

Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated:

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Designation date

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2. Country: Republic of the Philippines

3. Name of wetland: Naujan Lake National Park

4. Geographical coordinates: 13° 10' N; 121° 11' E

5. Altitude: 20 meters above sea level

6. Area: lakewaters : 9,538 ha
catchment : 5,030 ha

total area : 14,568 ha

7. Overview

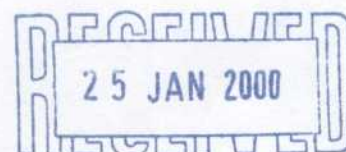
Naujan Lake, located in Naujan, Oriental Mindoro is the fifth largest lake in the Philippines. It is volcanic in origin, which extends about 14 km from north to south and 7 km from east to west. The water in the lake comes from the local run-off. However, there are no major effluents. The outlet is near the north and through the Lumangbayan River. The Eastern Shore is precipitous, but to the west the land rises gradually. There are large areas of shallow water with an abundant growth of aquatic vegetation.

8. Wetland Type:

O – Permanent freshwater lakes (over 8 ha); includes large oxbow lakes.

9. Ramsar criteria:

1a – It is a particularly good representative example of a natural or near-natural wetland, characteristic of the appropriate biogeographical region



2b – It is of special value for maintaining the genetic and ecological diversity of a region

because of the quality and peculiarities of its flora and fauna

3b – It regularly supports substantial numbers of individuals from particular groups of

waterfowl, indicative of wetland values, productivity or diversity

10. Map of site included: Yes

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

Protected Areas and Wildlife Bureau
Department of Environment and Natural Resources
Quezon Avenue, Diliman, Quezon City
Philippines

12. Justification of the criteria

The island of Mindoro is identified as one biogeographical region and Naujan Lake is the largest Lake on the Island as well as the fifth largest lake in the Philippines. The lake has 14 species of fish in 12 families. Of the 14 species, five (5) species have been identified as migratory species. These species are the milkfish (*Chanos chanos*), the mullet (*Mugil supviridis*), the jack (*Caranz ignobilis*), the mangrove jack (*Lutjanus argentimaculatus*) and another snapper (*Lutjanus* sp.). The lake is an important feeding or wintering area for large numbers of ducks (*Anas luzonica*, *Aythya fuiligula*) and other waterbirds such as herons (*Butorides striatus*, *Ardea purpurea*), egrets (*Egretta garzetta*, *E. internmedia*, *E. alba*), rails (*Rallina eurizonoides*, *R. fasciata*, *Gallirallus striatus*) and bitterns (*Ixobrychus sinensis*, *I. cinnamomeus*). The rare, as well as, resident species the Plain swamphen (*Amaurornis olivaceous*) is also found in the area.

The Lake is the type locality of the endemic species of freshwater crocodile, *Crocodylus mindorensis*.

13. General location:

The Naujan Lake National Park is located in the northern section of Oriental Mindoro and bordered by the municipalities of Naujan, Pola, Victoria and Socorro.

14. Physical features:

a. Geology

There are three rock formations reported in Naujan Lake Watershed: Pliocene to Quaternary volcanic; Pliocene to Pleistocene marine and terrestrial sediments; and Recent sediments.

The hill on the north-eastern section of the watershed that is within the territory of Naujan and Pola, is believed to have been built by Pliocene to Quaternary volcanics that consisted of non-active volcanic cone of generally pyroxene andesite including dacitic and/or andesitic plugs. The hills and the mountainous uplands in the southwest were the result of an uplift of the marine and terrestrial sediments of limestone, pyroclastics, sandstone, siltstone, shale and conglomerate during Pliocene and Pleistocene. Most of the low lying and level floodplain areas in the northwest and southeast of the watershed are the subject of continuous deposition of recent sediments consisting mostly of alluvium, fluvial, lacustrine, paludal and beach deposits that have accumulated in varying quantities.

b. Soil type

Five soil series and one miscellaneous land type were identified and described in the watershed.

The Quingua, San Manuel and Calumpang soils are associated with the broad alluvial plains. The Calumpang series are poorly drained soils occurring in concave areas of the flood plain. The Quingua and San Manuel soils are the well-drained soils of the stream flood plains of Naujan and Victoria. San Manuel is the most widespread and occupies the natural levees of streams on the western and the narrow southeastern plain areas. The Quingua soils occupy the slightly elevated, undulating section of the floodplain.

The Luisiana and Bulaoen soils were described in the gently sloping and mountainous sections of the watershed. The Luisiana soils are on slopes that range from 9 to 50 percent, while the Bulaoen soils are on slopes ranging from 16 to 50 percent.

The only miscellaneous land type is the Hydrosol, which is confined to the marshland located east of Naujan Lake.

c. Hydrology

Majority of the areas within the Naujan Lake watershed, particularly in the western side, is classified as shallow and deep well areas. The areas on the northern and eastern side, which are mostly mountainous, are, classified as difficult areas.

Shallow well areas have wells within 20 m below ground surface with static water level generally in the range of 6 m below ground surface. In deep well areas, aquifers or water-bearing formations are generally located at a depth of more than 20 m below ground level. There are artesian wells that are continuously flowing and require no pump for water extraction. There are also no observable changes in the quantity, as well as in the quality, of discharge during dry and wet periods of the year. These relatively constant flow characteristics have also been observed so far throughout the whole period of operation of the Wells indicates the vast groundwater reserve of the area.

Difficult is mostly replenished with water by way of the secondary permeability of various rocks. These characteristics predominantly exist in places where there are faults and other geologic discontinuity. Springs may be found in these areas but these are often located in mountainous areas.

Free flowing water is evident in the northern portion of the park. It serves as a source of water supply in the community. Several pockets of hot springs are also present in the northern portion of the park. The watershed that covers the National Park is drained by Balud Creek, Macato River, Borbocalon River, Malabo River, Malayas River, Mambog River, Cusay Creek and Malang River in the West; Subaan River in the South; and Tigbao Creek and Bambang Creek to the East. After temporary deposition, water that drains into the lake finally exists to Tablas Strait via Butas River located north of the National Park.

d. Climate

Naujan Lake exhibits humid tropical climate with rainfall more or less evenly distributed throughout the year. The average annual rainfall is about 2,000 mm. and the mean monthly temperature range from 28°C to 32°C.

15. Hydrological values:

Rainfall is evenly distributed throughout the year over the area of Naujan Lake. As a resource water can either be directly consumed or used as an input to production systems. In both cases, the volume of available water from both surface waters, such as lakes and streams, and groundwater reserve becomes critical if the demand for the resource increases. Majority of the areas within the Naujan Lake Watershed is classified as shallow and deep wells. Shallow wells are appropriate for rural water supply. The populace likewise uses deep wells/springs as source of drinking water. The water that comes from the source has a good water quality.

Most of the people in the area depend on the Lake for their livelihood, especially through fishing. Gastropods such as *Ampullaria luzonica* and *Vivipara angularis* are also collected to support the duck egg production industry.

16. Ecological feature:

There are five (5) vegetation types present within the Naujan Lake watershed: (1) Parang type of vegetation (grassland-brushland type) ; (2) remnants of old-growth lowland dipterocarp forests; (3) mixed mangrove swamp-beach forest type; (4) marshland type of vegetation, and; (5) a mosaic of young broad leafed secondary forests, riparian forests, rice paddies, sugarcane fields, coconut-citrus-banana plantations, cash crop areas and swidden fields.

17. Noteworthy flora:

The flora of the Naujan Lake National Park is rich. It is composed of 46 ferns species, 43 grasses, 147 herbs, 67 shrubs, 50 vines, 34 lianas, 9 epiphytes, 21 tree-like plants, 74 small trees, 91 medium-sized trees and 31 large-sized tree. Other Species that are present elsewhere within watershed zone of Naujan Lake National Park are: *Cephalostachyum mindorensis*, *Leucosyke mindorensis*, *Calamus mindorensis*, *Mizoneuron mindorensis*, *Elatostema halconense*, *Anisoptera thurifera*, *Dipterocarpus grandiflorus*, *Parashorea malaanonan*, *Shorea contorta*, *Shorea negrosensis* and *Shorea palosapis*.

18. Noteworthy fauna:

Herpetofauna

A total of 17 herpetofaunal species were recorded, five of which are amphibians and 12 are reptilian species. Among the five amphibians, the ranids were the most common species observed in the area. *Rana magna* or the Philippine Woodland Frog is an endemic species that has been observed in the area.

Of the 12 species of reptiles, only six species were directly observed, i.e., geckoes, lizard and skinks. The monitor lizard (*Varanus salvator*) is one species that thrives in the area. *Crocodylus mindorensis* (freshwater crocodile) was identified from the area.

Avian Community

A total of 68 species of birds belonging to 33 families were recorded. The most dominant avian species are the bitterns and egrets (Family Ardeidae) with eight species, followed by doves and pigeons (Family Columbidae) and the swifts and swiftlets (Family Apodidae)

Naujan Lake National Park is home to at least 15 species of waterbirds. The most frequently encountered species in the marsh area are the egrets, herons and terns, five of which are migratory species (e.g., *Egretta garzetta*, *E. intermedia*, *E. alba*, *Dendrocygna arcuata* and *Aythya fuligulia*). Other birds observed near the marshland are the *Rallina eurizonoides* (Philippine banded crane). A rare *Amaurornis olivaceus* (Plain swamphen) is a resident-breeding species found in the area. The most frequently and highly abundant species observed are species belonging to Family Estrildidae. A migrant *Motacilla cinerea* (Gray wagtail), *Haliastur indus* (Brahminy kite), and the Philippine endemic *Sarcops calvus* were likewise observed.

There are two other species endemic to the island namely; *Ninox mindorensis* (Philippine hawk-owl) and *Penelopides panini mindorensis* (tarctic hornbill).

Mammalian Community

A total of 13 mammals belonging to seven families were recorded. Four species of bats were observed. These are: *Cynopterus brachyotis* (the common short-nosed fruit bat), *Macroglossus minimus* (the Dagger-toothed flower bat), *Rousettus amplexicaudatus* (the common rousette), and the Philippine endemic, *Ptenochirus jagori* (the musky fruit bat). Other mammals recorded were the murids *Rattus exulans* and *Mus musculus* and the Philippine deer *Cervus mariannus*.

Fish Species

A total of 14 species of fish in 12 families were observed present in the Lake. Of the 14 species, five species were identified as migratory fishes. These are: the milkfish (*Chanos chanos*), mullet (*Mugil supviridis*), jack (*Caranx ignobilis*), mangrove jack (*Lutjanus argentimaculatus*) and another snapper (*Lutjanus* sp.)

19. Social and cultural values:

The direct resource users are the fisherfolks and farmers composed of the "damuong" and the Mangyan. The term "damuong" is used to refer to all non-Mangyans. The Mangyans are the indigenous people of Mindoro and those associated with the Lake belong to the Tadyawan tribe. Fishing is a primary occupation and source of income in the area.

Residents of Naujan value the lake because it is its only source of drinking water, water for laundry, bathing and irrigation. Moreover, Naujan Lake possess aesthetic beauty and has potential for tourism.

20. Land tenure / ownership:

Naujan Lake National Park is state-owned.

21. Current land use:

Naujan Lake National Park is located in Mindoro Oriental. It has an area of 14,567.82 hectares. It consists of the lake, with a surface area of 8,125 hectares, 1,412 hectares of swamp west of the lake and 5,030.32 hectares of catchment area. The National Park is bounded by Naujan Lake Watershed estimated to be about 30,000 hectares. Seven (7) major rivers drain the watershed.

All surface water and sediment loads draining from the upland areas of the watershed are temporarily stored into Naujan Lake. Part of the lake water draining into the ocean is temporarily diverted to irrigate paddy fields along the Butas River. Settlement areas adjacent to the lake are expanding while production areas devoted to paddy rice have no significant change. Areas previously mapped as forest are now extensively grown to perennial crops.

Tall grasses still predominantly cover swamp areas. A few patches of paddy fields were noted.

Along the hilly mountainous forest areas of the watershed, many trees especially on the hilly areas had been cut except for a few individual tree or few patches of trees on ravines.

The trend in terms of land use was found to be towards further encroachment of the few remaining secondary forests, and their subsequent conversion to cultivation of perennial trees. Settlements are expected to expand.

22. Factors adversely affecting the site's ecological character, including changes in land use and development projects:

A. Aquatic Environment

1. high fishing pressure
2. encroachment on fish sanctuary
3. harvesting of protected endemic/migratory fish species
4. lakewater use conflicts

B. Swamps and Marshlands

1. land use conversion and settlement
2. poaching/hunting/harvesting of forest products

C. Hydrology/Water Resources

1. water use conflict
2. landuse conversion and settlement
3. use of agricultural chemicals
4. kaingin
5. non-appreciation of watershed functions

D. Sociocultural and Economic

1. Proper identification of stakeholders
 2. Perceived need to reduce dependence on resources
 3. In-depth assessment of resource use conflicts
 4. Lack of people empowerment
 5. Varied levels of environmental ethos
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23. Conservation measures taken:

Naujan Lake was declared as national park under Proclamation No. 282 dated March 27, 1956, as amended by Proclamation No. 335 dated January 25, 1968. It has been included as one of the initial components of the National Integrated Protected Areas System (NIPAS) pursuant to the NIPAS Act of 1992 (Republic Act No. 7586).

24. Conservation measures proposed but not yet implemented:

Naujan Lake National Park is proposed to be proclaimed as Protected Landscape under the National Integrated Protected Areas System. The documents required leading to its proclamation has already been submitted to the Office of the Secretary for subsequent endorsement to the President of the Philippines.

24. Current scientific research and facilities:

Department of Agriculture-Bureau of Fisheries and Aquatic Resources has established a Limnological Laboratory and an experimental fish pond in the area. There is a continuing Water Quality and Resource monitoring of the lake conducted jointly by DENR Region IV, the Protected Areas and Wildlife Bureau and the Wild Bird Society of Japan.

The SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA) conducted baseline studies and made a comprehensive profile of Naujan Lake and its adjacent watershed.

26. Current conservation education:

Consultations are conducted by DENR field operations personnel with the lakeshore barangays (villages) every quarter on areas such as conservation, fishing methods, protection of the lake and the National Integrated Protected Areas System Act.

27. Current recreation and tourism:

The Park has existing park facilities including the two (2) picnic tables, one (1) rest house at Minglit Point and one (1) guard house at barangay Malabo. The park is good for outdoor recreation activities such as boating, picnicking, bird watching, educational tour and scientific research.

28. Jurisdiction:

Department of Environment and Natural Resources, Region 4

29. Management authority:

As provided for under RA 7586 otherwise known as the National Integrated Protected Area System Act, a Protected Area Management Board (PAMB) organized in the area is the decision making body over the area. The PAMB is chaired by the Regional Executiver Director of the DENR Region 4.

30. Bibliographical reference:

Davies, J.; Magsalay, P.M.; Rigor, R.; Mapalo, A.; and Gonzales, H. 1990. A Directory of Philippine Wetlands. Asian Wetland Bureau Philippines Foundation Inc. Volume II. 444 p.

_____. 1997. Comprehensive Profile of Naujan Lake National Park and Adjacent Watershed. SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA). 142 p.