

1. **Date this sheet was completed/updated** 1/6/1998

2. **Country:** Greece

3. **Name of wetland:** Lake Mikra Prespa

4. **Geographical coordinates:** lon: 21<sup>0</sup> 05' lat: 40<sup>0</sup> 46'

5. **Altitude** (average and/or max. & min.): 853 m

6. **Area (in hectares):** 5,078

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

It is an inland lake of maximum depth 8 m, and is separated from Lake Megali Prespa by a narrow strip of alluvial deposits. Extensive reed beds occupy the margins of the lake. There are also characteristic formations of rooted aquatic plants with large floating leaves, and submerged species. It is an important area for a high variety of aquatic birds, and it is the only site in Europe that supports mixed colonies of Dalmatian and White Pelicans.

8. **Wetland type** (please circle the applicable codes for wetland types as listed in Annex I of the Explanatory Note and Guidelines document):

**marine-coastal:** A · B · C · D · E · F · G · H · J · K

**inland:** L · M · N · Q · P · Q · R · Sp · Ss · Tp

Ts · U · Va · Vt · W · Xf · Xp · Y · Zg · Zk

**man-made:** 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9

Please now rank these wetland types by listing them from the most to the least dominant: O, Tp, Ts, 3

9. **Ramsar Criteria:** (please circle the applicable criteria; see point 12, next page)

1a · 1b · 1c · 1d | 2a · 2b · 2c · 2d | 3a · 3b · 3c | 4a · 4b

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

10. **Map of site included?** Please tick yes  or no

(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:**

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## **12. Justification of the criteria selected under point 9, on previous page**

Criterion 1: see Section 14

Criterion 2: see Sections 16, 17, and 18

Criterion 3: see Section 18

Criterion 4: see Section 18

**13. General location:** It is situated in the north-western part of Greece, in Dytiki Makedonia, at the border with Albania (about 5 km of coastline of the lake are in the Albanian territory ) and in proximity to the border with the Former Yugoslav Republic of Macedonia (FYROM). The town of Florina (12,622 inhabitants) is the Florina Prefecture administrative centre. and it lies west of the lake at a distance of 23 km.

## **14. Physical features:**

Geology and geomorphology: The site is part of a karstic basin, surrounded by steep mountain slopes while to the north it is separated from Lake Megali Prespa via a narrow alluvial isthmus. The average altitude of the lake is 853 m. Two small islands (10 ha) are found within the lake, Aghios Achillios and Vidronissi. The bedrock on the western side consists mainly of limestone, while on the eastern side granites and gneisses predominate.

Origins: It is a natural ecosystem.

Hydrology: Main inputs are surface inflow and groundwater additions from underground seepage, while the lake is drained by a single artificial outflow, via the Koula channel into Megali Prespa. Additionally, unquantified losses occur by underground seepage to Megali Prespa and Lake Ochrid (located in FYROM).

Soil type and chemistry: The agricultural area east of the lake consists of alluvial soils recently formed. Most soils are of low fertility, and some are problematic i.e. low pH values, high percentage of stones and gravel.

Water quality (physico-chemical characteristics): It is considered as mesotrophic, although some scientists suggest that the lake would be classified as meso-eutrophic. Concentration of nutrients is not very high but phytoplankton biomass is increased.

Depth, fluctuations and permanence of water: Its maximum depth is 7.7 m and the mean 6.7 m. The water balance of the lake shows a seasonal variation with an average range of 0.9-1.3 m.

Catchment area: The catchment area of Lake Mikri Prespa is about 70 km<sup>2</sup>.

Climate: The climate is characterised as intermediate between Mediterranean and mid-European types. The average air temperature is 12<sup>0</sup>C and the average annual precipitation is 752 mm. The mean temperature of the coldest month (January) is 1-2<sup>0</sup>C and the mean temperature of the warmest month (July) is 21-21<sup>0</sup>C. Snowfall has a mean annual frequency of 25 days.

**15. Hydrological value:** The main value is irrigation water supply which it is considered as the main source for irrigation water in the area.

**16. Ecological features:** The lake is surrounded by extensive, dense reedbeds the width of which range from 5-10 m (at the steep slopes) to several hundred meters at the northern and eastern shallow shores which support the breeding colonies of several Ardeidae and two Phalacrocoracidae. A large inner lake, Vromolimni, is located at the northern reedbed and its islands, along with the surrounding reedbed have supported the Dalmatian and Great White pelican colonies more or less consistently since 1968. The southern reedbed at the Greek Albanian border, is characterised by a more complex structure with an emergent vegetation / open water ratio from 1:1 to 1:2. Small islets in the water openings have also supported colonies of both pelican species. Of great ecological importance are the periodically flooded meadows located between the agricultural land and the northern reedbed, which serve as feeding sites for many water birds and as spawning areas for the lake's fish populations.

The wetland vegetation is characterised by three communities which appear from the open water to the inland; a) the floating leaved plant communities, class Lenmetea, which is located in the inland open fresh water, b) the submerged and emergent aquatic plant communities, class Potametea, which are located in the inland open fresh water, c) the inland fresh marsh plant communities, class Phragmitetea, which grow on the periphery of the lake.

**17. Noteworthy flora:** The wetland area and the surroundings maintain a valuable and impressive flora with over 1500 plant species of ferns and seed plants. In the wetland area the dominant cover type is the marsh vegetation on the periphery of the lake located mainly at northern and eastern areas. *Phragmites australis*, *Typha angustifolia*, *Scirpus lacustris*, *Iris pseudacorus* formulate the reedbeds of these areas. The aquatic plant communities of the lake are characterised by the following species: *Ceratophyllum sp.*, and *Myriophyllum sp.* (they provide valuable habitat for fish species), patches with *Trapa natans* (classified as "vulnerable" by the IUCN catalogue), *Salvinia natans* (is included in the WCMC list) and *Nymphoides peltata*, and also *Nuphar lutea*, *Nymphaea alba*, and *Potamogeton sp.* In the surrounding area of the lake there is the endemic species *Centaurea prespana*.

**18. Noteworthy fauna:**

The structural diversity of wetland's vegetation and the periodic fluctuation of the water level are the main factors which result in the impressive number of animal species. 260 bird species use the various habitats of the area for breeding, feeding, other biological activities and as a station in their spring and fall migration. Sixty five species are included in Annex I of the 79/409/EEC Directive and 23 of them breed in the area. The total number of migratory birds is 163 species of which 55 are included in Annex I. The lake is the most important breeding site for *Pelecanus crispus* (400-500 pairs, 5-7% of the world population) which is characterised as vulnerable on a world basis by IUCN Red Data Book, while it is the only *Pelecanus onocrotalus* (51-100 pairs) breeding site in Europe. Furthermore, it is the only site in Europe (apart from the Danube Delta) which supports mixed colonies of the two pelican species. A large number of colonial wading bird species are also breeding: *Phalacrocorax pygmeus* (800 pairs), *P. carbo* (600 pairs), *Ixobrychus minutus* (11-50 pairs), *Ardeola ralloides* (11-50 pairs), *Egretta garzetta* (11-50 pairs), *Ardea purpurea* (1-5 pairs), *Circaetus gallus* also breed in the area, and at least 3 pairs of *Aquila Chrysaetos* is resident. Other breeding species, not included in Annex I, with significant number of pairs are *Podiceps cristatus* (51-100 pairs and almost 2000

individuals wintering), *Anser anser* (50-70 pairs, the lake is considered as their main breeding site in Greece), *Mergus merganser* (10-20 pairs), *Egretta alba* (20-30 pairs)..

In Annex II of Council Directive 92/43/EE the following fauna species are included: one mammal: *Lutra lutra* (also “endangered”), 4 amphibians and reptiles: *Triturus cristatus*, *Bombina variegata*, *Testudo hermanni*, *Emys orbicularis*, 3 invertebrates: *Lycaena dispar*, *Lucanus cervus*, *Morimus funereus*, 5 fishes: *Alburnus albidus*, *Phoxinellus spp.*, *Rutilus rubilio*, *Barbus plebejus*, *Cobitis taenia*. Moreover, six endemic fish species have been identified: *Alburnoides bipunctatus ohridanus*, *Rutilus ohridanus prespensis*, *Chondrostoma prespensis* (also “rare”), *Barbus prespensis* (also “vulnerable”), *Chalcalburnus belvica*, *Cobitis meridionalis*. Other noteworthy mammal species of the area and its surroundings are: *Rhinolophus ferrumequinum* (“vulnerable”), *Pipistrellus nathusii* (“endangered”), *Glis glis* (“vulnerable”), *Canis lupus* (“vulnerable”), *Ursus arctos* (“endangered”), *Meles meles* (“vulnerable”), *Felix silvestris* (“endangered”).

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

Agriculture and grazing constitute the primary activities of the local people.

The lake supports significant fish populations with commercial and food value for humans. Two fishing methods unique in Greece are used in the lake.

Also it is on a local scale important for tourism, angling, outdoor recreation and it is nationally important for environmental educational and scientific research.

Hunting represents a social and cultural value, and it takes place in a regulated manner .

Since 1990, local authorities and residents have taken increasing pride in the fact that the site is a designated National Park which may be attributed also to the development of a value for eco-tourism, environmental education and bird watching, although relevant facilities are poor. Moreover the area is of great scientific value in the fields of biology, ecology, hydrology and geology.

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

Site: State owned

Surrounding area: Some meadows are privately owned and some are property of local communities. The agriculture zone is of multiple private ownership.

**21. Current land use:**

Site: Fishing with boats and nets is the current land use of the lake with a production of 55 tn (1986). The lake water is abstracted for irrigation purposes. Also, grazing of a few sheep and cattle occurs in the wet meadows.

Surroundings/ catchment: Intensive agriculture, mainly beans and forestry.

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

It is believed that wet meadows in the site were reduced at about 25% between 1945 and 1984. In the early sixties, with the construction of the first irrigation works, several wet meadows were drained with consequent negative impact on the avifauna and possibly on fish populations. During the last 15 years at least, the outflow of water from Mikra Prespa to the Megali Prespa lake is seasonally regulated by means of constructing a conductor of cement and a sluice gate at the Koula channel. This management is applied according to

rainfall and irrigation needs, by the local authorities in parallel to a wet meadows management project.

Fish production has been gradually reduced mainly due to intensive fishing and unsustainable fishing methods. As since 1970, burning of reedbeds has been prohibited, fish populations can not pass through the reedbeds to wet meadows to spawn, therefore reed bed management is a priority issue for fisheries. Introduction of alien fish species has also taken place in the past (*Carassius auratus gibelio*, *Ctenopharyngo idella*, *Hypophthalmichthys molitrix*, *Aristichthus nobilis*, *Tinca tinca*, *Parabramis pekinensis*) but only a few individuals of these species have been caught since then.

Grazing is possibly a factor impeding the regeneration of the forest of *Juniperus foeditissima* and *J. excelsa*. However, the number of grazing animals is not high and grazing is under regulations and prohibitions. Hunting pressure is managed by regulations in force, and illegal hunting has been gradually decreased.

Bid scale development projects were intended for the area in the 80's, including modernisation of agriculture outside the site, construction of a hydroelectric dam, construction of a Conference Centre on Agios Achillios islet and the establishment of an industrial fish production Unit. After a high publication of the possible impacts of these projects to the site, the dam and the Conference center have been rejected by the authorities. Technical works related to maintenance of irrigation channels and extension of irrigation systems were carried out in the surrounding area and they temporarily disturbed the traditional naturalness of the surrounding area. The fish production unit was constructed but it was never put in operation.

A procedure for approval of Environmental Terms for a number of works and activities through Environmental Impact Studies has been established in Greece in 1990. Aiming to holding back the further loss and degradation of the site, all relevant planned works have been examined under this procedure by the Environmental Authorities and only a few new interventions have been allowed, ensuring the conservation value of the site.

**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)

It is the core area (absolute protection area) of the "Prespa National Park". The area has been declared by Presidential Decree since 1974 and includes a core zone (lake Mikri Prespa, reedbeds, wet meadows and small land areas) and a surrounding zone (Lake Megali Prespa, agricultural land, grazing fields, forested areas). A revision of the legal text is under process.

The site has been proposed for inclusion in the NATURA 2000 network under the code GR1340001 and is already an SPA under the same code.

A Preliminary Management Scheme has been established in 1997 on the site by a Programme Agreement signed by the Ministers of Environment and Agriculture, the Regional Environmental Services and Local Authorities. It comprises a Joint Committee for the steering of the implementation, it has a flexible administration and the required secretariat/ co-ordination support provided is by a Local Development Institution. The

Programme Agreement has an Annex with the planned works and activities, their timetable (1997-1999) and budget. Priority actions the construction and operation of three Information Centres, training of personnel, reintroduction of local species in the area, warding of the site,.

Preliminary Management Schemes have a three-fold aim: 1) to respond quicker to the matters that arise concerning the every day management problems of the sites and 2) to carry out projects concerning infrastructure, monitoring and management, and 3) to co-ordinate relevant authorities in working out the further priorities for the management of the sites.

The Society of the Protection of Prespes with the participation of 11 farmers, is undertaking a program for biological cultivation of beans in an area of 7 ha. The same society is also undertaking environmental education programs. It provides to the villagers pieces of advice for the reforming of traditional buildings, promotes the commerce of local products, it established a local commercial centre, it forwards ecotourism and takes protection measures for the endemic subspecies of trout, supports restoration of traditional watermills, organises volunteer programs. It also prepared a study for the importance of the Ag. Germanos surrounding area to be considered as part of the National Park.

A transboundary Committee between Greece and Former Yugoslav Republic of Macedonia (FYROM) for the planning and controlling of works and activities for the protection of the environment has been established through INTEREG II and FAR CBC projects.

The site is included in the Montreux Record since 1990. Under the Management Guidance Procedure a mission that visited Greece in 1988 described the main problems of the area.. Another mission that visited Greece in 1989 described the situation further.

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

Further Management proposals not yet officially approved are being elaborated for many aspects of the management of the site, including also the establishment of a permanent Management Scheme. Conservation projects proposed are in accordance with the "Guidelines on Management Planning for Ramsar sites and other Wetlands".

A project of incentives for the voluntary implementation of management measures in agricultural land (using the agri-environmental regulation 2078/92) is under the process of approval. The project includes promotion of biological cultivation, reduction of grazing, long-term pause of cultivations and reduction of the amount of fertilisers used.

**25. Current scientific research and facilities:** (e.g. details of current projects; existence of field station etc.)

Numerous research projects, some complete and some on-going study mainly fish, pelicans and wet meadows.

A project is in progress for monitoring and conservation of *Phalacrocorax pygmaeus* and *Anser erythropus* undertaken by WWF and the Hellenic Ornithological Society with the collaboration of the Society for the Protection of Prespes.

The Society of the Protection of Prespes in collaboration with the Tour du Valat Biological Station, is undertaking an inventory and monitoring of Pelican Species, and fish population monitoring.

A guest house for researchers and volunteers is available.

**26. Current conservation education:** (e.g. visitors centre, hides, information booklet, facilities for school visits etc.)

The educational potential of the wetland is one of the highest in Europe. The society for the Protection of Prespa has established two Information Centres for visitors, one is located in the village of Ag. Germanos and the other in the village of Psarades.

The establishment of three more Information Centres is planned, in existing old traditional buildings with infrastructure that will support the activities of information - public awareness, environmental education, monitoring etc. Specific actions of information and public awareness include special publications, video tapes, CD Roms, organisation of workshops and guided tours of visitors and schools.

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

The wetland is not used for recreation or tourism with the exception of trips to the islet of Ag. Achillios. The wider area is gradually becoming very popular during main holiday seasons, even though tourist facilities are still limited and a total of about 100 beds are available in hotels and rented rooms. Local Women Co-operatives are running the two major hostels and there are some tavernas within the nearby villages.

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

Territorial jurisdiction over the site has the Region of Dytiki Makedonia. Concerning the functional jurisdiction, co-ordination lies with the Ministry of Environment and the Ministry of Agriculture in collaboration with the Prefecture of Serres and Local Authorities.

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

The Preliminary Management Scheme is guided by a Joint Committee presided by the Head of the Prefecture of Florina.. The authority responsible for the management of the National Park is :

Forest Directorate of Florina,

54 I. Arti Str. 9

GR-53100, Florina,

GREECE

Tel: 0030-385-22529, Fax: 0030-385-25722

**30. Bibliographical references:** (scientific/technical only)

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