

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

1. Date this sheet was completed/updated:
09/24/2001

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Designation date

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Site Reference Number

2. Country:
the People's Republic of China

3. Name of wetland:
Da Lian National Spotted Seal (*Phoca vitulina*) Nature Reserve

4. Geographical coordinates: 121°24'E, 39°37'N; 121°07'E, 38°53'

5. Elevation: (average and/or max. & min.) 0-328.7m

6. Area: 11,700ha

7. Overview: (general summary, in two or three sentences, of the wetland's principal characteristics)

The NR's coastal sea floor, covered by pedestal rock, presents a precipitous topography with steep gradient. The depth of the water is between 5 and 40 meters. The species under protection is spotted seals (*Phoca vitulina*), which are listed as the National Second-Class animals under the state protection.

8. Wetland Type (please circle the applicable codes for wetland types; in the present document, the Ramsar Classification System for Wetland Type" is found on page 9)

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 • Vt • W • Xf • Xp • Y • Zg • Zk(b)

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

Please now rank these wetland types by listing them from the most to the least dominant:

A D 3 B 1 F E G H J ZK a 5 6

9. Ramsar Criteria: (please circle the applicable Criteria; the *Criteria for Identifying Wetlands of International Importance* are reprinted beginning on page 11 of this document.)

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

Please specify the most significant criterion applicable to the site: 3

10. Map of site included? Please tick yes

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

11. Name and address of the compiler of this form:

Name: Gong Yunde, Ju Chenfu

Compiler: the Management Bureau of Dalian National Spotted Seal Nature Reserve

Address: No.126 Lianhe Lu, Xigangqu District Dalian, China 116000

Tell/Fax: +86-411-4318852

E-mail: (to be decided)

Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

12. Justification of the criteria selected under point 9, on previous page. (Please refer to the *Criteria for Identifying Wetlands of International Importance* appended to this document)

Criterion 2: The NR provides important habitats for 100 species of fish, 5 species of crustacean, 3 species of cephalopod and more than 10 species of shellfish. Particularly, it provides important habitats and breeding ground for 7 species of sea animals such as spotted seals, poggy, killer whales, false killer whales, bottle-nosed dolphins, true dolphins and river dolphins. According to the statistical data, the remaining population of spotted seals at the NR is currently only over 1000, falling into the endangered species according to national criteria. To protect the spotted seals from threatening any more, the efforts in this aspect have been strengthened. In 1983, the spotted seals were listed as the second-class animals under the state protection

Criterion 3: The NR provides important habitats for 100 species of fish, 5 species of crustacean, 3 species of cephalopod and more than 10 species of shellfish. Particularly, it provides important habitats and breeding ground for 7 species of sea animals such as spotted seals, poggy, killer whales, false killer whales, bottle-nosed dolphins, dolphins and river dolphins. The spotted seal, generally called seal or sea port seal, is such a kind of mammal as travels cross different sea areas and migrates long distances, farrowing on ice.

13. General location: (include the nearest large town and its administrative region)

The Nature Reserve is located at the coastal area of Bohai sea, 20km away from the center Dalian City.

14. Physical features: (e.g., geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

14.1 Geomorphology

The NR's coastal sea floor, covered by pedestal rock, presents a precipitous topography with steep gradient. The depth of the water is between 5 and 40 meters. It covers over 70 islands and islets and 147.5 km of coastline.

14.2 Geological Features

The NR's substrate is terrigenous clastic substances.

14.3 Origin: natural

14.4 Hydrology

The anathermal period begins with March and April. The water temperature changes between 10°C and 15°C with the surface water temperature reaching the highest in summer. The water temperature near the coast is obviously higher than that far from the coast. The variation of the water temperature is between 23° and 26° C. There is a minor difference between water temperatures at the surface and bottom. During the autumn season, the water temperature drops to 15°C or below. The water temperature near the coast is much lower than that far from the coast. Influenced by the cold air in winter, the water temperature drops to around 2° C.

14.5 Salt Content of the Surface Water

Because of the fusion of large quantities of flowing water in spring and the increase of coastal runoff, the salt content in the surface water decreases. The rainfall and the increase of runoff from the river mouths in summer have caused the salt content in the coastal waters to the south to be less than 32‰ and more than 32‰ in the coastal waters from Wafang to Jinzhou. In winter, the salt content in the coastal waters changes between 31‰ and 32‰, and between 30.2‰ and 32.8‰ in winter.

14.6 PH Value

PH value is higher near the coast than far from the coast. In spring, PH value at the surface and bottom is at 8.17. PH value in summer is same as that in spring. PH values are higher than that in summer, which come to 8.22 at the surface and 8.23 at the bottom. The PH values are highest in winter with the average

being 8.26 at the surface and 8.25 at the bottom. The vertical distribution of the PH values is very small, which come evenly all the year round.

14.7 Reactive Phosphate

The horizontal distribution of reactive phosphate is presented being higher near the coast than far from the coast. Meanwhile, the reactive phosphate content is higher at the bottom than at the surface. The content is higher in autumn and winter and lowest in summer. In spring, the contents at the surface and bottom average at 0.57mg and 0.60mg/L respectively. The content in autumn is much higher than that in summer. The content in winter, which is much the same as autumn, comes at the average 0.78mg and 0.80mg/L separately at the surface and bottom.

14.8 Climate

The temperature begins to go up with the coming of spring. In April, the average monthly temperature is between 8.1°C and 12.3°C. The temperature increases remarkably with the average monthly temperature in August at between 24.0°C and 26.4°C. Cold currents come in autumn and the airflow from the south becomes weak. The average monthly temperature at the coastal area in October is between 12.3°C and 14.7°C. With the cold currents in winter, the weather is cold. The average monthly temperature at the coastal area in January is between -8.1°C and 1.5°C.

14.9 Monsoon

Spring winds turn to south winds in May. In summer, southwest by south winds and southwest by west winds prevail. Autumn is a period when summer winds turn to winter winds. In September, the north winds prevail and the average wind velocity is high. The coldest airflow in the year occurs in November and the average wind velocity is between 6.2 and 7.6m/s. Strong north winds are prevailing in winter. In the Changxingdao area, the frequency of northeast by north winds is 24% in January. The spring winds are strongest with the maximal velocity up to over 34m/s.

14.10 Cold currents

Cold currents bring with them strong winds and sharp drop of temperature. Generally, the drop of temperature is related to the intensity of cold currents and seasonal changes. The stronger the cold currents, the greater the temperature drops and the longer the cold weather lasts (5 – 7 days). In September, the strong, cold currents can cause the temperature of most of the areas to drop by 10° – 20° C and the coastal area by 10° – 15° C.

14.11 Precipitation

The rainfall at the coastal area is 60mm and the number of rainy days is generally between 46 and 53 days. The number of snowy days is about 10 days. Rainfall concentrates in summer, mainly in July and August, 50-70% of the yearly total, only 5% in winter.

15. Hydrological values: (groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.)

The NR is closely situated to the west of Dalian City, which is of significance in stabilizing the seashore and trapping sedimentation.

16. Ecological features: (main habitats and vegetation types)

The NR's major function is to protect spotted seals. The spotted seals are a type of animal farrowing on ice. The adult seals migrate to the gulf each year for farrowing on ice. The baby seals grow and lose hair on ice. The nursing period for the baby seals ends by the melting and breaking off of the ice. By then they can survive independently in water. Since the icing period in Liaodong Gulf extends from the end of December to early March next year, there is a close relationship between the seals' breeding and water freezing and ice melting. The spotted seals don't live in groups during the breeding period. Only one pair of seals (a male and a female) live together on one piece of ice. The young seals born of the same parents, called a family-based group, live together on one chunk of ice. After the breeding period, the family-based group breaks up. Because of the late gestational period, some parents have to go ashore to give birth to their babies, which is quite similar to artificial breeding. The baby seals are totally white (as protective color) and covered with long, soft hair, which can resist cold. The adult seals live on ice or coastal rocky and reef areas for breeding, resting, breast-feeding and hair changing. However, they spend most of their time swimming and food seeking in water. After the breeding period, the number of the

seals inhabiting and swimming in one feeding area can reach over a hundred. Even on coastal rocky or reef areas there are often dozens of seals living together.

Breeding and growth

The mature age for male spotted seals is between 3 and 4 years old and for the female between 3 and 5. Generally, mating is done just 20 days after breeding. During the heat period, the male chases the female, mating in water. The gestational period is one year. Usually they have one young at a birth, but occasionally two. The breeding period at the NR is from January to early February. However, they are occasionally some giving birth in late February.

Migration and Distribution

During the autumn, the temperature of the water drops as the temperature changes. The spotted seals, which have entered the sea areas of China from the Sea of Japan, begin to migrate northward and travel through the Bohai Sea and enter the Nature Reserve. At this time, the NR north coast water has begun to freeze. With the coming of the cold air, the ice on the static water along the coast is continually stretching outward and becoming thicker. With the attack of the Spring tide, strong winds and waves, especially, after the coming of spring, the frozen water has begun to crack and then into pieces. The spotted seals, after entering the Nature Reserve, begin to look for their individual mating partners and then to live in couple on the floating ice for the breeding period. January and February are the coldest months. The broken pieces of floating ice continue to extend toward outside. In mid-March, the temperature goes up. The floating pieces of ice begin to melt. The young seals are often seen at the ChangXing Island of Wafangdian of Dalian City and the north coastal area of LushunKou. With the increase of temperature, the seals travel towards south and totally leave the Nature Reserve by mid-May.

17. Noteworthy flora: (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)

Coastal mudflat plants, hollow sea plants and north-temperate zone island plants. All these coastal or marine plants are unique to northern coastal line of Bohai Sea. Most of them are semi-salt water-like plants.

Science Report of the NNR, 1996.

18. Noteworthy fauna: (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

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The adult seals live on ice or coastal rocky and reef areas for breeding, resting, breast-feeding and hair changing. However, they spend most of their time swimming and food seeking in water. After the breeding period, the number of the seals inhabiting and swimming in one feeding area can reach over a hundred. Even on coastal rocky or reef areas there are often dozens of seals living together.

Since then hunting has been banned. It distributes mainly at Chukchi Sea, Bering Sea and west Pacific areas like Sea of Ochotsk, Sea of Japan, Bohai Sea, Yellow Sea and East China Sea. The NR is one of the important locations at the seals' migratory route. The NR is the spotted seals' southernmost breeding ground. During the autumn, the temperature of the water drops as the temperature changes. The spotted seals, which have entered the sea areas of China from the Sea of Japan, begin to migrate northward and travel through the Bohai Sea and enter the Nature Reserve. At this time, the NR north coast water has begun to freeze. With the coming of the cold air, the ice on the static water along the coast is continually stretching outward and becoming thicker. With the attack of the Spring tide, strong winds and waves, especially, after the coming of spring, the frozen water has begun to crack and then into pieces.

Science Report of the NR

19. Social and cultural values: (e.g., fisheries production, forestry, religious importance, archaeological site, etc.)

There was a long history of hunting spotted seals. At the Lushunkou area, the fishermen hunt nearly 1000 spotted seals annually in early 1950s. In 1960s, small power-driven boats and hunting guns were used to catch large numbers of seals. In 1970s, there were a dozen of hunting boats each winter with the killing up to more than 500, even the minimal killing to over 100. In other areas like the Changxing Island of Wafangdian, the fishermen had also a tradition in catching seals, and even some fishing instrument and tool makers and sellers also hunt a number of seals.

The site begins to provide the citizens and visitors to the tourist City, Dalian with a environmental education centers.

20. Land tenure/ownership of: (a) site (b) surrounding area

The site: State-owned

The surrounding area: collective-owned

21. Current land use: (a) site (b) surroundings/catchment

The site: Providing habitats for marine animals and ground for study and research;

The surroundings/catchment: the fishermen conduct small scales of aquaculture.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects: (a) at the site (b) around the site

At the Site:

Pollution affects the existence of animals, especially the animals' breeding period since they are very sensitive to the changes of the freezing and unfreezing seasons. The global temperature change and pollution have also imposed negative influence on the seals' lifecycle. Additionally, the frequent shipping and other human activities have affected the NR protection work.

Around the site

The major factors are fisher folks aqua-cultural and illegal hunting activities.

23. Conservation measures taken: (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

In 1982, spotted seals were listed into the categories of animals under the state protection. In 1983, the Liaoning provincial government promulgated Regulations on Protection of Wild Animals, requiring that spotted seals must be protected and hunting must be banned. Each year only a limited number of animals can be caught just to supplement the number of ornamental type animals in the zoo. But such a catching must be done by the special boat designated with the approval document and the license. The maximal catching was 15 juvenile seals in 1986. And since then only 5 young seals are caught on a yearly basis. In addition, 5 – 10 young animals, which are sent by the fisherfolks who catch them when fishing, are given to the zoos across the country each year.

According to the statistical data, the remaining population of spotted seals at the NR is currently only over 1000, falling into the endangered species. To protect the spotted seals from threatening any more, the efforts in this aspect should be strengthened. In 1983, the spotted seals were listed as the second-class animals under the state protection. Since then

hunting has been banned. The hunting behaviors of the local fishermen at the coastal area have been deterred.

24. Conservation measures proposed but not yet implemented: (e.g., management plan in preparation; officially proposed as a protected area, etc.)

The NR Management Plan has been formulated and will be put into implementation very soon.

25. Current scientific research and facilities: (e.g., details of current projects; existence of field station, etc.)
There are three field monitoring stations within the NNR for management

26. Current conservation education: (e.g., visitors centre, hides, info booklet, facilities for school visits, etc.)
Being a very simple specimen room in the NNR.

27. Current recreation and tourism: (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

Dalian is one of the famous tourism cities in China. Each year large numbers of tourists come to visit the Nature Reserve to learn about spotted seals, which are easily trained and liked very much as ornamental type animals.

28. Jurisdiction: (territorial, e.g. state/region, and functional, e.g. Dept of Agriculture/Dept. of Environment, etc.)

The NR is under the management of the Dalian Aquatic Products Bureau under the jurisdiction of the Ministry of Agriculture.

29. Management authority: (name and address of local body directly responsible for managing the wetland)

the Aquatic Product Bureau of Dalians
No. 100, Jiqing Street, Zhongshan District
Tell/Fax: +86-411-4318852
Postal code: 116001

30. Bibliographical references: (scientific/technical only)
Science Report of the NNR, 1996.

Please return to: **Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: ramsar@ramsar.org