IUCN Red Listed wading bird Black-necked Crane *Grus nigricollis*.

**Criterion 3:** The swamp area is a main breeding and roosting habitat of gulls, wild geese, ducks and black-necked cranes. The common waterfowls include *Tadorna ferruginea*, *Larus brunnicephalus*, *Larus ichthyaetus*, *Phalacrocorax carbo*, *Anser indicus*, etc. and the major wading bird is *Grus nigricollis*. There are many fishes in the lake, including *Gymnocypris eckloni*, *Platypharodon extremus*, *Chuanchia labiosa*, and *Gymnodiptychus pachycheilus* which are endemic to the wetland of the Tibetan Plateau or Central Asia and valuable for scientific research and protection.

**Criterion 7:** Situated in Qing-Tibetan plateau with higher elevation, Zhaling Lake has clean water with poor nutrients and cold temperature. Under this conditions of the lake environment, only the adaptive fish forms such as *Gymnocypris eckloni*, *Platypharodon extremus*, *Chuanchia labiosa*, *Gymnodiptychus pachycheilu* are developed, which makes Zhaling lake wetland have a

higher fish endemism. Moreover, the wetland supports the fundamental ecological and evolutionary processes of endemic species population.

**Criterion 8:** This wetland is an important food base, spawning and nursing site for 8 species of major fishes, some species are mentioned in Criterion 7.

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**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Sub-frigid semi-arid region in Tibetan Plateau.

**b) biogeographic regionalisation scheme** (include reference citation):

Source: "Physikalischer Atlas of the P.R.China", which was published by China Map Press in 1999.

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**14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

**Geology and Geomorphology**

The Zhaling Lake is a tectonic lake formed by fault basin in Pleistocene, and the basin margin is lake terrace and developed mountain front table and proluvial fan. North of it are Burhan Budai Mountain and its branch Buqing Mountain, and south of it is Bayankala Mountain, whose elevation is above 4,600m with broad Palaeo-basin formed between.

**Origin**

Natural establishment.

**Hydrology**

The Yellow River originated from Peacock River to the west of The Zhaling Lake, and numerous rivers from mountainous at both sides disembogue into the Zhaling Lake. The lake water is mostly from surface runoff and precipitation, the catchments area is 8161 km<sup>2</sup> and the supply coefficient is 15.5. The annual runoff average into the lake is 11.84×10<sup>8</sup> m<sup>3</sup>, the precipitation intercepted by the lake surface is 1.6×10<sup>8</sup> m<sup>3</sup>, the annual runoff discharged from the lake is 6.48×10<sup>8</sup> m<sup>3</sup>, the evaporation capacity is 6.95×10<sup>8</sup> m<sup>3</sup>, and the hydrological budget is basically balanced. The lake water transparency is 1.0-3.0m, the mineralization is 480.0 mg/L, the pH value is 9.4 and it is an enclosed chloride salt lake. The maximum water depth is 13.1m, the mean depth is 8.9m with small fluctuation, and the mean annual precipitation is 260- 400mm.

**Soil**

The soil types are mainly peat soil, peat bog soil and meadow boggy soil.

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**15. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The area of the catchment area is 8161 km<sup>2</sup>. The catchment area inclines from northwest to southeast and the terrain is generally even and open. The soil types mainly include peat soil, peat bog soil and meadow boggy soil. The climate is typical inland climate with little rain. Grazing is the only activity in the area.

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#### 16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

It receives water from 8 important branches of the upstream of Yellow River, and plays the role of flood prevention and water storage and regulation. The lake basin topography encourages sediment trapping and maintains good water quality for the surrounding communities and downstream areas.

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#### 17. Wetland Types

##### a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

**Marine/coastal:** A • B • C • D • E • F • G • H • I • J • K •  
Zk(a)

**Inland:** L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •

**Human-made:** 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

##### b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

O – Permanent freshwater lakes , Va - alpine meadow

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#### 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

In the delta of the Yellow River inlet there is abundant aquatic vegetation and the dominant species include *Batrachium foeniculaceum*, *Myriophyllum verticillatum*, *Nymphoides peltatum*, *Potamogeton pectinatus* Linn, etc. Around the lake, there is upland vegetation, including cold-tolerant mesophyte or vivacious hemicryptophyta or geophyte communities. There are more than 50 species of common herbage grasses, and the dominant species are *Kobresia tibetica*, *K. royleana* and mosses. The coverage is 85%- 90%. The swamp area is a place for breeding and habitation of gulls, wild geese, ducks and black-necked cranes. The common water birds include *Tadorna ferruginea*, *Larus brunnicephalus*, *Larus ichthyaetus*, *cormorant*, *Anser indicus*, etc, and the major wading bird is *Grus nigricollis*. The lake is rich in fishes, mainly including *Gymnocypris eckloni* and *Platypharodon extremus*. Some of these are endemic to Tibetan Plateau or Central Asia and are valuable for scientific research and protection.

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#### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

This area belongs to the pan-arctic vegetation zone in the world plant age, and Tanggut zone of Tibetan Plateau sub-region in China. In this high and cold environment, the major species include *Kobresia tibetica* and sub-dominant species *Carex moorcroftii*, *C. atrafusca* Schkur as well as other swamp meadows, which form a major water reservation barrier and reservoir together with other high and cold water meadows. The herbosa includes *Blgsmus sinocompressus*, *Thglochlin muritimum* etc. The stratification of herbosa is not clear and most of them are 10- 25cm high and the total coverage degree is 85%- 90%. The growth duration of pasture plants is 90- 120 days. The plant communities are capable of retaining the water source and converting the rainwater to ground water. Meanwhile, they are capable of filtration and sedimentation for water purification. Therefore, once the vegetative cover of this system is damaged, a series of environmental disasters hindering hydrological functions such as water purification, storage and transportation will be occur.

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#### **20. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The fauna of the Zhaling Lake belongs to Qinghai-Tibet- South Asia zone of Central sub-kingdom of Palaearctic Realm With numerous endemic species. There are about 80 species of birds, 17 species of mammals and 8 species of fishes of which, there are 9 Grade I and 13 Grade II national protected species. Amongst the most important fauna in Zhaling Lake, birds and fishes take a noteworthy role. Most prominent in the fauna composition of birds and fishes are endemic elements of the Qing-Tibetan and the indigenous constituents, most of which are valuable, rare and endangered animals under various categories of national protection status. Important fauna species include *Cervus albirostris*, *Pantholops hodgsoni*, *Asinus kiang*, *Poephagus mutus*, *Grus nigricollis*, *Aquila chrysaetos*, *Haliaeetus leucoryphus*, *Gypaetus barbatus*, *Ursus arctos*, *Felidae bieti*, *Lynx lynx*, *Cervus elaphus*, *Procapra picticaudata*, *Cygnus cygnus*, *Falco cherrug*, *Grus grus*. Some of these species depend solely on wetland or meadow for their survival.

The most important constituent of fish fauna is *Gymnocypris eckloni*, *Platypharodon extremus*, *Chuanchia labiosa*, *Gymnodiptychus pachycheilus* that is narrowly distributed in the Qing-Tibetan plateau region.

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#### **21. Social and cultural values:**

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Yellow River is the mother river of the Chinese nation and it fostered the 5000-years of civilization of China. In the Zhaling Lake zone at the headstream of Yellow River, there are topping jokuls, picturesque grassland, torrential rivers, gleam lakes and rich wildlife resources. The local Tibetan people have created effulgent plateau culture, religion, and folk customs

through hard labour which attracts the scientists, explorers and travellers all over the world. Such tourism provides good conditions for developing folk custom tourism, natural scene tourism and adventure tourism, and it is an important foundation for developing regional economy.

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**22. Land tenure/ownership:**

(a) within the Ramsar site:

The lake region is owned by the state.

(b) in the surrounding area:

The surrounding grasslands have been contracted to local herdsmen and the land ownership belongs to the country or collective.

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**23. Current land (including water) use:**

(a) within the Ramsar site:

There was once fishery production in the wetland, but not practiced at present.

(b) in the surroundings/catchment:

There is mainly livestock farming around the catchment area, and the population of herdsmen is about 1,800. The pastures are contracted and usable pasture land area is 372,000 hectares in Zhaling Lake Township with 42,269 domestic animals. The area of about 102,366 hectares of pasture lands have deteriorated and desertified.

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**24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

(a) within the Ramsar site:

The global warming results in glacial recession, snow line rising and decline of water supply. The scientists indicate that in the source area of Yellow River, the average temperature increases 0.004 °C per year but the precipitation declines 0.15 mm in average per year (Li Diqiang, 2002). The rate of temperature increase in the area is higher than that in the source area of Lancang River and Yangtze River. The ablation of Jianggendiru glacial located in sources of Tuotuo (the very sources of Yellow River) caused almost 100 m of the glacial tone recession within 17 years. In the results, the water level of the Zhaling Lake has dropped more than 2 m in the past 20 years and the flow of Yellow River reduced 24% compared to that in the early 80s, 69 times no flows between 1972~1996. In addition, 2000 lakes in the source area of Yellow River disappeared, which is 50% of lakes in the area (Tang Bangxing, 2002).

The fish harvests was about 600~800 t/a in the 80s and increased to 2,000 t/a from 1982 to 1989. Due to high for fish products, fish resources have been sharply reduced. In last decade, fish resources were nearly exhausted. Fortunately, the stock has been replenished in the lake after preventing over-fishing through a conservation plan.

(b) in the surrounding area:

The fragility of wetland ecosystem of Zhaling Lake for higher plateau and dry climate in west China, overgrazing and thus, land transformation are major factors in the surrounding of Zhaling lake. Moreover, transformation of vegetation, i.e., helophytes gradually being replaced by mesophytes and xerophytes has also contributed towards lower efficiency of natural water retention apart from disappearing marshes, dry and bared bogs.

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**25. Conservation measures taken:**

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

In 2000, Qinghai Sanjiangyuan Provincial Nature Reserve was established, which was authorized by the State Council to be a national Nature Reserve in 2003. The Sanjiangyuan Nature Reserve is divided into 8 cores zones of wetland ecosystems coral districts, including the Zhaling Lake-Eling Lake. The major measures taken for the wetland protection include ban on over-fishing, prevention and control of desertification as well as muskeg recovery project. The prohibition of grazing and fishing is being practiced in the core zone and other projects such as local experiment site of wetland ecosystem, bird monitoring station and the ecology project of closing 7600 ha. of desert to grass will continue according to the project plan .

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**26. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The "Feasibility Study Report for the Demonstration Project of ZhalingLake-Elinghu in Qinghai Sanjiangyang Nature Reserve" has been completed. The goal of the project is to establish a monitoring and protection system through closing the desert to grass for the improvement of ecological environment in Zhaling Lake wetland ecosystem.

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**27. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

No in-depth scientific researches have been conducted and/or corresponding facility has been constructed.

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**28. Current conservation education:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Presently, only few managerial staff of the reserve once participated in the technical training on wetland survey and monitoring organized by the State Forestry Administration of Qinghai Province.

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**29. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity. The Zhaling Lake Wetland is provided with rich tourism resources and high tourism value. However, because of inadequate infrastructural facilities and under-developed plan for tourism, it is yet to be explored.

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**30. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Territorially, it is under the jurisdiction of Maduo County People's Government of Qinghai Province. The management is supervised by the State Forestry Administration, Qinghai Provincial Bureau of Forestry and Qinghai Provincial Department of Agriculture and Stock Raising.

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**31. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Mr. Li Ruofan, Director of Sanjiangyuan National Nature Reserve in Qinghai Province;  
Add: 51 Bayi West Road, Xining, Qinghai Province, China, Qinghai Provincial Bureau of Forestry

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### 32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

1. Wang Sumin and Dou Hongshen, *China's Lake Records*. Beijing: Science Press, 1998  
Zhao Kuiyi, *China's Morass Records*. Beijing: Science Press, 1999.
2. Li Diqiang and Li Jianwen, *Sanjiangyuan Biodiversity*. Beijing: China Science and Technology Press, 2002.
3. Qinghai Provincial Local Chronicles Compilation Committee, *Qinghai Provincial Chronicles (7), Chronicles of the Source of Yangtze River, Yellow River and Lancang River*. Zhengzhou: Yellow River Water Conservancy Press, 2000.
4. Wildlife Protection Department of the Ministry of Forestry, *Guide to Wetland Protection and Rational Utilization*. Beijing: China Forestry Publishing House, 1994.
5. The State Forestry Administration, et al., *China Wetland Protection Program*. Beijing: China Forestry Publishing House, 2000.
6. "Wetland Convention" Execution Office of the State Forestry Administration, *Wetland Convention Execution Guide*. Beijing: China Forestry Publishing House, 2001.
7. Survey and Design Institute of the State Forestry Administration, Qinghai Provincial Bureau of Forestry, *Master Plan for Qinghai Sanjiangyuan National Nature Reserve*, 2003.
8. Wetland International China Project Office, *Economic Evaluation of Wetlands*, China Forestry Publishing House, 1999.
9. Agriculture and Animal Husbandry Zoning Office of Guoluo Tibetan Autonomous Prefecture of Qinghai Province, *Zoning of Animal Husbandry in Maduo County*, 1987.
10. *Physikalischer Atlas of the P.R.C.*, China Atlas Press, 1999.
11. Tang Bangxing , *The ecologic environment of Sanjiangyuan Natural Reserve*. Qinghai : Qinghai Renmin Press, 2002.

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