# Monitoring Dataset on Waterbirds in Qinghai Lake Basin (2023)

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**Abstract:** Qinghai Lake is located in the plateau zone. It's lake basin is rich in biodiversity and it is the gene pool of bird species in the Qinghai-Tibet Plateau, and waterbirds, as an important part of the ecology of the Qinghai Lake wetland, are good indicators for monitoring. The purpose of waterbird monitoring is to obtain real-time information on the dynamic changes of waterbirds in Qinghai Lake, habitat quality and other data. In August 2023, waterbird monitoring was carried out in 26 observation sites in 24 observation sites in the basin. The monitoring content includes habitat type, bird species name and quantity, etc, thus obtaining the monitoring dataset of waterbird in Qinghai Lake Basin (2023). The dataset includes: (1) basic information of waterbird monitoring area; (2) waterbird monitoring data of Qinghai Lake basin; (3) assessment of dominant species of waterbirds; (4) abundance of waterbirds; and (5) photographs of waterbirds. The dataset is archived in .xlsx, .jpg and .docx formats, which consists of 5 data files with the data size of 22.4 MB (compressed into 1 file, 22.4 MB).

**Keywords: Qinghai Lake basin; Tibet Plateau; waterbird monitoring; 2023**

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**CSTR:** https://cstr.escience.org.cn/CSTR:20146.14.2023.03.05

**Dataset Availability Statement:**

The dataset supporting this paper was published and is accessible through the *Digital Journal of Global Change Data Repository* at: https://doi.org/10.3974/geodb.2023.11.02.V1 or https://cstr.escience.org.cn/CSTR:20146.11.2023.11.02.V1.

## 1 Introduction

Biodiversity monitoring is mainly to provide information on the spatial and temporal changes of the monitored objects, mainly reflecting the changes of biodiversity within a certain spatial and temporal range, so biodiversity is one of the indicators to measure the

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[2] Li, Y., Li, X. Y., Chen, Z., *et al*. Monitoring dataset on waterbirds in Qinghai Lake basin (2023) [J/DB/OL]. *Digital Journal of Global Change Data Repository*, 2023. https://doi.org/10.3974/geodb.2023.11.02.V1. https://cstr.escience.org.cn/CSTR:20146.11.2023.11.02.V1.

success of ecological conservation[1]. The diversity of waterbirds and its change trend is one of the indicator factors to measure the ecological environment quality of waterbird habitat[2]. Qinghai Lake is located in the plateau, and its ecosystem stability is more fragile than that of low-altitude wetlands, which requires more comprehensive and effective monitoring waterbirds, as an important part of the ecology of Qinghai Lake wetland, are good monitoring indicators. Waterbird monitoring refers to the purposeful monitoring of waterbird species, quantity, behaviors, habitats and other information according to the pre-arranged space and time arranged[3, 4].

Qinghai Lake is located between 99°36′E–100°46′E and 36°32′N–37°25′N. It is located in the northeastern of the Tibet Plateau and at the southern foot of Qilian Mountains. It extends from the east to the east road around Qinghai Lake, from the south to National Highway 109, from the west to the west road around the lake, and from the north to the entire water body of Qinghai Lake, the islands in the lake and the wetlands around the lake, and the grassland within the Qinghai-Tibet line, with a total area of 4,952 $km^2$[5]. The climate of the region belongs to the Tibet Plateau temperate continental semi-arid climate with long and cold winters, warm and cool summers, low precipitation and concentration in summer, abundant sunshine, strong solar radiation, and large daily difference in temperature. Qinghai Lake National Nature Reserve is located at the intersection of two migratory routes of waterbirds in Central Asia and East Asia[6]. The waterbirds monitoring dataset was collected from the sample site of Qinghai Lake National Nature Reserve Administration[7] in August 2023. The waterbirds are monitored by sample site survey method and the straight counting method, to analyze the population size, population dynamics, diversity and distribution of habitats, and the species richness and evenness of the whole region and different habitats are calculated. Species richness and evenness in different habitats were calculated, and the waterbirds monitoring dataset of Qinghai Lake basin in 2023 was obtained.

## 2 Metadata of the Dataset

The metadata of the Monitoring dataset on waterbirds in Qinghai Lake basin (2023)[8] is summarized in Table 1. It includes the dataset full name, short name, authors, year of the dataset, temporal resolution, spatial resolution, data format, data size, data files, data publisher, and data sharing policy, etc.

**Table 1** Metadata summary of the Monitoring dataset on waterbirds in Qinghai Lake basin (2023)

| Items | Description |
|---|---|
| Dataset full name | Monitoring dataset on waterbirds in Qinghai Lake basin (2023) |
| Dataset short name | QinghaiLakeWaterfowl2023 |
| Authors | Li, Y., Qinghai Normal University, 3460236082@qq.com |
| | Li, X. Y., Qinghai Normal University, lixingyue0102@163.com |
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| | Yang, J. P., Qinghai Normal University, 523968433@qq.com |
| | Chen, Y. R., Qinghai Normal University, 2776246502@qq.com |
| | Chen, K. L., Qinghai Normal University, ckl7813@163.com |
| Geographical area | Qinghai Lake basin |
| Year | 2023 |

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| Items | Description |
|---|---|
| Data format | .xlsx, .jpg, .docx |
| Data size | 22.4 MB |
| Data files | Species, quantity and distribution location of waterbirds monitored; basic information of waterbird monitoring areas; assessment of dominant species of waterbirds |
| Foundations | Ministry of Science and Technology of P. R. China (2019QZKK0405); Science and Technology Department of Qinghai Province (2022-QY-204, 2023-ZJ-905T) |
| Data publisher | Global Change science Research Data publishing System http://www.geodoi.ac.cn |
| Address | No. 11A, Datun Road, Chaoyang District, Beijing 100101, China |
| Data sharing policy | (1) ***Data*** are openly available and can be free downloaded via the Internet; (2) End users are encouraged to use ***Data*** subject to citation; (3) Users, who are by definition also value-added service providers, are welcome to redistribute ***Data*** subject to written permission from the GCdataPR Editorial Office and the issuance of a ***Data*** redistribution license; and (4) If ***Data*** are used to compile new datasets, the 'ten per cent principal' should be followed such that ***Data*** records utilized should not surpass 10% of the new dataset contents, while sources should be clearly noted in suitable places in the new dataset[9] |
| Communication and searchable system | DOI, CSTR, Crossref, DCI, CSCD, CNKI, SciEngine, WDS/ISC, GEOSS |

## 3 Data Monitoring and Results

According to the Convention on Wetlands, waterbirds are birds that depend on water (wetlands) for their survival[2]. Waterbirds are easy to be observed in wetland ecosystems, and they are in the position of the highest consumers. They are one of the most important members of wetland ecosystems, and they are also an indicator species to characterize the changes in the quality of wetlands[2]. According to the characteristics of waterbird reproduction and habitat and distribution in Qinghai Lake basin, the direct counting method was used to investigate the number of bird populations in the waterbird monitoring sample sites in the basin, and monocular and double-pass telescopes and focus cameras were utilized to clearly identify the species of waterbirds in the observation area, and to take photographs of the birds and their habitats. The monitoring areas were mainly categorized according to habitat types: estuarine wetlands, marshy meadows, farmlands, freshwater lakes, riverine wetlands, river floodplains, peninsulas, islands, etc.

Qinghai Lake is the largest inland saltwater body in China, and it is also the breeding ground and stopover site for many waterbirds along the Central Asia-India migration route[10]. Specific monitoring sample sites were Jiangxigou, Xiaohong Lake, Erhai Lake, Daotang River wetland, Heima River wetland, Xiaopohu wetland, Naren wetland, Haergai estuary, Sha Dao, Dalian Lake, Ganzihe estuary, Ganzihe wetland, Shaliuhe estuary, Xiannvwan wetland, Quanji estuary, Wu Shi Da Lai quan, Ha Da Tan, Cormorant Island, Buha estuary, Shenghe estuary, Tie Bu Jia wetland, Quanwan wetland, Ga Ri La wetland, Egg Island, Haixin Mountain, and San Kuai Shi (Figure 1).

According to the ecological groups of waterbirds, they are mainly divided into wading birds and swimming birds, which mainly include sandpipers, cranes, plovers and herons, and swimming birds mainly include some birds of ducks, grebes, gulls and cormorants[11]. Different waterbirds have different living habits, so their use and selection of habitat, foraging and breeding sites are also different. In 2023, waterbird monitoring, recorded a total of 46 species of birds, a total of 116,658 birds, including one species of national-level water-birds and five species of national second-level waterbirds, two species of vulnerable waterbirds and five species of near-threatened waterbirds, of which 96.56% of swimming birds, ducks accounted for 74.49% of the swimming birds, and 3.44% of wading birds accounted for 74.49% of swimming birds. Four of these waterbirds exceeded 10,000 birds,

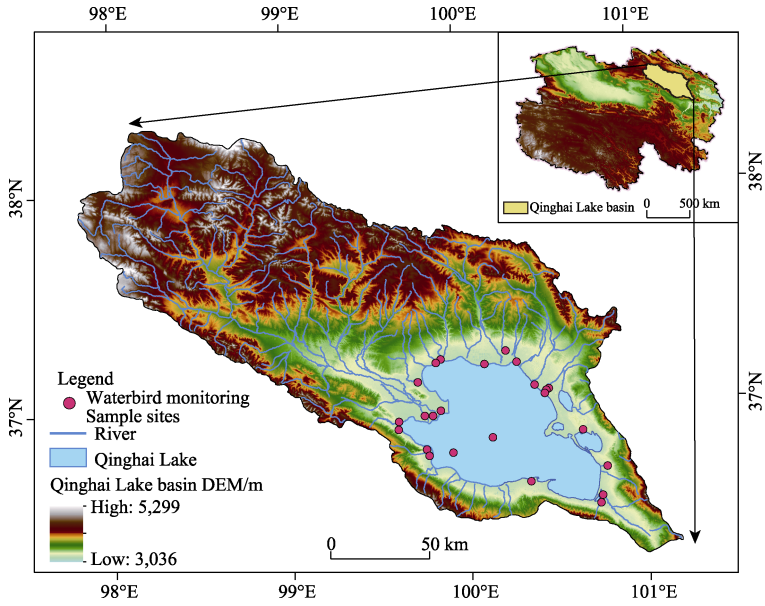


**Figure 1** Distribution map of waterbird monitoring sample sites in the Qinghai Lake basin

namely, the ruddy-billed diver duck, ruddy duck, common cormorant, and mottled goose. Among them, 50,703 ruddy-billed ducks ranked first among all birds, accounting for 43.46% of the total number of waterbirds and 58.35% of the total number of ducks, mostly distributed in Naren wetland, Quanwan wetland, Tie Bu Jia wetland, and the estuaries of Shaliu and Shenghe, where habitat types were mainly estuarine wetlands and lakeshore marshes; 19,678 ruddy ducks ranked second among all birds, accounting for 16.87% of the total number of waterfowl and 22.64% of the total number of ducks. 22.64% of the total number of ducks, were mainly distributed in Xiaohong Lake, Quanji estuary, Heima River wetland, Tie Bu Jia wetland, Shenghe estuary and Buha estuary, and their habitat types mainly include: estuary wetland and lakeside marsh. There are 14,313 common cormorants, ranking third among all birds and accounting for 12.27% of the total number of ducks. They were mainly distributed in Naren wetland, Cormorant Island and San Kuai Shi, and their habitat types mainly include: lakeside marsh, islands in the lake. There were 13,572 barnacle geese, ranking the fourth among all birds and accounting for 11.63% of the total number, and accounting for 15.62% of the total number of ducks, mainly distributed in Ha Da Tan and Shenghe estuary, and their habitat types were mainly river manzanita and estuarine wetlands.

There are more than 1,000 waterfowl of 4 species: larus brunnicephalus, podiceps cristatus and fulica atra. 11 waterfowl species of waterfowl were counted as individuals: eight sterna hirundo, seven podiceps auritus, six Tringa ochropus, six arenaria interpres, six chlidonias leucopterus, four charadrius leschenaultii, four numenius arquata, two ardea purpurea, two anas clypeata, two pluvialis squatarola, and two tringaerythropus.

The waterbird monitoring in 2022 recorded 44 species and a total of 148,697 birds, including one species of national-level waterbirds and four species of national-level waterbirds, as well as one species of vulnerable waterbirds and six species of near-threatened waterbirds[12]. The total number of waterbirds in Naren wetland, Shaliuhe estuary, Quanwan wetland, Tie Bu Jia wetland, and Buha estuary exceeded 10,000. Among them, the total number of ruddy-billed ducks was 61,265, which ranked the first in the waterbird category. The total number of ruddy ducks was 20,304, ranking second among waterbird

species. And the total number of mottled geese was 12,664, which ranked the third in waterbird category[12]. Compared with 2022, two new species of waterbird were added in 2023, namely Anas clypeata and chlidonias leucopterus.

Compared with the national second-degree waterbirds podiceps nigricollis, cygnus cygnus, anser anser and arenaria interpres in 2022, there were new podiceps auritus, numenius arquata and fewer grey cranes in 2023, and the podiceps auritus was vulnerable according to the IUCN Red List of Threatened Species; the Naren wetland, Quanwan wetland and the estuary of Tie Bu Jia wetland kept the record of more than 10,000 waterbirds; and the survey of the second-degree waterbirds in 2023 showed 583 podiceps nigricollis, mainly in Xiaohong Lake (114), Erhai Lake (2), Shadao (1), Dalian Lake (56), and Tie Bu Jia wetland (1). Pelicans were mainly in Xiaohong Lake (114), Erhai Sea (2), Shadao (1), Corset Lake (56), Quanji estuary (300), Ha Da Tan (110). Cygnus cygnus were mainly in Dalian Lake (1), Ganzihe wetland (1), Naren wetland (4), Quanji estuary (4). Podiceps auritus were mainly in Shadao. Arenaria interpres were mainly at the mouth of Shaliuhe estuary (4) and Xiannvwan wetland (2), and numenius arquata was mainly at Naren wetland.

The distribution of birds in Qinghai Lake is closely related to the distribution of food resources, and the wetlands around the lake and at the estuaries are areas where birds are concentrated[7]. Table 2 shows the basic information of waterbirds' habitats in the late breeding period in 2023, and Figure 2 shows the photographic map of waterbirds for field monitoring in 2023.

**Table 2** Basic information on late breeding habitat of waterbirds in 2023

| No. | Sample name | Sample plot number | Latitude (N) | Longitude (E) | Altitude (m) | Number of species | Total | Habitat type |
|---|---|---|---|---|---|---|---|---|
| 1 | Heima River Wetland | 6301010401 | 36.74° | 99.79° | 3,158.64 | 9 | 2,408 | Herbaceous Swamp |
| 2 | Jiangxigou | 6301010501 | 36.62° | 100.13° | 3,163 | 11 | 627 | Agricultural land |
| 3 | Xiaohong Lake | 6301010601 | 36.65° | 100.36° | 3,154 | 20 | 5,098 | Freshwater Lake |
| 4 | Erhai Lake | 6301010801 | 36.57° | 100.74° | 3,157 | 17 | 1,709 | Freshwater Lake |
| 5 | Daotang River Wetland | 6301010901 | 36.57° | 100.75° | 3,209 | 15 | 324 | Freshwater River |
| 6 | Xiaopohu Wetland | 6301011001 | 36.70° | 100.78° | 3,192 | 4 | 120 | Herbaceous Swamp |
| 7 | Naren Wetland | 6301011401 | 37.20° | 100.28° | 3,160 | 26 | 18,853 | Swamp meadow |
| 8 | Hargai River Estuary | 6301011301 | 37.09° | 100.39° | 3,156 | 15 | 679 | Estuarine Wetland |
| 9 | Dalian Lake | 6301011201 | 37.07° | 100.47° | 3,156 | 14 | 350 | Freshwater Lake |
| 10 | Ganzihe Wetland | 6301011202 | 37.05° | 100.45° | 3,156 | 16 | 348 | Estuarine Wetland |
| 11 | Ganzihe Estuary | 6301011204 | 37.05° | 100.45° | 3,158 | 7 | 92 | Estuarine Wetland |
| 12 | Sha Dao | 6301011101 | 36.87° | 100.66° | 3,262 | 20 | 5,956 | Freshwater Lake |
| 13 | Shaliuhe Estuary | 6301011501 | 37.20° | 100.19° | 3,154 | 19 | 4,942 | Estuarine wetland |
| 14 | Xiannvwan Wetland | 6301011601 | 37.20° | 100.19° | 3,147 | 23 | 1,144 | Estuarine wetland |
| 15 | Quanji Estuary | 6301011801 | 37.22° | 99.87° | 3,153 | 16 | 3,546 | Estuarine wetland |
| 16 | Wu Shi Da Lai quan | 6301011901 | 37.21° | 99.84° | 3,158 | 8 | 485 | Herbaceous Swamp |
| 17 | Ha Da Tan | 6301012001 | 37.12° | 99.73° | 3,169 | 24 | 5,819 | River manzanita |
| 18 | Cormorant Island | 6301012301 | 36.97° | 99.89° | 3,178 | 11 | 4,681 | Lakeshore Peninsula |
| 19 | Buha Estuary | 6301012601 | 36.97° | 99.81° | 3,204 | 21 | 8,637 | Estuarine wetland |
| 20 | Shenghe Estuary | 6301010101 | 36.96° | 99.78° | 3,200 | 17 | 10,482 | Estuarine wetland |

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| No. | Sample name | Sample plot number | Latitude (N) | Longitude (E) | Altitude (m) | Number of species | Total | Habitat type |
|---|---|---|---|---|---|---|---|---|
| 21 | Tie Bu Jia Wetland | 6301010201 | 36.96° | 99.71° | 3,203 | 18 | 14,395 | Estuarine wetland |
| 22 | Quanwan Wetland | 6301010301 | 36.95° | 99.61° | 3,184 | 12 | 18,698 | Herbaceous Swamp |
| 23 | Ga Ri La Wetland | 6301010302 | 36.91° | 99.61° | 3,164 | 13 | 3,751 | Swamp meadow |
| 24 | Haixin Mountain | 6301012801 | 36.86° | 100.12° | 3,266 | 4 | 1,048 | Islands in the Lake |
| 25 | San Kuai Shi | 6301012701 | 36.79° | 99.91° | 3,200 | 4 | 2,285 | Islands in theLake |
| 26 | Egg Island | 6301012201 | 36.97° | 99.87° | 3,170 | 4 | 181 | Lakeshore peninsula |

## 4 Dominant Species

Dominant species were identified based on the number of individual birds as a percentage of the total number of individuals ($P_i$)[13] (see Table 3 for details):

$$P_i = \frac{N_i}{N} \times 100\% \quad (1)$$

where, $N_i$ is the number of individuals of the $i$th species; $N$ is the total number of individuals of all species in the community; $P_i \geq 10\%$ is designated as the dominant species; $1\% \leq P_i < 10\%$ is designated as the common species; $0.1\% \leq P_i < 1\%$ is designated as the rare species; and $P_i < 0.1\%$ is designated as the rare species.


**Figure 2** Field monitoring waterbird photographs (taken in August 2023)

**Table 3** Assessment of dominant species of waterbirds

| No. | Waterfowl species name | Quantity | Dominant species/common species/rare species/stranger species |
|---|---|---|---|
| 1 | Podiceps nigricollis | 583 | Rare species |
| 2 | Podiceps cristatus | 3,398 | Common species |
| 3 | Podiceps auritus | 7 | Stranger species |
| 4 | Phalacrocorax carbo | 14,313 | Dominant species |
| 5 | Ardea cinerea | 59 | Stranger species |
| 6 | Egretta alba | 46 | Stranger species |
| 7 | Cygnus cygnus | 10 | Stranger species |
| 8 | Anser anser | 129 | Rare species |
| 9 | Anser indicus | 13,572 | Dominant species |
| 10 | Tadorna ferruginea | 19,678 | Dominant species |
| 11 | Tadorna tadorna | 22 | Stranger species |
| 12 | Anas strepera | 45 | Stranger species |
| 13 | Anas penelope | 30 | Stranger species |
| 14 | Anas crecca | 553 | Rare species |
| 15 | Anas acuta | 365 | Rare species |
| 16 | Anas clypeata | 2 | Stranger species |
| 17 | Netta rufina | 50,703 | Dominant species |

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| No. | Waterfowl species name | Quantity | Dominant species/common species/rare species/stranger species |
|---|---|---|---|
| 18 | Aythya ferina | 814 | Rare species |
| 19 | Mergus merganser | 16 | Stranger species |
| 20 | Aythya nyroca | 96 | Stranger species |
| 21 | Aythya fuligula | 867 | Rare species |
| 22 | Grus nigricollis | 121 | Rare species |
| 23 | Fulica atra | 2,035 | Common species |
| 24 | Himantopus novaezelandiae | 570 | Rare species |
| 25 | Recurvirostra avosetta | 63 | Stranger species |
| 26 | Vanellus vanellus | 10 | Stranger species |
| 27 | Pluvialis dominica | 22 | Stranger species |
| 28 | Charadrius alexandrinus | 99 | Stranger species |
| 29 | Charadrius mongolus | 10 | Stranger species |
| 30 | Charadrius leschenaultii | 4 | Stranger species |
| 31 | Limosa limosa | 354 | Rare species |
| 32 | Tringa totanus | 493 | Rare species |
| 33 | Tringaerythropus | 2 | Stranger species |
| 34 | Calidris ferruginea | 37 | Stranger species |
| 35 | Numenius arquata | 4 | Stranger species |
| 36 | Tringa glareola | 11 | Stranger species |
| 37 | Arenaria interpres | 6 | Stranger species |
| 38 | Calidris temminckii | 47 | Stranger species |
| 39 | Larus ichthyaetus | 3,725 | Common species |
| 40 | Larus brunnicephalus | 3,496 | Common species |
| 41 | Sterna hirundo | 217 | Rare species |
| 42 | Chlidonias leucopterus | 6 | Stranger species |
| 43 | Ardea purpurea | 2 | Stranger species |
| 44 | Sterna hirundo | 8 | Stranger species |
| 45 | Pluvialis squatarola | 2 | Stranger species |
| 46 | Tringa ochropus | 6 | Stranger species |

Note: NT, Near Threatened; VU, Vulnerable.

As shown in the table below, in 2023, there were a total of 4 dominant species, 4 common species, 11 rare species and 27 stranger species of waterbirds. According to statistics, in 2021, there were 3 dominant species of waterbirds, 9 common species, 11 rare species, and 22 stranger species. In 2022, there were 2 dominant species of waterbirds, 8 common species, 11 rare species, and 23 stranger species[12], which was a normal fluctuation of waterbird species genus compared with the past two years.

## 5 Comparison of Bird Species Diversity and Evenness in Different Habitats

In order to monitor the distribution data of waterbird around Qinghai Lake in August 2023, firstly, the data were initially integrated to determine the basic distribution of species and genera, and the orders, families, species and number of birds were counted and compared. Secondly, the Shannon-wiener index was used to calculate the species diversity of birds in the whole monitoring area in different habitats:

$$H = -\sum P_i \, lnP_i \tag{2}$$

where, $H$ is the Shannon-wiener species diversity index, $P_i$ is the proportion of individuals of species $i$ in the community, i.e., the ratio of the number of individuals of species $i$ to the total number of individuals of all species. The larger the value of $H$ is, the larger the amount of information contained in the community, and the degree of complexity increases.

Pielou index was used to calculate the evenness:

$$E = \frac{H}{\ln(S)} \tag{3}$$

where, $E$ is Pielou species evenness index, $H$ is Shannon-wiener species diversity index, $S$ is the total number of species in the community (Table 4).

**Table 4** Pielou species evenness index and Shannon-wiener species diversity of waterbirds

| Habitat type | Number of species | Total | H | E |
|---|---|---|---|---|
| Universe | 46 | 116,658 | 1.842 | 0.481 |
| Herbaceous swamp | 33 | 21,711 | 1.543 | 0.441 |
| Freshwater Lake | 29 | 13,113 | 1.753 | 0.521 |
| Estuarine wetland | 39 | 44,265 | 1.682 | 0.459 |
| River manzanita | 24 | 5,819 | 1.7 | 0.535 |
| Islands in the Lake | 8 | 3,333 | 0.775 | 0.373 |
| Swamp meadow | 39 | 22,604 | 1.724 | 0.471 |
| Lakeshore peninsula | 15 | 4,862 | 1.358 | 0.501 |
| Agricultural land | 11 | 627 | 1.261 | 0.526 |
| Freshwater river | 15 | 324 | 1.859 | 0.686 |

Note: The H and E index are the Shannon-wiener species diversity index and the Pielou species evenness index, respectively.

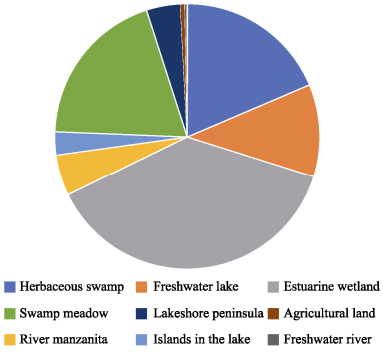


**Figure 3** Distribution of waterbirds in different habitats for field monitoring in 2023

It can be seen that freshwater rivers have the highest H value, followed by freshwater lakes, which indicates that freshwater lakes and freshwater rivers have the highest species diversity using the Shannon-Wiener index to measure different habitats in the Qinghai Lake area. As for the E-value, freshwater rivers and agricultural land were the two habitats with the highest species unifromity, so the number of individuals of different species in these two habitats was close to each other, and there was no extremely high or low population size. Based on the above data, we can draw a conclution that during the summer breeding season in 2023, freshwater rivers were the habitats with the highest diversity and evenness of waterbirds around Qinghai Lake.

## 6 Summary

In this paper, we conducted a basic analysis on the waterbird profile in Qinghai Lake area in 2023, analyzed the changes in the dominant populations of local waterbirds, the population dynamics and distribution of protected waterbirds, which can be used for the subsequent ecological analysis, population dynamics prediction, vacancy analysis of protected areas, etc. A total of 40,018 waterbirds were recorded in 2021, 148,697 in 2022[11], and 116,658 in 2023. Compared to 2021, the number of waterbirds increased rapidly in 2022. Compared to 2022, and the number of waterbirds declined to a certain extent in 2023, which is related to the loss and degradation of wetlands in recent years due to exogenous factors, such as global warming, intervention of human activities, as well as the use of monitoring tools[14]. Qinghai Lake is an important international breeding site for waterbirds, and it is also an important

wintering site for waterbirds on the Qinghai-Tibet Plateau. Therefore, in the next few years, we should continue to monitor the dynamics of waterbirds in areas where waterbird activities are relatively frequent in the Qinghai Lake basin as much as possible, so as to grasp the real-time information of the dynamics of waterbirds and the habitat quality in the lake in a short time. In the long run, we can accumulate data through a comprehensive survey to clarify the background of the changing trend of the lake, and thus provide a better solution to the problem of the lake and its habitat. The data accumulated through the comprehensive survey can be used to find out the background and changing trend of waterbirds in Qinghai Lake, thus providing standardized, effective, accurate and real-time basic data support for the establishment of Qinghai Lake National Park and ecological protection.

### *Author Contributions*

Li, Y., Li, X. Y., and Chen, K. L. did the overall design of the development of the dataset; Li, Y., Li, X. Y., Chen, Z., Sun, J. Q., Wang, S. Y., Wang, M. Y., Yang, J. P., and Chen, Y. R. collected and processed all of the data; and Li, Y. wrote the data paper.

### *Conflicts of Interest*

The authors declare no conflicts of interest.

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