

Sitename:-Natural and Cultural Heritage of the Ohrid region

Site Description:-Situating on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mainly between the 7th and 19th centuries, it has the oldest Slav monastery (St Pantelejmon) and more than 800 Byzantine-style icons dating from the 11th to the end of the 14th century. After those of the Tretyakov Gallery in Moscow, this is considered to be the most important collection of icons in the world



Conservation Outlook

Rating:-Significant Concern

Justification:-The natural values of the site are under pressure from unsustainable use of resources, especially fishing, but also from unsustainable tourism development in the entire region, accompanied by low awareness among the decision makers and lack of integrated urban planning. Uncontrolled constructions along the lake shore have negative impact on the lake and the landscape. Introduced alien species and increasing pollution by organic and inorganic sewage is threatening vulnerable aquatic fauna and flora. The existing management institutions suffer from low levels of staff and insufficient budget and therefore have little capacity to ensure effective protection of the site's natural values.

Current state and Trend of values

State:-High Concern

Trend:-Deteriorating

Justification:-Uncontrolled constructions along the lake shore have negative impact on the lake and the landscape. Introduced alien species and increasing pollution by organic and inorganic sewage is threatening vulnerable aquatic fauna and flora. Aquatic ecosystems have also experienced negative impact due to toxic substances. Both endemic salmonid fish species of the Ohrid lake have been subject of restocking in the past and a moratorium of fishing created favorable conditions for both species. Nevertheless recent studies imply that illegal fishing persists and additionally alien fish species are endangering the native fish species.

Overall Threats

Overall Rating:-High Threat

Summary:-Currently the main threat is uncontrolled construction of buildings along the lake's shore on both sides of the littoral countries. This goes in line with increasing amount of waste water and solid waste. The current reactivated commercial fishing still has to be proven as sustainable. Tourism development and associated infrastructure development is not sustainable and has a high potential to negatively impact on the natural values of the site.

Protection and Management

State:-Some Concern

Justification:-The main institutions responsible for nature conservation in the area are the administration of the Galicica National Park and the Hydrobiological Institute in Ohrid. However, both institutions are extremely underfinanced. A Commission for managing the natural and cultural heritage in the Ohrid region has been established by the Government of the Former Yugoslav Republic of Macedonia. And the establishment of a bilateral Ohrid Watershed committee between FYROM and Albania is an important step to ensure effective management of Lake Ohrid. However, more staff and more operational budget are required. .

Assessment Information

Value

World Heritage Values

State:-High Concern

Trend:-Deteriorating

1: A unique lake of tectonic origin supporting high diversity of endemic and relict freshwater species

State:-High Concern

Trend:-Deteriorating

Description:-The Ohrid Lake is classified as a mountainous clear water lake of tectonic origin. The lake's fish fauna include 17 native species, of which 10 are endemic (two of which belongs to Salmonide family). The benthic fauna of Lake Ohrid are characterized by a high degree of richness and diversity of archaic, endemic and relicts forms that origin from Tertiary period. The rounded sponge Ochridospongia rotunda is a famous endemorelict form that is only found in Lake Ohrid. The highest diversity and the highest percentage of endemism are present in class Gastropoda; about 86% of the 50 known species of gastropods are endemic. Other classes with high degree of endemism include Tricladida (80.5%), Oligochaeta (47.2%), Hirunidea (52.4%), Ostracoda (71.4%), Amphipoda (60%), Isopoda (75%). Endemism is present also in the microalgae species. About 90 species of the 550 species of diatoms are rare, tertiary relict, or endemic species. 146 endemic species have been identified. Endemism among these species is 90% of snails, 88% of parasitic infusoria, 71% of flat worms, 66% of small crustaceans and 60% of fish. (R4, R14) Ten of the lake's 17 fish species are endemic. They include the salmonid Ohrid trout Salmo letnica (VU – Vulnerable according to the IUCN Red List of Threatened Species) and belvica Acanolingua ohridana (VU). (R4, R14)

Other Biodiversity values

State:-High Concern

1: Important wintering site of palaeartic waterbirds

Description:-The Ohrid lake is considered as a Wetland of international importance due to the high number of wintering palaeartic waterbirds on the lake. (R19)

2: Rare and endemic flora

Description:-There are 19 taxa on Mount Galicica from World's Red List of Threatened Plants of IUCN which have the status of „rare“ (R – rare) and which are found in all parts of the mountain, from its lowest parts, and all the way to its subalpine strip. These include the following: Ramonda serbica Pani, Alkanna noneiformis Griseb., Acer heldreichii Orph. ex Boiss., Ajuga piskoi Degen & Bald., Cynoglossis barrelieri (All.) Vur. & Tan subsp. serpentinicola (Rech. f.) Vur. & Tan, Astragalus baldaccii Degen, Centaurea soskae Hayek ex Košanin, Erodium guicciardii Heldr. ex

Boiss., Eryngium serbicum Pani, Fritillaria gussichiae (Degen & Dörf.) Rix, Jurinea taygetea Halácsy, Malus florentina (Zuccagni) C.K.Schneid, Melampyrum heracleoticum Boiss. & Orph., Oxytropis purpurea (Baldacci) Markgraf, Pinus heldreichii H. Christ var. leucodermis (Ant.) Markgraf ex Fitschen, Pinus peuce Griseb., Rindera graeca (A. DC.) Boiss. & Heldr., Solenanthus scardicus Bornm. Viola eximia Form. Floral research conducted on Mount Galicica throughout a longer period of time showed that the mountain, i.e. Park's boundaries, is the only habitat to many plant taxons, belonging to various floral elements from various parts of the Balkan Peninsula and from Europe. These have, so far, not been found in other parts of the Republic of Macedonia, and their presence on Mount Galicica speaks of the ecological capacity of this mountain as well. Such is the case with the following taxons: Alyssum subvirescens Form., Astragalus gremlii Burnat, Celtis glabrata Steven ex Planchon, Cephalaria setulifera Boiss. & Heldr., Coronilla vaginalis Lam., Crepis vesicaria L., Cytisus procumbens (W.K.) Spr., Damasonium bourgaei Cass., Euphorbia characias L. subsp. wulfenii (Hoppe ex W. Koch) A.R. Smith var. sibthorpii (Boiss.) E.S.Boiss, Gnaphalium hoppeanum Koch., Haplophyllum patavinum (L.) Don f., Hesperis rechingeri Dvoàk, Jurinea taygetea Halácsy, Lilium chalcedonicum L., Marubium anisodon C. Koch, Prunus prostrata Labill., Sedum laconicum Boiss., Sibbaldia parviflora Willd., Silene chromodonta Boiss. et Reuter var. vandasii Neum, Thymus perinicus (Hal.) Stoj., Stef. & Kit. and Trifolium sebastiani (R18)

3: Diversity of habitats

*Description:-*A high diversity of habitats reaching from the Ohrid lake at 650 m a.s.l up to the highest mountain tops (Peak Magaro 2254m a.s.l.) consisting of aquatic habitats, fresh water springs, wetlands, reed belts, broad leaf forests and alpine pastures on carstic soils, rocks, cliffs and caves.(R18)

4: Important Bird Area

*Description:-*The highest number of individual birds was observed in 1999, with 64,948 birds of 23 species on Lake Ohrid. The avifauna of the lake includes among others Great Cormorant (Phalacrocorax carbo sinensis), Small Cormorant (Phalacrocorax pygmaeus), Mute Swan (Cygnus olor), Black-necked Grebe (Podiceps nigricollis), Little Grebe (Tachybaptus ruficollis), Red-crested Pochard (Netta rufina), Common Pochard (Aythya ferina), White-eyed Duck (Aythya ferruginea), Tufted Duck (Aythya fuligula) and Corncrake (Crex crex). The shoreline between Pogradec and the border of the former Yugoslav Republic of Macedonia is the richest habitat for shorebirds on the Albanian side of Lake Ohrid. (R4)

5: Rare and endangered mammals

*Description:-*For the National Park Galicica 27 mammal species are described from which 24 are listed in the annexes of the EU habitat directive. 12 Species are categorized as near threatened or vulnerable. From the 27 mammals species 17 species belong to the bat group, among them is Myotis capaccinii (VU). Six species are Balkan 'endemics' like the Balkan Snow Mole (Dinaromys bogdanovi), the Balkan Chamois (Rupicapra r. balcanica) or the Balkan Lynx (Lynx l. martinoi). Brown Bears (Ursus arctos), Wolves (Canis lupus), the Wild Cat (Felis silvestris) and Otter (Lutra lutra) are present in the National Park Galicica (R18)

Threats

Current Threats

1: Fishing / Harvesting Aquatic Resources

Threat Rating:-Low Threat

Justification:-Fishing is legally allowed. However, monitoring and control measures are required to determine if the fishing practices can be considered as sustainable (R22)

2: Housing/ Urban Areas

Threat Rating:-High Threat

Justification:-More construction along the shore of the lake means more disturbance of littoral habitats and by this a deterioration of the calm wintering sites for winter water birds. In summer more leisure activities can be observed along the shore line with potentials of negative impact of the shallow parts of the Ohrid Lake. (R22)

3: Other

Threat Rating:-Very High Threat

Justification:-During the construction of the museum in Gradishte toxic impregnation was used for wooden beams. These pollutants are highly toxic for fish. (R16)

4: Impact of tourism/ visitors/ recreation

Threat Rating:-High Threat

Justification:-Organic pollution is endangering the endemic fauna and flora of the lakes, which still is characterized as oligotrophic clear water lake. (R22)

5: Invasive Non-Native/ Alien Species

Threat Rating:-Low Threat

Justification:-Non-native fish species such as rainbow trout or silver carp are competitors of the native fish population. The rainbow trout is of particular concern, since it might displace the native Ohrid trout. (R22)

Potential Threats

1: Fire/ Fire Suppression

Threat Rating:-Low Threat

Justification:-Forest fires are altering the forested habitats (R22)

1: Tourism/ Recreation Areas

Threat Rating:-High Threat

Justification:-A plan exists to construct a larger hotel complex close to Sveti Naum. This could severely affect the water quality and the habitat quality of the areas as fish spawning ground. It is intended to place parts of the hotel in the lake. (recent press articles)

1: Shipping Lanes

Threat Rating:-High Threat

Justification:-Noise, disturbance of aquatic fauna and pollution associated with motorboats are factors deteriorating the habitat quality of the Lake (R22)

1: Other

Threat Rating:-Very High Threat

Justification:-The intention to create down-hill skiing centers with the necessary infrastructure could affect directly the biodiversity values of the Galicica National Park and devalues the habitat quality of the area as a refuge for wildlife and rare endemic plant species. The snow cover throughout the last years seems not sufficient. Therefore it can be assumed that the active skiing season will be extended with artificial snowing. This would affect directly the valuable flora of the area and changes the vegetation. Extended skiing seasons are leading to erosion of the vegetation and to irreversible deterioration.(R21)

1: Roads/ Railways

Threat Rating:-Low Threat

Justification:-The planned road along the foothills of the Galicica mountain will cut off relevant areas of the National Park Galicica. These areas close to the lake shore contribute to the landscape diversity of the entire area and the beauty of the landscape. The construction of the road might devalue the outstanding beauty of the composition of the lake and the mountain.

1: Other

Threat Rating:-High Threat

Justification:-The road rehabilitation on the Albanian side is already impacting on sensitive areas along the lake. Concrete walls to secure the road are built in the lake and are negatively impacting on littoral habitats. (pers. observation)

1: Garbage/ Solid Waste

Threat Rating:-High Threat

Justification:-It is reported that the pumps of the collector system are not always operating well and surplus sewage water is poured into the lake. Organic and anorganic waste water and solid waste is polluting the lake. (R22)

Protection and management

Overall Rating:-Some Concern

Justification:-The main institutions responsible for nature conservation in the area are the administration of the Galicica National Park and the Hydrobiological Institute in Ohrid. However, both institutions are extremely underfinanced. A Commission for managing the natural and cultural heritage in the Ohrid region has been established by the Government of the Former Yugoslav Republic of Macedonia. And the establishment of a bilateral Ohrid Watershed committee between FYROM and Albania is an important step to ensure effective management of Lake Ohrid.

However, more staff and more operational budget are required. .

Protection and management value

1: Research

Protection Rating:-Some Concern

Justification :-In spite of the fact that Ohrid has an old university, ecological research is underrepresented. (R23)

2: Monitoring

Protection Rating:-Highly Effective

Justification :-The aquatic ecosystems are monitored by the Hydrobiological Institute, whereas the terrestrial ecosystems of the NP are monitored by the administration of the National Park Galicica. (R23)

3: Tourism and interpretation

Protection Rating:-Serious Concern

Justification :-The Tourism development at the Ohrid Lake has already a visible tendency to overstretch the thresholds of sustainability. Further plans to expand tourism infrastructure could have a negative impact on the WHS. The Protected Areas in the entire area could play a key role in the development of sustainable tourism. (R22)

4: Education and interpretation programmes

Protection Rating:-Some Concern

Justification :-The National Park Galicica has recently opened visitor centers. Necessary financing of education and interpretation programs are not available. (R18)

5: Sustainable use

Protection Rating:-Some Concern

Justification :-The fishery sector could potentially become sustainable. However, recent reports state still unsustainable catch (R22).

6: Staff training and development

Protection Rating:-Data Deficient

Justification :-.

7: Sustainable finance

Protection Rating:-Serious Concern

Justification :-The participating municipalities and the central Government are supposed to bear the financial burden of the operational costs. Investments into the socio-economic sector in order to promote sustainable land use, are lacking. The nature conservation institution in the region, the Galicica National Park is completely lacking of financial support from the Government (R18)

8: Boundaries

Protection Rating:-Some Concern

Justification :-The boundaries of the WHS are following the national border between Albania and Former Yugoslav Republic of Macedonia crossing the lake. An extension of the WHS including aquatic and terrestrial parts in Albania is foreseen. The border in the northern part is not well justified. Also the original border to the east followed the ridge of mountain Galicica cutting the National Park and the mountainous ecosystem into two parts. Suggestions have been made to revise these eastern boundaries in order to include the entire Galicica NP. (R11)

9: Implementation of World Heritage Committee decisions and recommendations, if applicable

Protection Rating:-Data Deficient

Justification :-.

10: Management effectiveness

Protection Rating:-Data Deficient

Justification :-.

11: Management system

Protection Rating:-Some Concern

Justification :-A Management Plan for the WHS was prepared in 2010. It foresees as an administrative body a commission with 21 seats (R14). A professional administration body for the WHS with sufficient staff is still to be established.

Based on the agreement between both littoral countries a Watershed Commission for the Ohrid Watershed is enacted and organized by a bilateral secretariat. (R20)

12: Integration into regional and national planning systems

Protection Rating:-Effective

Justification :-According to the recently prepared Management Plan for the WHS (R14) the integration of regional and national planning seems to be appropriate.

13: Legal framework

Protection Rating:-Effective

Justification :-A bilateral agreement on the conservation of the Ohrid Watershed between FYROM and Albania was signed and ratified in 2006. Ohrid Watershed Committee was created and enacted. The Committee is operated by a bilateral secretariat, which will also function as governing body for the 'Transboundary Biosphere Reserve Ohrid Prespa Watershed' (R20)

14: Relationships with local people

Protection Rating:-Effective

Justification :-The Commission for managing the natural and cultural heritage in the Ohrid region is formed by the Government of the Former Yugoslav Republic of Macedonia as an advisory body for the performance of the works (hereinafter referred to as: The Commission).The Commission is composed of 21 members, appointed based upon the mutual proposal submitted by the Minister of Environment and Physical Planning and the Minister of Culture. (R14, R15)

The representatives of the local communes have a seat on the bilateral Ohrid Watershed

commission and this way can influence the development. Plans for the creation of a transboundary biosphere reserve including the WHS found broad support among local stakeholders and decision makers.

Assessment of the effectiveness of protection and management in addressing threats outside the site

Rating :-Effective

Justification :-The intended enlargement of the WHS and the planned Biosphere Reserve Ohrid-Prespa Watershed are addressing these issues. There are several protected areas in the area. (R23)

Best Practice Examples

Justification :-The National Park Galicica has been recently restructured and improved by external support. A detailed management plan was prepared for the park's territory and is being implemented by the park administration.

Additional Information

Key Conservation Issues

1: Unsustainable exploitation of fisheries

Scale :-Local

Description :-Overfishing and release of non-native fish: stricter control and enforcement systems for fishing activities (Including Prespa basin)

2: Habitat alteration or loss

Scale :-Local

Description :-Destruction of coastal habitats: Cessation of any new construction along pristine shorelines, restoration of habitats such as former adjacent wetlands
Fragmentation of macrophytic littoral plant communities: Establishment of CZM and CCA
Spring conversion and capture of the Ohrid basin: restoration of captured springs, strict prohibition of further spring use, conversion and capture.
Eutrophication: reduction of pollution, particularly with phosphorus, water management system (Prespa basin)

3: Non-indigenous species

Scale :-Local

Description :-Competition with native species: Stop intentional introduction, stricter control system for fishing activities

Fish community changes: Establish CZM and CCA

4: Tourism and population growth

Scale :-Local

Description :-Construction of houses and facilities: Strict regulations and enforcement, establishment of Coastal Zone Management Areas (CZM) and of Core Conservation Areas(CCA)
Speed boats and water scooters: Partial ban, regulation of any traffic, allowance of electro engines only.

Pollution: Implementation of effective waste water treatment systems.

5: Agriculture and forestry

Scale :-Local

Description :-Intensified agriculture: Extensive and organic agriculture

Irrigation: effective Water Management plan

Logging: sustainable forestry practices

Water abstraction (Prespa basin): reduction of water abstraction

Fire events: Reduction of fire events by better monitoring and early warning systems

6: Watershed impacts

Scale :-Local

Description :-Nutrient input: Significant reduction of nutrient load

Increased sediment load

Waste Water: Implementation of effective waste water collection and treatment systems

Metal contamination: Stop of further contamination related to active and former mining and other industrial facilities

7: Global climate change

Scale :-Global

Description :-Increasing of average temperatures: reduction of climate relevant emissions

Benefits

1: Cultural and Spiritual Values

Community within site :-Major

Community outside site :-Major

Wider Community :-Major

Summary :-The area is a very ancient habitation of human beings. Evidence from the early stone age can be found and the Mediterranean cultures left their traces in the region. The entire region was and still is a spiritual center as well as a scientific importance as Ohrid hosts still one of the oldest universities.

2: Health and recreation

Community within site :-Major

Community outside site :-Major

Wider Community :-Major

Summary :-The landscape beauty, the clean water and air as well as the attractions by national parks generates tourism into the region, which provide benefit not only to the local population but also to a wider community.

3: Environmental Services

Community within site :-Major

Community outside site :-Major

Wider Community :-Major

Summary :-The water resource and its endemic fish species are a special service provided to the local population, but also the downstream population along the Drin basin has a wider benefit of the ecosystems and their services.

The biodiversity with its high number of endemism qualifies the areas as biodiversity hotspot and give the region a global significance.

Projects

Active Conservation Projects			
N.O	Organization/individuals	Brief description of Active Projects	Contact Details
1	.	National Park Galicica Administration	.
2	.	Hydrobiological Institute Ohrid	.
3	.	Secretariat of the Ohrid Watershed Commission	.

Active Conservation Projects

Brief description of Active Projects			
N.O	Organization/individuals	Brief description of Active Projects	Contact Details
1	Restoration of wetland ecosystems	.	.
2	Conversion of agricultural practices in the Ohrid and Prespa Basin	.	.
3	Improvement of Sewage water treatment systems on both sides of the Ohrid lake	.	.

References

Rn0	References
1	Natural and Cultural Heritage of the Ohrid region; Official Description, WHC website, retrieved 2013 (http://whc.unesco.org/en/list/99)
2	Decisions of the twenty-second extraordinary session of the Bureau of the World Heritage Committee (Kyoto, 28-29 November 1998) with regards to the state of conservation of properties inscribed on the World Heritage List, noted by the Committee
3	Map of the Natural and Cultural Heritage in the Ohrid Region
4	Boris Erg, (IUCN) and Luisa De Marco (ICOMOS), April 2012, Pilot Upstream Project “Natural and Cultural Heritage of the Ohrid Region” Lake Ohrid Scoping Mission
5	Oliver Avramoski et al (2004) Lake Ohrid Experience and Lessons Learned Brief.
6	Report About the Lake Ohrid Watershed Region, August 2004
7	WHC-33COM 8B.40 Mixed properties – Examination of minor boundary modifications – Natural and Cultural Heritage of the Ohrid Region (Former Yugoslav Republic of Macedonia) in combination with documents WHC-09/33-COM/8b, WHC-09/33.COM/INF.8B1.Add and WHC-09/33.COM/INF.8B2
8	WHC-98-Conf 203-8reve
9	State of Conservation of the World Heritage Properties in Europe (Section II)
10	22COM.Ohrid SOC Report (1998)
11	ICOMOS Reports (1980 and 2009)
12	Ernst Basler and Partners (1995) Ohrid Feasibility Study
13	Ohrid Mission Report (1998)
14	MoEPP (2010), NATURAL AND CULTURAL HERITAGE OF THE OHRID REGION WORLD HERITAGE SITE MANAGEMENT PLAN
15	ICOMOS (2011). Review of the Ohrid Management Plan.
16	Test Report and Appraisal of Toxicology of Wood Pillar (Bay of Bones) (2010-2011)
17	WHC-09/33.COM/INF.8B2
18	Management Plan of the Galicica National Park (2011)
19	Fremuth et al 2000 (Four Years of Simultaneous Wintering Waterbird Census at the Ohrid and Prespa Lakes 1997-2000)
20	Bilateral Agreement on the Ohrid Watershed (2006)

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21	MEPSO (2012) OPEN PROCEDURE NO. 101/2012 FOR AWARDED A CONTRACT FOR PUBLIC PROCUREMENT OF SERVICES DRAFTING A FEASIBILITY STUDY AND MASTER PLAN FOR DEVELOPMENT AND BUILDING A SKI CENTRE IN THE NATIONAL PARK GALICICA TENDER DOCUMENTATION
22	Kosotoski G. et al (2010) A freshwater biodiversity hotspot under pressure – assessing threats and identifying conservation needs for ancient lake Ohrid <i>Biogeosciences</i> , 7, 3999-4015
23	Stakeholder meetings for the creation of a transboundary biosphere reserve Ohrid-Prespa Watershed (March 2013)
24	Albrecht, C., K. Föllner, C. Clewig, T. Hauffe and T. Wilke (2013), „Invaders versus endemics: alien gastropod species in ancient Lake Ohrid“, <i>Hydrobiologia</i> , 720