

## Ramsar Information Sheet

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**1. Date this sheet was completed:**

1.9.1996

**2. Country:**

Israel

**3. Name of wetland:**

Hula Nature Reserve

**4. Geographical co-ordinates:**

n33°04'43" E35°35'33"

**5. Altitude:**

65 msl

**6. Area:**

300 ha

**7. Overview**

The Hula Nature Reserve is a man made wetland. It is an attempt to restore part of the drained Hula lake and swamps (6,300 ha). It was created during the draining (soil rehabilitations) of the Hula swamps (1955-1958), by soil dikes built across the western side of the old Hula lake. The reserve has two types of water bodies:

- a. permanent waters, including : "the lake" - 30 ha, "sedimentation reservoir" - 22 ha and "the western pool" (spring water) 0.4 ha;
- b. intermittent waters, including: "the saduq" with low quality water 20 ha), "the 50 dunam" (5 ha), "the 100 dunam" (10 ha) and some wet meadows - "The 400 dunam" (40 ha) and the "the western meadows" (40 ha).

**8. Wetland type:**

S + T (Freshwater marshes/pools: permanent & intermittent)

**9. Ramsar Criteria:**

**10. Map of site included:**

attached

**11. Name and address of compiler:**

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**12. Justification of criteria selected under point 9:**

The Hula Nature Reserve wetland should be considered as internationally important site as it is :

1(a) a particularly good representative example of a near-natural wetland, characteristic of the Levantine region, and the largest swampy reserve of this region.

1(c) a good representative example of a wetland, which plays a substantial biological and ecological role in the natural functioning of the Upper Jordan River system.

2(a) It supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant, or animal, or an appreciable number of individuals of any one or more of these species (species list in Dimentman et al., 1992).

**13. General location:**

Northern Israel, southern Hula valley, about 15 km south (170°) of the town of Qiryat Shemona.

#### **14. Physical features:**

**Geology & Geomorphology:** The Hula nature reserve is located in the Jordan rift valley, on the area of the Hula lake with the upper layers of calcareous lake sediments of the Ashmora formation.

**Hydrology:** The water license from the water commissioner includes 4.0 mcm (million cubic meter) from the Western Canal and fish ponds (polluted Jordan river water); 0.5 mcm of spring water (clean water); Flood water from the Enan and Eliezer streams.

**Soil type:** mainly lake sediments of silty soils (late Pleistocene to Holocene) with some peat soils patches in the north.

**Depth, fluctuations and permanence:** The annual water level of the main “lake” is artificially maintained between the altitude of 64.40-64.70 msl. The peripheral water bodies are mostly governed by the water level of the groundwater.

**Catchment area:** The reserve is surrounded by a drainage canal; the catchment area of the Eliezer and the Enan streams are only a few hundred ha.

**Downstream area:** The reserve has no importance for regional flood control (free water capacity is very limited).

**Climate:** Hot Mediterranean climate typical to the Jordan valley with about 400 mm/year rainfall in winter time (November to April) and hot and dry summer (up to 40-41°C).

#### **15. Hydrological values:**

- a. The reserve water bodies serve only as flood control reservoirs for the small streams of Eliezer and Enan.
- b. The Hula water bodies are filled with about 4 mcm/year used water from fishponds, agricultural and partly treated domestic sewage. They serve as sediment and organic-load trapping system in order to prevent its reaching the Sea of Galilee through the Upper Jordan River.

#### **16. Ecological features:**

The reserve contains some wet habitats with the following plan zones:

1. The open limnetic water;
2. The *Nuphar* belt (restricted);
3. The *Cyperus papyrus* - *Polygonum* belt;
4. The *Phragmites australis* - *Scripus lacustris* belt;
5. The *Rubus sanctus* belt;
6. The *Tamarix jordanis* and *Populus euphratica* - riparian forest along the canals;
7. The *Paspalum paspaloides* - *Phyla nodiflora* - wet meadows (winter flooded);
8. The *Trifolium fragiferum* - *Cynodon dactylon* - semi-wet meadows (winter flooded).

#### **17. Noteworthy flora:**

See attached list

#### **18. Noteworthy fauna:**

See attached list (Status: **x**=extinct; **e**=endangered; **v**=vulnerable; **r**=rare; **i**=intermediate; **k**=insufficiently unknown; **o**=out of danger).

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

There are no religious or archaeological sites in the nature reserve area. The nature reserve is close to fishermen and anglers, fish are caught only for management by the Reserve team. A small planted forest of Eucalyptus is only used for daily recreation.

#### **20. Land tenure/ownership of:**

- a. site: Government land, managed by the Nature Reserves Authority (NRA).
- b. surrounding area: Agricultural, long-term rented governmental land held by the Qibbuz and Moshav (different collective settlements) farmers and a village farmers (Yesud haMa'ala). These settlements are under the jurisdiction of the Regional Council “Upper Galilee”.

#### **21. Current land use/principal human activities:**

- a. site: The Hula nature reserve is designated solely for nature conservation.

- b. surrounding area: The Hula valley is a rural area with two regional councils (Mevo'ot Hermon & Galil Elion) with 15 Qibbuzim: Ayyelet HaShahar, Gadot, Hulata, Gonen, Lahavot haBashan, Ne'ot Mordekhay, Kefar Blum, Amir, Sede Nehemya, Shamir, Kefar Szold, Dan, Dafna, haGhoshrim and Ma'yan Barukh and the 3 moshavim : Mishmar haYarden, Sede Eliezer and She'ar Yashuv. One Moshava - Yesud haMa'ala and a town with 15,000 inhabitants - Qiryat Shemona.

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

a. at the site: The human activities at the site are very limited. The reserve is open to the public only between 0800 and 1700, access is restricted to the recreational area and the trails which cover less than 3% of the reserve area.

- There are no settlements nor inhabitants in the site area.
- The site is closed to fishermen and hunters

The following exotic species have entered the reserve: the American snail - succinea (*Pseudosuccinea columella*); the mosquito-fish (*Gambusia affinis*); the carp (*Cyprinus carpio*); the rodent coypu (*Myocastor coypus*); and some trees and plants: eucalyptus (*Eucalyptus camaldulensis*), melia (*Melia azedarach*), morus (*Morus nigra*), phytolacca (*Phytolacca americana*), conyza (*Conyza canadensis*) and others.

b. surrounding area:

- Shortage of water supply in dry years, also due to over pumping for the surrounding agricultural area
- Supply of high organic load from the urban sewage and from fishponds nearby
- Pesticides from the nearby agricultural fields (mainly cotton fields)
- Mice poisoning in the nearby fields during the migrating season.
- The proposed development of ece-tourism in the nearby area.
- Accelerated sedimentation rate in the water bodies due to high organic load water.

## **23. Conservation measures taken:**

Water: there is a water permit from the Water Commissioner for about 4.0 mcm/year of used water and 0.5 mcm of spring water. The seasonal management of the water regime copies the natural regime of the old Hula lake and swamps.

- A reservoir in proximity to the reserve (built in 1981) designated also to maintain water supply to the reserve during the irrigation season.
- The government recently (1995) decided to cover the total expenses of water pumping to the reserve.
- A governmental programme is being carried out in steps to improve the entire water supply and drainage systems in the southern Hula valley. This programme will maintain clean freshwater at the "western canal", the main water source of the reserve. This result will solve the main problem of the reserve today - water quality.
- A new wetland "The Hula project" was created in the drained peat-soils. A manmade lake (110 ha) has been filled with water since April 1994 (about 0.5 km north of the reserve). The second development stage for eco-tourism is presently being carried out. This project changed a 500 ha of cultivated land and serves now as part of buffer belt.
- The whole Hula valley (including the fishponds) is closed for waterfowl hunting (the NRA is also responsible for enforcement of hunting legislation in Israel).
- Vegetation control, to protect the open meadows and prevent their closing by the tamarisk groves it used water buffalo grazing instead of mechanical mowing. A herd of about 100 females and few males are held under the grazing system in the reserve. Every autumn about 90-100 calves are sent to the market.

## **24. Conservation measures proposed but not yet implemented:**

- improving the water quality of the sources - the western canal (long-term work)
- enlarging the number and the area of peripheral water bodies
- improving the canal and drainage system of the reserve.

## **25. Current scientific and research facilities:**

There are current monitoring programmes under the supervision of the NRA, northern district biologist and the science division as part of the Scientific management Programme. The monitoring programme is annually summerised and reported in the Annual scientific report of the The Hula Nature Reserve (in Hebrew). The annual report also includes these monitoring programmes:

1. Daily and monthly visitors in the reserve;
2. The current water supply to the reserve (monthly divided by sources);
3. Water quality in 8 selected sites (bi-monthly measurements);
4. Water level in ponds, reservoir and the lake (weekly measurement);
5. Waterfowl monitoring transects (4 trails bi-weekly);
6. Vegetation monitoring transects (4 trails twice a year);
7. Monitoring grazing impacts of water buffalo;
8. Reintroduction of endangered and vulnerable species like the White tailed eagle (*Haliaeetus albicilla*); little tern (*Sterna albifrons*) and papyrus (*Cyperus papyrus*).

**26. Current conservation education:**

A new ecological guiding center was initiated in 1996, for wetland ecological guiding tours in the nature reserve and the “biotope” curricula studies for 11<sup>th</sup> year grade high school pupils (about 17 years old). Last school year (1995/6), about 1,300 pupils were guided, including about 40 11<sup>th</sup> grade pupils took the “biotope” programme.

**27. Current recreation and tourism:**

- a. Less than 3% of the reserve is developed for human use (the rest is closed to the public, except for scientific purposes and management). There is a visitor center, 2 m wide trail (developed also for wheelchairs use) with view points, waterfowl observation tower and hidden trail on columns in the western part of the lake. Recreation facilities include toilets, parking lot, cash shed and small refreshment kiosk. The visitors number is about 100,000/year (entrance fees are about \$4 for adults and \$2 for pupils).
- b. There are plans to build 3 classes and facilities for ecological education (Ch. 25).

**28. Jurisdiction:**

Declared as nature reserve in the Israeli official gazette no. 1653 (26 November 1964).

**29. Management authority:**

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**30. Bibliographical references:**

Dimentman, Ch., Bromley H.J. & F.D. Por, 1992. Lake Hula. The Israel Academy of Sciences and Humanities. 170 +24 pp. Jerusalem (including 524 bibliographic references).  
Paz, U. 1976. The rehabilitation of the Hula reserve. Nature preservation in Israel: researches and surveys. 1:116:116-206 (translated to English). Nature reserves Authority, Tel Aviv.