



REPUBLIKA E SHQIPËRISË



Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

Nomination Dossier for Inscription on the World Heritage List

January, 2018

Table of Contents

1. EXECUTIVE SUMMARY	4
2. IDENTIFICATION OF THE PROPERTY	15
2.1. Country.....	15
2.2. State, province or region	15
2.3. Name of property	15
2.4. Geographical coordinates to the nearest second	15
2.5. Maps and plans, showing the boundaries of the proposed extension	16
2.6. Area of proposed extension.....	22
3. DESCRIPTION	22
3.1. Introduction	22
3.2. Description of the property	25
3.3. History and Development.....	60
4. JUSTIFICATION FOR INSCRIPTION	70
4.1. Brief synthesis	70
4.2. Criteria under which inscription is proposed	71
4.3. Statement of Integrity.....	74
4.4. Statement of Authenticity.....	75
4.5. Protection and management requirements	75
4.6. Comparative Analysis	79
4.7. Proposed statement of outstanding universal value	85
5. STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY.....	88
5.1. Present State of Conservation	88
5.2. Factors affecting the property	91
(i) Development Pressures (e.g. encroachment, adaptation, agriculture, mining)	91
(ii) Environmental pressures (e.g. pollution, climate change, desertification).....	96
(iii) Factors affecting the Integrity of Cultural Attributes	98
(iv) Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)	99
(v) Responsible Visitation at World Heritage Sites	100
(vi) Number of inhabitants within the Lake Ohrid region.....	101
6. PROTECTION AND MANAGEMENT OF THE PROPERTY	103
6.1. Ownership	103

6.2.	Protective Designation	104
6.3.	Means of implementing protective measures	111
6.4.	Existing Plans Related to Region of Proposed Property	116
6.5.	Property management plan or other management system.....	128
6.6.	Sources and levels of finance	131
6.7.	Sources of Expertise and Training in Conservation and Management Techniques.....	132
6.8.	Visitor facilities and infrastructure.....	132
6.9.	Policies and programmes related to the presentation and promotion of the property..	133
6.10.	Staffing levels and expertise (professional, technical, maintenance)	135
7.	MONITORING	137
7.1.	Key Indicators for Measuring State of Conservation.....	137
7.2.	Administrative arrangements for monitoring property	141
7.3.	Results of Previous Reporting Exercises	142
8.	DOCUMENTATION	144
8.1.	Photographs, slides, image inventory and authorization table and other audiovisual materials	144
8.2.	Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property.....	147
8.3.	Form and date of most recent records or inventory of property.....	148
8.4.	Address where inventory, records and archives are held	148
8.5.	Bibliography.....	149
9.	CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES	160
9.1.	Preparer	160
9.2.	Official local institution/agency	161
9.3.	Official Web addresses.....	163
10.	SIGNATURES ON BEHALF OF THE STATE PARTY	164

1. EXECUTIVE SUMMARY

State party

Albania

State region

Korça Prefecture, Pogradec Municipality

Name of property

Natural and Cultural Heritage of the Ohrid region (extension to the existing Natural and cultural World Heritage Site “Natural and Cultural Heritage of the Ohrid region” (99ter)

Geographical coordinates to the nearest second

The geographical coordinates to the nearest second are in Table 1.

Id n°	Name of the component part	Region(s) / District(s)	Coordinates of the Central Point	Area of Nominated component of the Property (ha)	Area of the Buffer Zone (ha)	Map N°
001	Natural and Cultural Heritage of the Ohrid Region, property inscribed in 1979	FYR Macedonia	41° 11' 27" N 20° 77' 41" E	83,350	N/A	Annex 14
002	Proposed extension	Albania	40° 90' 96" N 20° 66' 28" E	11,378.60	15,944.40	Annex 14
Total area (in hectares)				94,728.6 ha	15,944.40 ha	

Table 1. Coordinates of the centre points of the component parts of the inscribed and proposed extension.

Textual description of the boundaries of the proposed extension

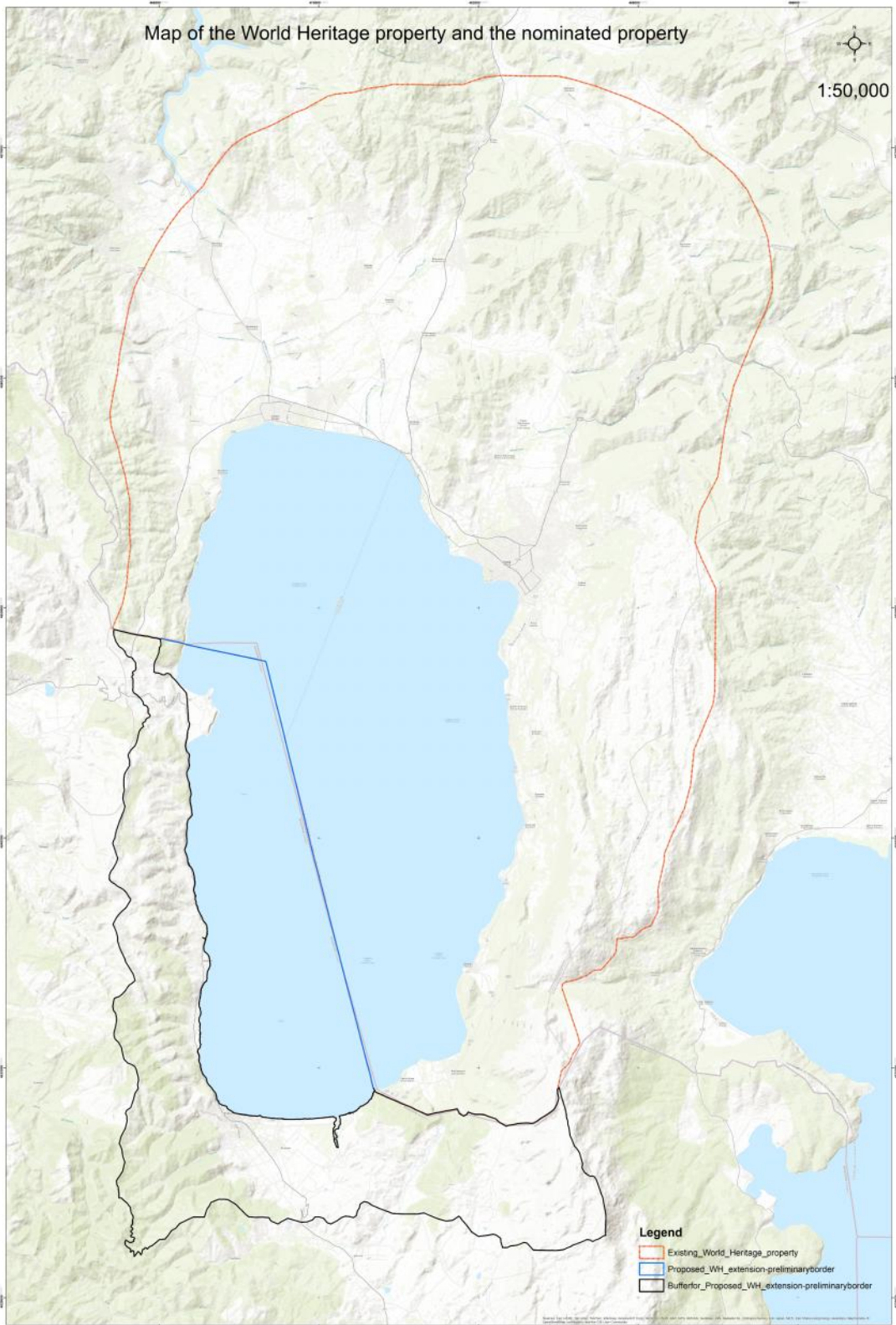
The proposed extension encompasses basically the Albanian part of Lake Ohrid region including the Lin Peninsula and coastal strip north to the Macedonian border and the Drilon springs and the watercourses linking them to the World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” in FYR Macedonia. (Table 1). The proposed extension is located entirely within Pogradec Municipality, Korça Prefecture with an area of 11,378.6 ha (Figure S1; Figures 1.1; 1.2; 1.3 and 1.4).

The proposal for inscription is an extension of the “Natural and Cultural Heritage of the Ohrid Region” in the Former Yugoslav Republic of Macedonia, inscribed in the World Heritage List in 1979 initially as a natural property, under natural criterion (iii), today criterion (vii). In 1980 the site was extended under cultural criteria (iii) and (iv), and became a mixed property.

In 2009, at its 33rd session, the World Heritage Committee approved a minor boundary modification that slightly reduced the boundaries of the property to the north and to the west. Within this process, the creation of a buffer zone was encouraged by the Committee. On this occasion, the Committee also recommended that “a trans-boundary extension of the property to include the Albanian part of Lake Ohrid and its watershed be considered in order to strengthen the value and integrity of the property.” The State party of Albania proposed the pilot project “Natural and Cultural Heritage of the Ohrid Region” in the framework of the Upstream Process in support of World Heritage nominations, established on an experimental basis following Decisions of the World Heritage Committee (particularly 34 COM 12 and 35 COM 12). The implementation of the Pilot Upstream project is supported financially by the European Union through the IPA programme within the project “Towards strengthened governance of the shared transboundary natural and cultural heritage of the Lake Ohrid Region” via an agreement between EU and UNESCO. The proposed extension area in the Albanian part of Natural and Cultural Heritage of the Ohrid Region covers an area of 11.378.6 ha.

The proposed extension property is part of the Albanian national protected area ‘Pogradec Terrestrial/Aquatic Protected Landscape’, established in 1999, with an area of 27,323 ha and administered by the National Agency for Protected Areas. The remaining area of the Pogradec Protected Landscape serves as the Buffer Zone for the proposed core area of the extension.

The Law no. 8906, dated 6.6.2002 “On protected area” as amended, distinguishes six different categories of protected areas in Albania, corresponding to those of IUCN. Accordingly the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area is protected under the fifth category and covers an area of 27,232 ha (The decision of Council of Ministers No. 80, date 18.02.1999). The lake itself is part of the core zone due to importance as breeding areas for fishes and other important biodiversity components. A terrestrial core zone is proposed in the higher part of the Mali i Thatë above 1450 m of altitude and it create a bio-corridor with two other protected areas Galicica National Park and Prespa National Park. The proposed extension property includes state designated cultural monuments, traditional rural landscape and archaeological findings, the latest attesting to the early human occupation in the area, at least from the Neolithic Age. The Law no. 9048, date 07.04.2003 “On Cultural Heritage”, as amended and related bylaws sets out the framework concerning the proclamation and preservation of the Albanian cultural heritage, which is composed of tangible and intangible assets and values.



MAP 1. Map of the World Heritage property and the proposed extension

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)



MAP 2. Map of the World Heritage property and the proposed extension

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

The World Heritage Supplement to the Management Plan for Pogradec Protected Landscape 2017-2027 is also integrated with the General Local Plan for Pogradec Municipality, which are the key management and planning instruments for the area, and the management plan for the world heritage property “Natural and Cultural Heritage of the Ohrid Region”. The World Heritage Supplement fully applies to the proposed extension. The ownership of the lands in the protected area is divided among: state, local government and private. The state and private owns around 60% of total protected area surface including water bodies and small parts of forests and pastures. The agriculture land (16.6%) is private owned as it is for industrial/economic areas (3%), while the 40% of the area (forests and pastures) is under the ownership of local self government unites. Cultural heritage assets are state and private owned properties. The vision for the proposed extension within its World Heritage Supplement to the Management Plan for Pogradec Protected Landscape 2017-2027 states: Lake Ohrid region with its unique and inspiring landscape where the natural and cultural values are naturally intertwines with traditional ways of living, constitutes a sustainable tourist destination, an archive of nature history, a source of pride for the regional and national identity.

Criteria under which the property is nominated

Criterion (i): represent a masterpiece of human creative genius;

The town of Ohrid is one of the oldest human settlements in Europe. As one of the best preserved complete ensembles encompassing archaeological remains from the Bronze Age up to the Middle Ages, Ohrid boasts exemplary religious architecture dating from the 7th to 19th centuries as well as an urban structure showcasing vernacular architecture from the 18th and 19th centuries. All of them possess real historic, architectural, cultural and artistic values. The concentration of the archaeological remains and urban structures within the old urban centre of Ohrid, along the coast of Lake Ohrid as well as the surrounding area creates an exceptional harmonious ensemble, which is one of the key features that make this region truly unique. Within the proposed extension of the property there are several archaeological remains of lakeshore settlements dating back to the Neo-Eneolithic period. The peninsula of Lin represents one of the core areas of human settlements of the entire proposed extension property. It seems to have been inhabited since the late Neolithic period and bares witnesses of human activity throughout Bronze and Iron Ages continuing also through the 4th – 3rd centuries B.C.E. during the First Illyrian Kingdom. The remains of the early Christian church in Lin Peninsula is very similar to the religious architecture of the same period in Ohrid.

Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;

The property is a testimony of Byzantine arts, displayed by more than 2,500 square metres of frescoes and more than 800 icons of worldwide fame. The churches of St. Sophia (11th century), Holy Mother of God Perivleptos and St. John Kaneo notably display a high level of artistic

achievements in their frescoes and theological representations, executed by local as well as foreign artists. Ancient architects erected immense basilicas, which were to serve as models for other basilicas for centuries. The development of ecclesiastical life along the shores of the lake, along with its own religious architecture, frescoes and icons, testifies to the significance of this region as a religious and cultural centre over the centuries.

The early Christian church of Lin in the proposed extension property, being very similar to the church of the same period in Ohrid, holds beautifully paved mosaic floors depicting biblical scenes (Eucharistic), religious symbols. These similarities between the World Heritage property and the proposed extension and researches on this issues are evidence that same ateliers of mosaic and painting masters operated in this area during the Early Christian period.

Criterion (iv): be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

The Lake Ohrid region boasts the most ancient Slavonic monastery and the first Slavonic University in the Balkans – the Ohrid literary school that spread writing, education and culture throughout the old Slavonic world. The old centre of Ohrid is a uniquely preserved, authentic ancient urban entity, adjusted to its coastal lake position and terrain, which is characterised by exceptional sacred and profane architecture. The architectural remains comprising a forum, public buildings, housing and sacred buildings with their infrastructure date back to the ancient town of Lychnidos (the former name of the town). The presence of early Christian architecture with the lofty basilicas from 4th to 6th centuries, together with the Byzantine architecture with a great number of preserved sacred buildings of different types from 9th to 14th centuries, is of paramount importance and contributes to the unity of the urban architecture of the city.

The remains of lake-shore pile dwellings are the oldest evidences of human settlements in the proposed extension. Together with the sepulchral and religious monuments and also traditional villages adjusted to natural coastal terrain, have created a unique landscape, underlined by its harmonious and functional relationship with the lake-dominated natural environment.

Criterion (vii): contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

The preservation of Lake Ohrid dating from pre-glacial times is a superlative natural phenomenon. As a result of its geographic isolation and uninterrupted biological activity, Lake Ohrid provides a unique refuge for numerous endemic and relict freshwater species of flora and fauna. Its oligotrophic waters contain over 200 endemic species with high levels of endemism for benthic species in particular, including algae, diatoms, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish. The Lake Ohrid region also harbours a rich birdlife.

Both the inscribed and the proposal for extension are areas of exceptional natural beauty with its morphology and clear waters set against the background of the Galicica, Mali i Thatë and Mocra

escarpment. Habitat types vary from rocky shorelines to sandy beaches and from wooded hillsides to swamps and tributaries. The current inscribed property of Lake Ohrid region has on its core the Lake Ohrid a deep, oligotrophic lake of tectonic origin and amongst the few ancient lakes in the world. This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbours an outstanding degree of endemic biodiversity. The lake is host of about 1,500 species, and more than 300 endemic species, and it is probably by far the most diverse lake in the world taking surface area into account. The endemism occurs at different spatial scales with some species being endemic to the lake proper and other restricted to its adjacent and surrounding springs or only certain locations isolated by horizontal and vertical barriers. The most important locations for the conservation of the endemic aquatic biodiversity within Lake Ohrid in Albania include the feeder spring complex at Tushemisht/Zagorican (Drilon) in Albania. Currently there is no comprehensive and systematic review of the distribution of the endemic species in Lake Ohrid and its watershed, but probably a high number of endemic species are distributed throughout the lake, including four endemic species of sponges and several endemic fish. Other endemic species have been described from locations in the Albanian part of the lake, such as several endemic diatom species that have been published recently as new to science. A very high number of Palaearctic water birds regularly winter at Lake Ohrid, rendering it an internationally important wetland. The watershed of Lake Ohrid also harbours rich and important biodiversity. Based on a number of species of international and national conservation values have been identified in the Albanian part of the watershed: 44 taxa of invertebrates, 21 fish species, 6 amphibians, 13 reptiles, 137 birds, and 21 mammals.

Based on the strong morphological and ecological differences and genetic patterns observed, it might be concluded that some endemic species occur in the littoral and sublittoral of the Lake Ohrid. The authors (Stelbrink et al. 2016) hypothesize that possibly these ecological (along a vertical habitat gradient) and geographic (spatial isolation on a horizontal scale, patchiness of suitable habitats, and low mobility of the populations) speciation gave rise to the different species, though a clear distinction between these two modes poses a significant challenge. However, assuming that the different morphology and ecology are conservative features, it seems reasonable to assume that ecological speciation along a vertical habitat gradient may have been the predominant process in the early stage of speciation, triggered by the onset of deep-water conditions. Subsequent geographic processes then gave rise to the phylogeographic patterns observed today. Further on the evolution of the exceptionally rich biodiversity of Lake Ohrid is closely related to its specific ecology. Like for most other lakes, the ecology of Lake Ohrid is a mirror of its catchment and its ecoclimatological setting. The presence and evolution of the rich biodiversity of the lake was supported by the subaquatic inflow of cool, clean and oxygen rich water into the lake. The subaquatic springs contribute to the establishment of specific habitats for endemic species as they supply oxygen, nutrients, and ions and by creating distinctly different, but constant boundary conditions. The occurrence of a number of endemic taxa is exclusively linked to the springs and this seems to indicate that the spring water may have been important for the evolution of the unique ecosystem of Lake Ohrid. Due to the long

hydraulic residence time in Lake Ohrid the water through-flow is weak and the subaquatic springs contribute a significant portion of the water budget. The dilution of regular lake waters with pure spring waters is important for the oligotrophic status of Lake Ohrid and its subsequent low algae productivity. The lake is still highly oligotrophic, with a transparency of 14m, but the mean total phosphorus concentration has risen to 4.5 mg m⁻³. Lake Ohrid also provides invaluable archives of tectonic, climate, environmental, and evolutionary histories (Albrecht *et al.* 2010). Recently, Lake Ohrid has been recognized as a site of global importance for long term palaeoclimate reconstruction. With its long sediment record and key geographic location between the Mediterranean and Western Europe it is increasingly used to test hypotheses concerning biodiversity and the evolution of endemism in ancient lakes (Reed *et al.* 2010).

Draft Statement of Outstanding Universal Value

a) Brief Synthesis

The Lake Ohrid region, a mixed World Heritage property covering 83,350 ha, was inscribed for its natural values in 1979 and for its cultural values a year later. Lake Ohrid is a superlative natural phenomenon, providing refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 300 species of plants and animals unique to the lake, including algae, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish including two species of trout, as well as a rich birdlife.

Situated on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mostly between the 7th and 19th centuries, Ohrid is home to the oldest Slav monastery (dedicated to St. Pantelejmon) and more than 800 Byzantine-style icons of worldwide fame dating from the 11th century to the end of the 14th century. Ohrid's architecture represents the best preserved and most complete ensemble of ancient urban architecture of this part of Europe. Slav culture spread from Ohrid to other parts of Europe. Seven basilicas have thus far been discovered in archaeological excavations in the old part of Ohrid. These basilicas were built during the 4th, 5th and beginning of the 6th centuries and contain architectural and decorative characteristics that indisputably point to a strong ascent and glory of Lychnidos, the former name of the town. The structure of the city nucleus is also enriched by a large number of archaeological sites, with an emphasis on early Christian basilicas, which are also known for their mosaic floors. Special emphasis regarding Ohrid's old urban architecture must be given to the town's masonry heritage. In particular, Ohrid's traditional local influence can be seen among its well-preserved late-Ottoman urban residential architecture dating from the 18th and 19th centuries. The limited space for construction activities has led to the formation of a very narrow network of streets. Although the town of Struga is located along the shores of Lake Ohrid, town life is concentrated along the banks of the Crn Drim River, which flows out of the lake. The existence of Struga is connected with several fishermen settlements on wooden piles situated

along the lake shore. A great number of archaeological sites testify to origins from the Neolithic period, the Bronze Age, the Macedonian Hellenistic period, the Roman and the early Middle Age period. The convergence of well-conserved natural values with the quality and diversity of its cultural, material and spiritual heritage makes this region truly unique.

c) Statement of Integrity

The proposed extension is sufficiently large (11.378,6 ha) to adequately represent both natural and cultural, terrestrial and water features, and processes that are of importance for long term conservation of the lake's region rich biodiversity and exceptional natural beauty. The water area within the Ohrid and Prespa Biosphere Reserve and Pogradec Protected Landscape is the most important element of the lake's biodiversity. The property also protects all major terrestrial vegetation types and important breeding sites for the various species. With already nominated Natural and Cultural Heritage of the Ohrid region in Macedonian side, the current proposal for nomination will fully encompass all of the features that convey the property's Outstanding Universal Value. The proposed extension fully encompasses all the features that convey the property's Outstanding Universal Value. The integrity of the property is strengthened by including to the already inscribed world heritage property, the one-third of Lake Ohrid located in Albanian territory and other areas essential to the protection of the lake's watershed, in order to adequately protect the lake's exceptional biodiversity. Main threats to the integrity of the property include uncoordinated urban development, increasing population, old infrastructure, inadequate treatment of wastewater and solid waste, illegal interventions to the water springs and tourism pressure. In addition, pollution from increased traffic influences the quality of the water, which leads to the depletion of natural resources. The overall coherence of the property, and particularly the relationship between urban buildings and the landscape, is vulnerable to the lack of adequate control of new development.

d) Statement of Authenticity

Lin Peninsula is reasonably well preserved, regarding its setting, visual integrity although uncontrolled incremental interventions have impacted the exterior outfittings of the residential buildings in the ensemble as well as the lakeshore. These are also vulnerable to major infrastructure projects and other developments. Concerning the cultural heritage values periodic conservation works have been carried out. Archaeological evidences have been researched and documented, but still the underwater heritage of the site is not fully explored.

Even though the original residential function of the buildings has not changed over time, the exterior and interior outfittings of many residential buildings, have been altered to improve living conditions. Still original features and volumes are conserved to a good extent. Reconstructions often used materials identical to those used at the time of construction and new materials have also been used, which presents a threat for the authenticity of the property.

e) Requirements for protection and management

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

The Natural and Cultural Heritage of the Ohrid region has several layers of legal protection. The protection of cultural heritage is regulated by the Law on Cultural Heritage Protection (Official Gazette of RM No. 20/04, 115/07), by-laws and a law declaring the old city core of Ohrid as a cultural heritage of particular importance (Official Gazette of RM No. 47/11). The protection of natural heritage is regulated by the Law on Nature Protection (Official Gazette of RM No. 67/2004, 14/2006 and 84/2007), including within and outside of protected areas. There is also the Law on Managing the World Cultural and Natural Heritage of the Ohrid Region (Official Gazette of RM No. 75/10). Legal instruments need to be kept updated and implemented to protect the property.

The property is managed and protected through a range of relevant management documents, and an effective overall management plan is a clear long-term requirement. The “Physical Plan of the Republic of Macedonia” of 2004 provides the most successful long-term and integrated document for land management, providing a vision for the purpose, protection, organization and landscape of the country and how to manage it. This plan needs to be maintained and updated regularly, although some deficiencies have been noted in the general implementation of urban planning regulations and plans.

The property is managed by two ministries (the Ministry of Culture and the Ministry of Environment), via three municipalities (Ohrid, Struga and Debrca), although the municipalities legally do not have the authority to protect cultural and natural heritage. The Institute for Protection of Monuments of Culture and Museums in Ohrid has the authority to protect cultural heritage, and the Natural History Museum Dr Nikola Nezlobinski in Struga is responsible for protecting movable heritage. The Galichica National Park is authorized to manage natural heritage within the park as a whole, and part of the cultural heritage located within the territory of the Park. The Institute for Hydrobiology in Ohrid is responsible for the continuous monitoring of the Lake Ohrid ecosystem, the research and care for Lake Ohrid’s flora and fauna, as well as the management of the fish hatchery, also to enrich the Lake’s fish stocks.

The inclusion of the proposed extension in the world heritage list is essential for an integrated management and protection of natural and cultural heritage of the whole area. Long-term protection and management in the proposed extension of natural and cultural assets is ensured through national legal protection such as national parks designation, core areas of biosphere reserves or other types of protected areas, cultural monuments and historic centre designation. The Management Plan for Pogradec Protected Landscape, also integrated with the General Local Plan for Pogradec Municipality are the key management and planning instruments for the area. Effective implementation of an integrated management plan and a multilateral integrated management system is required to guide the planning and management of this property. Key management issues include pollution control and reduction, fishery management, protection of attributes of the proposed Outstanding Universal Value, integration of local development with proposed World Heritage values, ecosystems, land use and livelihoods (in the buffer zone). Transboundary cooperative management agreements between the two countries as well as

agreements between local governments and other entities can enhance the achievement of management goals and ensure local community engagement in the component parts.

Names and contact information of official local institution/agency

Ministry of Tourism and Environment of the Republic of Albania

Address: Bulevardi Zhan D'ark Nr. 23

Phone: +355 42 224 537

E-mail: info@turizmi.gov.al

Web: <http://www.turizmi.gov.al/>

Ministry of Culture of the Republic of Albania

Address: Aleksandër Moisiu Str. No. 76, Tirana, Albania

Phone: +355 4 2232488

E-mail: info@kultura.gov.al

Web: www.kultura.gov.al

2. IDENTIFICATION OF THE PROPERTY

2.1. Country

Albania

2.2. State, province or region

Korça Prefecture, Pogradec Municipality

Natural and Cultural Heritage of the Ohrid region (extension to the existing Natural and cultural World Heritage Site “Natural and Cultural Heritage of the Ohrid region” (99ter)

2.3. Name of property

Natural and Cultural Heritage of the Ohrid region (extension to the existing Natural and cultural World Heritage Site “Natural and Cultural Heritage of the Ohrid region” (99ter)

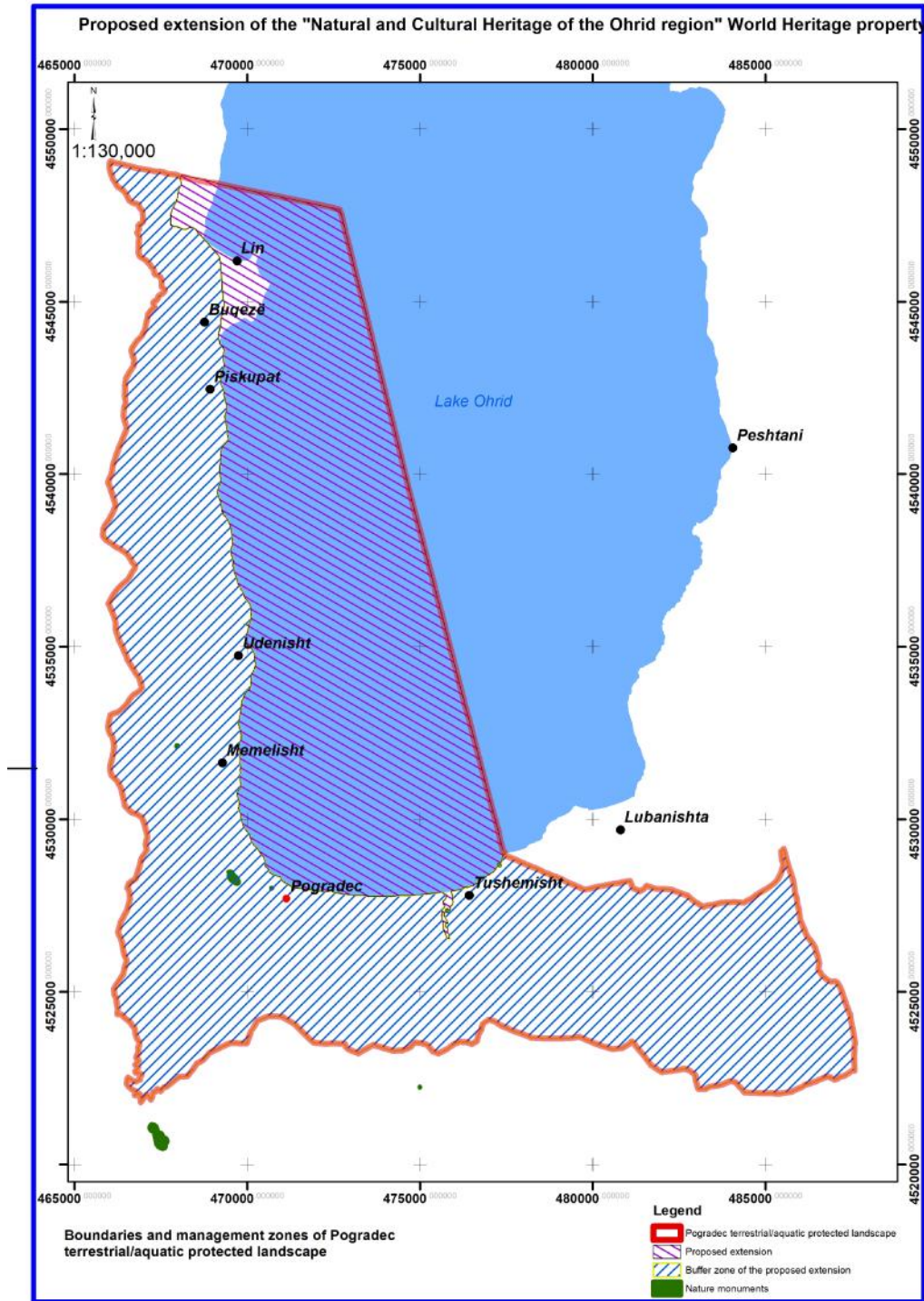
2.4. Geographical coordinates to the nearest second

The geographical coordinates to the nearest second are in Table 2.

Id n°	Name of the component part	Region(s) / District(s)	Coordinates of the Central Point	Area of Nominated component of the Property (ha)	Area of the Buffer Zone (ha)
001	Natural and Cultural Heritage of the Ohrid Region, property inscribed in 1979	FYR Macedonia	41° 11' 27"N 20° 77' 41" E	83,350	N/A
002	Proposed extension	Albania	40° 90' 96"N 20° 66' 28" E	11,378.60	15,944.40
Total area (in hectares)				94,728.6 ha	15,944.40 ha

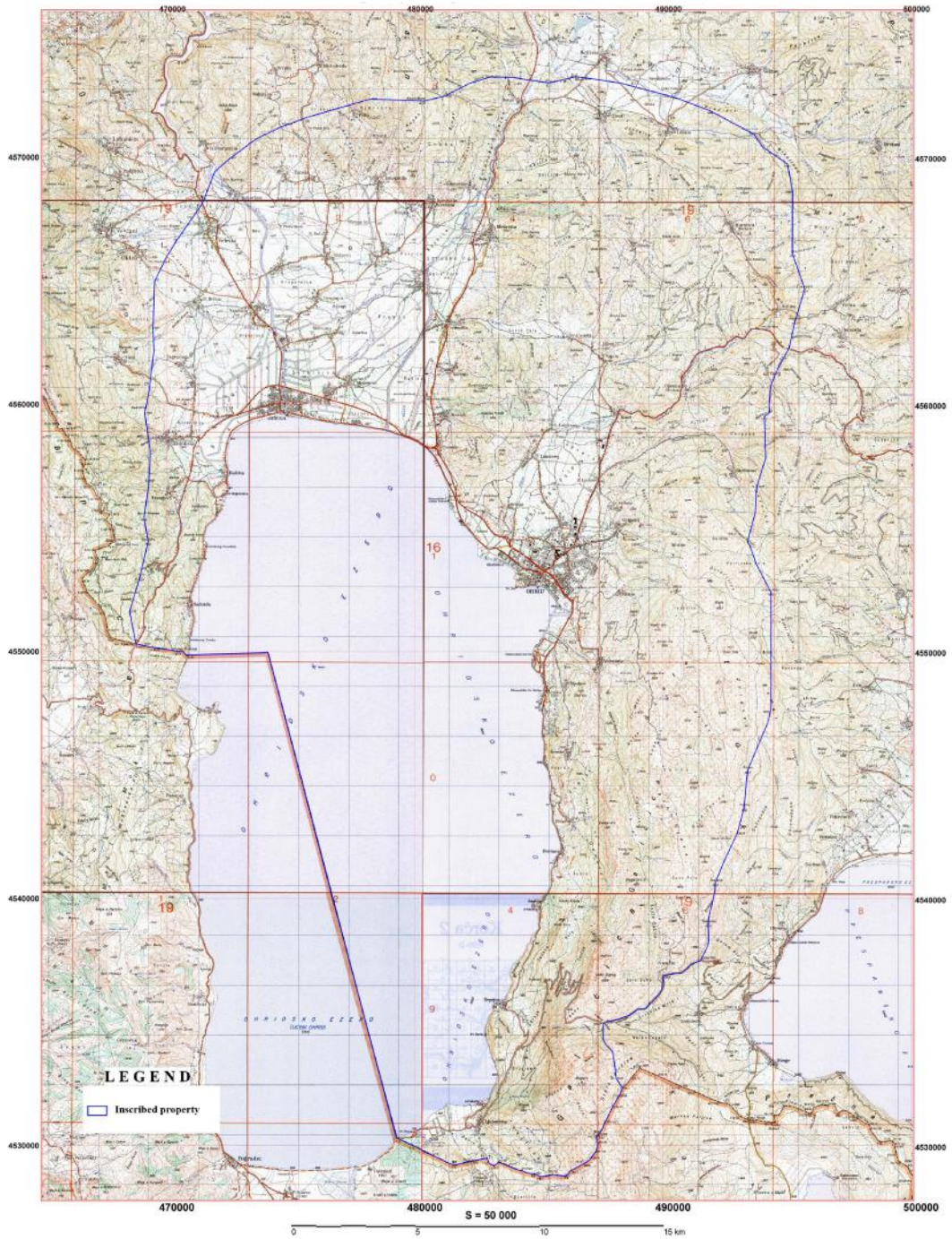
Table 2. Coordinates of the centre points of the component parts of the inscribed and proposed extension.

2.5. Maps and plans, showing the boundaries of the proposed extension



MAP 3. Map of the proposed extension in Albania

"Natural and Cultural Heritage in Ohrid Region"

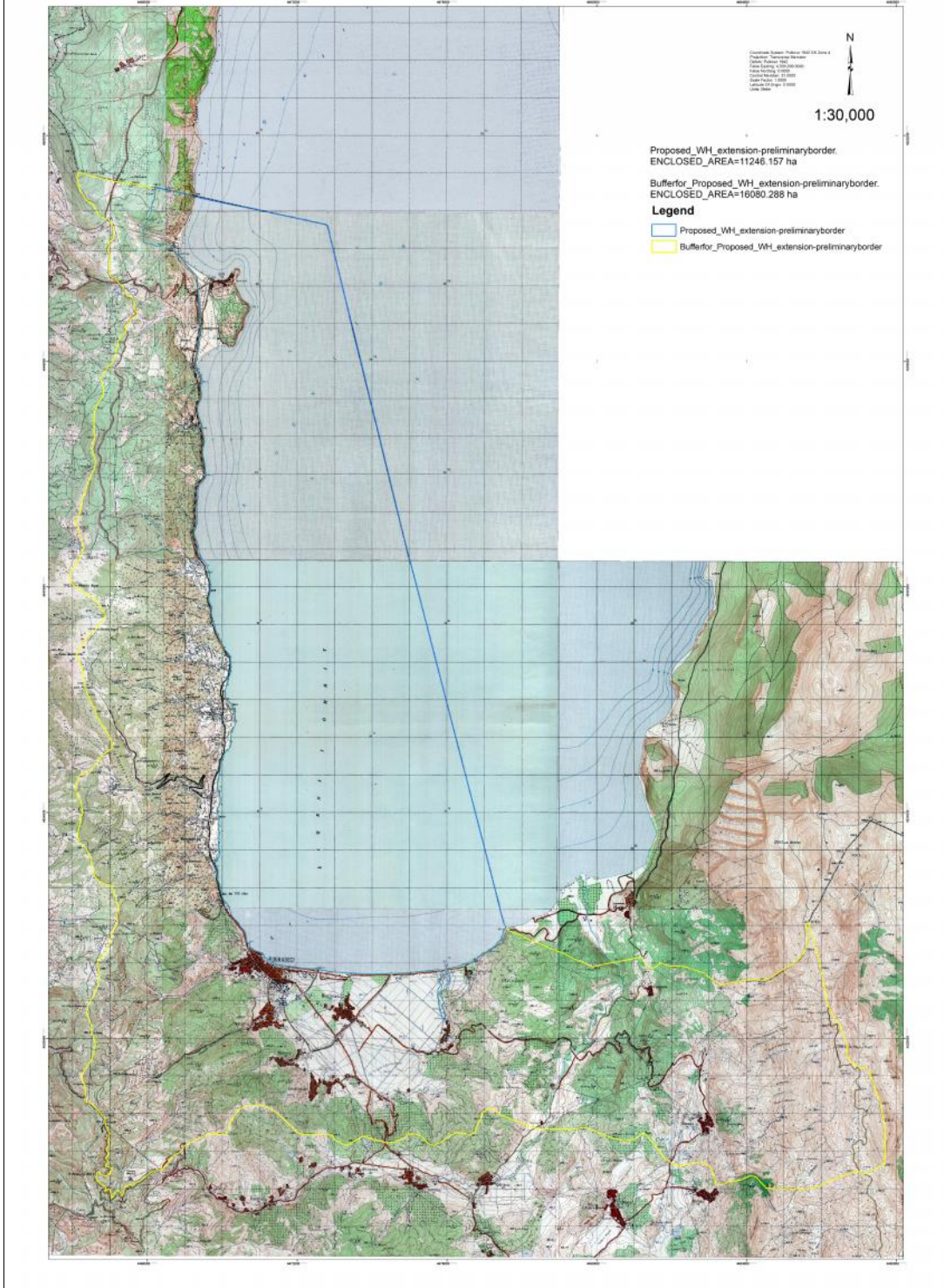


MAP 4. Map of the World Heritage Property (Natural and Cultural Heritage of Ohrid region) in FYR Macedonia

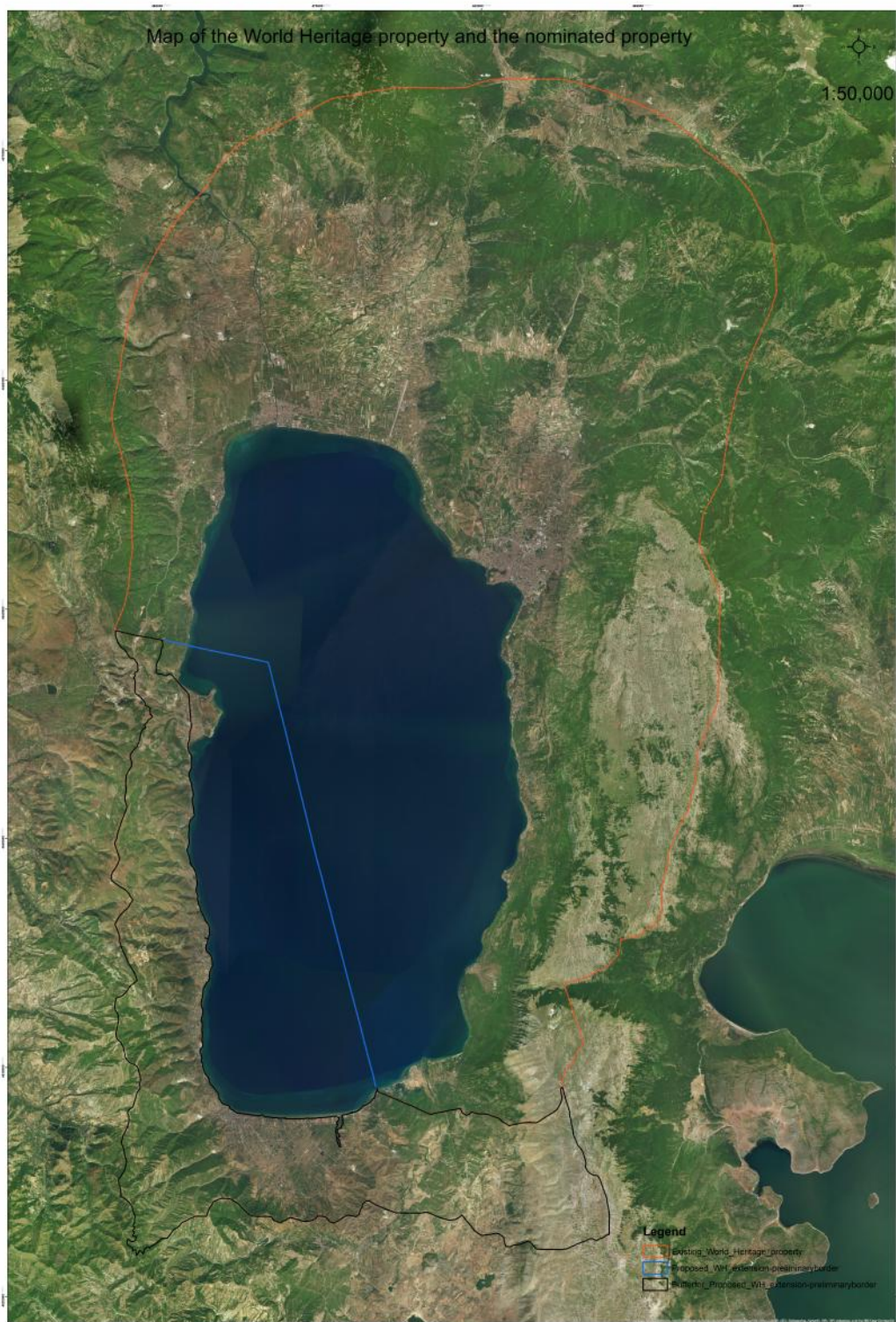
Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

Topographic Map of the nominated property.



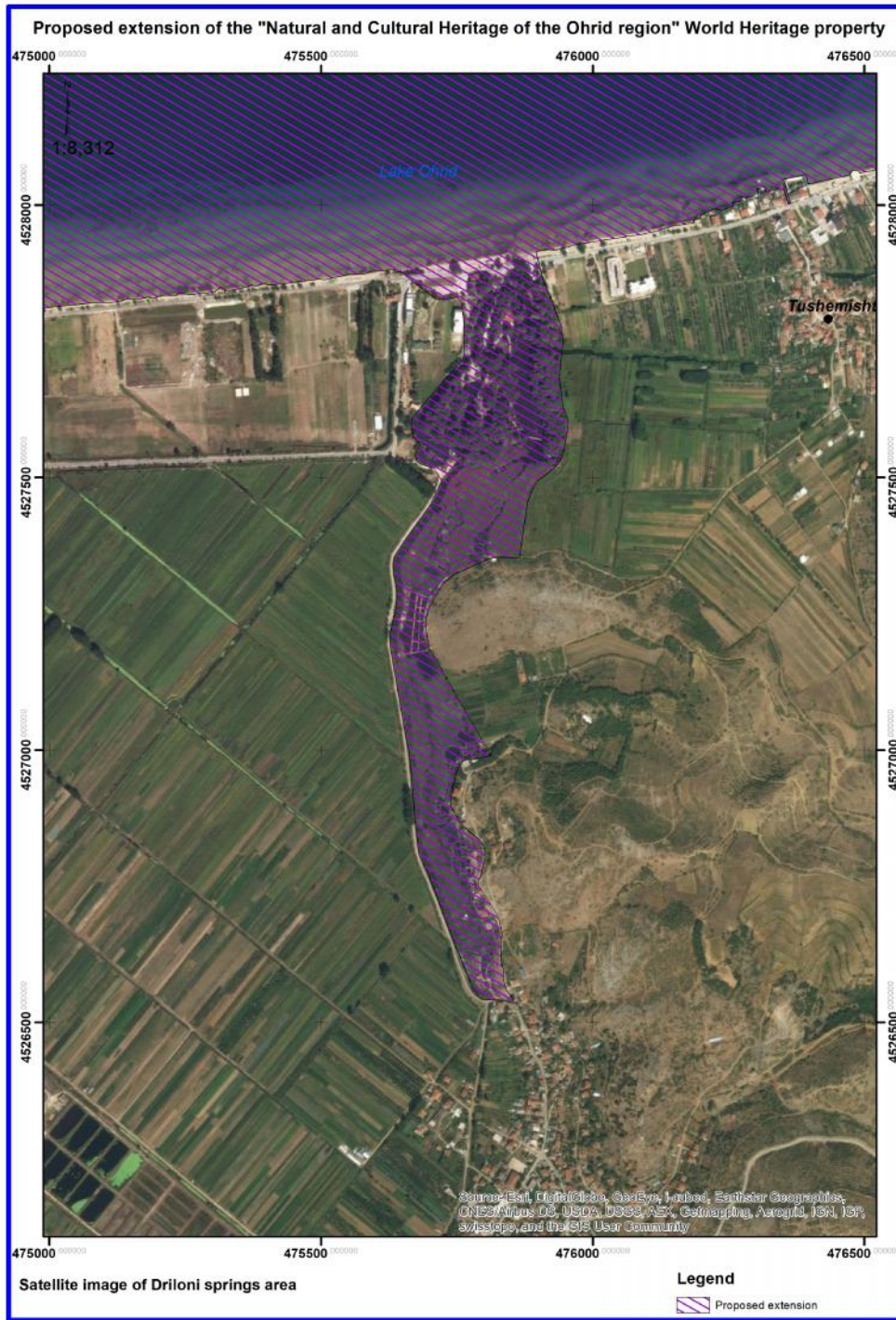
MAP 5. Topographic Map of the proposed extension in Albania



MAP 6. Satellite image of the World Heritage property and the proposed extension

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)



MAP 7. Satellite image of Driloni Springs



MAP 8. Satellite image of Lin Peninsula

2.6. Area of proposed extension

The proposed extension encompasses basically the Albanian part of Lake Ohrid region and an extension including the Lin Peninsula and coastal strip north to the Macedonian border and the Drilon springs and the watercourses linking them to the World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” in FYR Macedonia inscribed in the World Heritage List as a natural site in 1979, and extended to create a mixed (natural and cultural) in 1980.

Id n°	Name of the component part	Region(s) / District(s)	Coordinates of the Central Point	Area of Nominated component of the Property (ha)	Area of the Buffer Zone (ha)
001	Natural and Cultural Heritage of the Ohrid Region, property inscribed in 1979	FYR Macedonia	41° 11' 27"N 20° 77' 41" E	83,350	N/A
002	Proposed extension	Albania	40° 90' 96"N 20° 66' 28" E	11,378.60	15,944.40
Total area (in hectares)				94,728.6 ha	15,944.40 ha

Table 3. Size and distribution of the inscribed and proposed extension

3. DESCRIPTION

3.1. Introduction

The “Natural and Cultural Heritage of the Ohrid region”, a mixed World Heritage property was inscribed for its natural values in 1979 and for its cultural values a year later. In 1979, the Committee decided to inscribe the Ohrid Lake on the World Heritage List under what was then natural criterion (iii) (equivalent to current criterion (vii)). In 1980, this property was extended to include the cultural and historical area, and cultural criteria (i) (iii) (iv) were added. Minor boundary modifications have been referred in 2008 (Decision 32 COM 8B.49) and subsequently approved by the Committee in 2009 (Decision 33 COM 8B.40).

Lake Ohrid is a transboundary lake in the Western Balkans, straddling the border between the Republic of Albania and the Former Yugoslav Republic of Macedonia. It is possibly the oldest lake in continuous existence in Europe with current age estimates ranging between 2 and 5 million years, based on geological investigations, and between 1.5 and 3.0 million years, based on molecular clock analyses of endemic taxa (Wagner et al. 2014, Baumgarten et al. 2015). The high richness of animal and plant species on the Ohrid and Prespa region represents a unique ecological and bio-geographical phenomenon in Europe. The variety of climate, complex geological history, and interactions between populations, species, and ecosystems have all

resulted in enormous diversity and abundance of plants, animals, and ecosystems in this area of South Eastern Europe (Savi , 2008). Along with a large number of endemic, rare and relict species highly significant in themselves, their different ecological characteristics, distribution and origin has contributed to the region's uniqueness. The rapid changes and developments after '90 and increasing human population in the Lake catchment areas (almost tripled), eutrophication of their waters, and ongoing use of water for agriculture are currently adversely affecting the ecosystems. In addition to the water bodies, the terrestrial part of the lakes system is equally important and the existence of a wide spectrum of protected areas (including natural monuments) represents a clear, formal recognition of these assets. In November 1999 the Albanian side of Lake Ohrid (Decision of Council of Ministers No.80, 18.2.1999) was proclaimed as a Protected Area -Pogradec Terrestrial/Aquatic Territory Protected Landscape Area of Terrestrial/Aquatic territory with a surface area of 27,323 ha. This area covers both water and terrestrial ecosystems. At present, the Protected Landscape of Pogradec (IUCN category V) established in 1999 provides a legal basis for the protection of Lake Ohrid and the surrounding area, that, from the cultural perspective, includes certain attributes proposed by the State Party as relevant to the extension. The protected area encircles the lake surface, adjoining lowland around the lake, extending to the slopes and ridges of the surrounding hills. The protected area comprises the Municipality of Pogradec including all villages that surrounds the lake. The protected area is managed by the National Agency of Protected Areas, within which operates a unit responsible for the protected area. Based on that, the understanding of natural values in and around the Lake Ohrid Region is a crucial prerequisite for its effective management and protection, the inscription is structured with a broadly (a) presentation of examples of natural, scenic, geological, scientific, ecological, floral, faunal, including a short justification for each attribute identified; (b) describing areas essential for protecting the ecological integrity of Lake Ohrid; (c) describing areas and resources that are valuable to local communities using the ecosystem services approach, assessment and valuation; (d) describing habitat types of conservation interest, rare and endemic plants and animals, threatened species at local, national, regional and global levels identified against a set of criteria and (e) providing quantitative and qualitative assessment of current conservation status and trends in the key biodiversity attributes, identified and analysed threats to biodiversity, their causes, in particular with respect to the key biodiversity attributes, and the means of addressing them.

In the Lake Ohrid region, some of Europe's earliest human settlements and heritage routes border one of Europe's oldest lakes. The area has been continuously occupied since at least the Neolithic Period. Remains of prehistoric pile dwelling settlements have been discovered in the vicinity of Zgradie, Lin, Udenisht and Pogradec, and there is wider evidence that the Korça basin was in the forefront of the agricultural transition of Albania and possibly among the earliest farming areas in Europe. Sites such as Maliq attest to the continuity of settlement through the Late Neolithic, Copper and Bronze Ages. Several hill fortifications dating from the Early Iron Age have been identified and studied. (Zvedza, Gradishta of Symiza). The rural landscape between Pogradec and Korça is very pleasant and varied. Immediately behind Pogradec the

plains are extensively cultivated and the villages have grown at the foot of the surrounding hills so that land suitable for farming was not eroded; apparently, archaeological research suggests that this settlement pattern could be traced since the early neolithic time (Allen, Gjipali, 2014). Unfortunately, in the recent decades building development has encroached upon the agricultural land, especially in the areas near the lake shore (e.g. in Tushemisht or between Pogradec and Lin), however, the organisation and layout of the rural landscape is still readable. The plains south of Pogradec also preserve traces of a system of small canals, channeling water from the Drilon sources. Investigations on the age of this irrigation system would assist to clarify its origin and history. The hills surrounding the Pogradec plain exhibit extensive traces of terraces, which, apparently, have a recent origin, being developed during the dictatorship to increase farming land. Between Korça and Tushemisht, soft hills make the rural landscape more varied and attractive in term of landscape mosaic and type of cultivations, the rolling vegetated hills create an interesting contrast with the bare calcareous slopes of the mountains. In most cases the settlement structure of the villages is still largely preserved and the residential architecture still exhibit traditional layout features and materials, although in many cases basic rehabilitation or adaptation interventions have been carried out by the inhabitants with poor or inappropriate materials. Rural architecture of the villages is very simple but nevertheless, if their characteristics and materials are preserved, they contribute to the overall ambiance of the landscape. The buildings exhibit a very simple architectural form and language with little or no decoration. Their interest resides mainly in the use of traditional materials (e.g., adobe, or bricks, wooden beams and opening frames, brick tiles, thatched roofs, etc.) and their small scale having associative significance with the local community's harmonious relationship with the land over centuries through sustainable use patterns. Important traces of the Christianisation of the region, initiated in the 1st century AD, are found also along the today Albanian side of the Lake Ohrid: on the top of the peninsula of Lin, the remains of the Early Christian church of Lin dated back to 5th -6th century AD, one of the most important archaeological sites in the area, have been discovered in 1968 by a researching expedition of the local museum of Pogradec. It was dated at the 6th century AD, but it seems to have been in use until the medieval period. On the stratigraphy of this period it is well evidenced the presence of fire indicating that the church was burned and its walls destroyed. The church has seven premises paved with mosaics where white, black and red are the main used colours, but also brown, green yellow and orange. Similar in style to the early medieval mosaics in Macedonia (basilicas in Oktis, Radolisht and Studencisht) just across the lake, biblical scenes (Eucharistic), flowers, animals, svastica and many other objects are depicted on the church floor, some in very good condition

The rapid population growth and development in the last two and a half decades in the Lake Ohrid region (population of the Pogradec city was tripled in 25 years) have impacted the lakes in different ways. These impacts include the destruction and fragmentation of natural littoral habitats due to unplanned developments and lack of urban planning (construction activities), current road construction, fishing pressures, increase of phosphorous load to accelerated introduction of pollutants into the lake. The sequences of various types of pollution still are not

reflecting the serious changes in water quality due to lake particularities, but without integrated approach and abatement plans in a long run this might be turned to a serious effect to entire lakes ecosystem and its functioning.

3.2. Description of the property

The inscribed and proposed extension of Ohrid region is at a distance of about 110 *km* from the Adriatic Sea (Map 9). Despite the relative proximity of the sea, the sea itself does not have a huge influence. This is due to the high mountain massifs ranging in-between. Through the rare, relatively low passes, and the vale of the Black Drin River, however, penetration of sea air masses is largely allowed. The huge amount of water volume of Lake Ohrid, which acts as a thermal regulator, has greater influence on the climate formation than has the Adriatic Sea itself.

In this section, the “Lake Ohrid region” refers both to the inscribed and proposed extension as well as to the ecosystem in the broadest sense. The description intends to broadly present the added values of the proposed extension and it is necessary in the description of the geomorphology, hydrodynamics and habitats to make differences beyond the boundaries of the inscribed and proposed extension, because natural processes and, in particular, different species do not respect administrative boundaries shared between Albania and FYR of Macedonia.

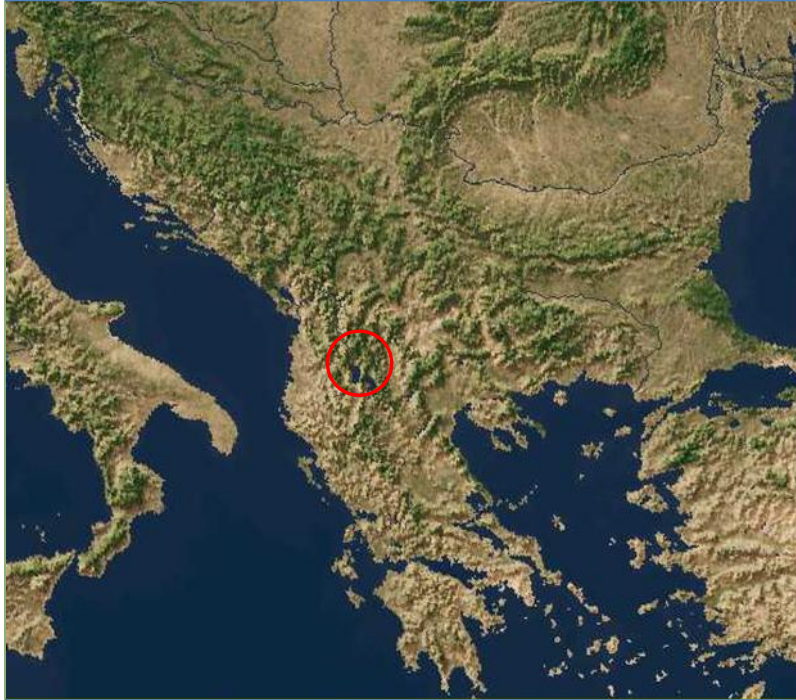
Physical environment

The inscribed and proposed extension of the Lake Ohrid region is a transboundary area in the Western Balkans, straddling the border between the Republic of Albania and the Former Yugoslav Republic of Macedonia. It is possibly the oldest lake in continuous existence in Europe with current age estimates ranging between 2 and 5 million years, based on geological investigations, and between 1.5 and 3.0 million years, based on molecular clock analyses of endemic taxa (Wagner et al. 2014, Baumgarten et al. 2015).

The local climate is influenced by the proximity to the Adriatic Sea, by the surrounding mountains, and by the thermal capacity of Lake Ohrid.

Geology and geomorphology

Due of its geographic position, geology, geomorphology, tectonics and its age, Lake Ohrid represents an important link between climatic and environmental records from the Mediterranean Sea and the adjacent continent. This information is a key for understanding the Lake Ohrid ecosystem functioning. The watershed of Lake Ohrid is characterized by fairly complex geological-tectonic structures with rocks from the oldest Paleozoic formation to the youngest Neogene and Quaternary sedimentary rocks (See Map 10 and Map 11).

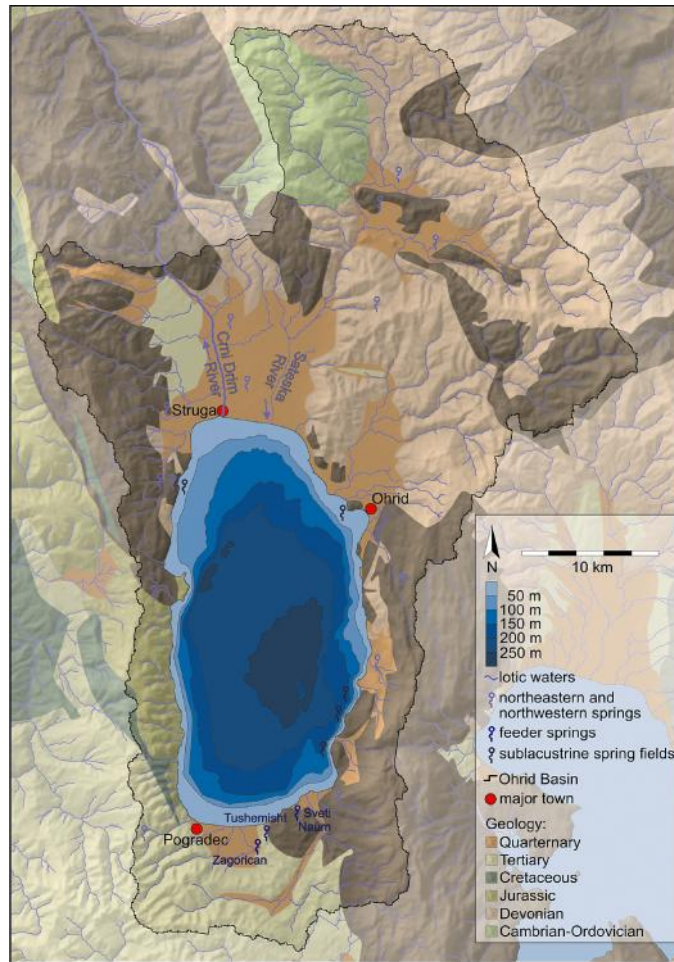


MAP 9. Satellite image of the Ohrid Lake with the Balkan region

Both mountains and the valley are mainly composed of rocks varying in their age, mineralogical composition and origin. The calcareous rocks are dominant and to a small extent are distributed between magmatic rocks and Grano-Diorites. Syenites are present at the higher elevation areas, but Triassic carbonate rock masses are also present in many areas. Different types of Quaternary sediments, such as alluvial, fluvio-glacial, proluvial, organogenic-marsh and diluvial sediments are dominant in the valley, especially at the riverbeds. The depth of those sediments varies between 100 and 200 m.

The carbonate rocks dominate the geology of the Ohrid catchment and they are therefore of special importance. The karstic features are the dominant generic type of relief forms on Dry Mountain and Galicica which is a typical karstic area where the Triassic massive and banked limestone layers lie over the crystal shales. These surfaces have been exposed for a long time to the influence of external factors which have strongly initiated the process of karstification. Lesser and Greater relief karstic forms, such as *Karrens*, numerous karst *sinkholes* and karstic *dry flows*, as well as *karstic fields*, are frequent. From the underground karstic forms there are present numerous caves.

Lake Ohrid Basin, a graben structure, is located at the contact between the Mirdita Ophiolite Zone, one of the internal zones of the Albanides, and the Korabi Zone of the Western Macedonian Zone (Hofman et al., 2010).

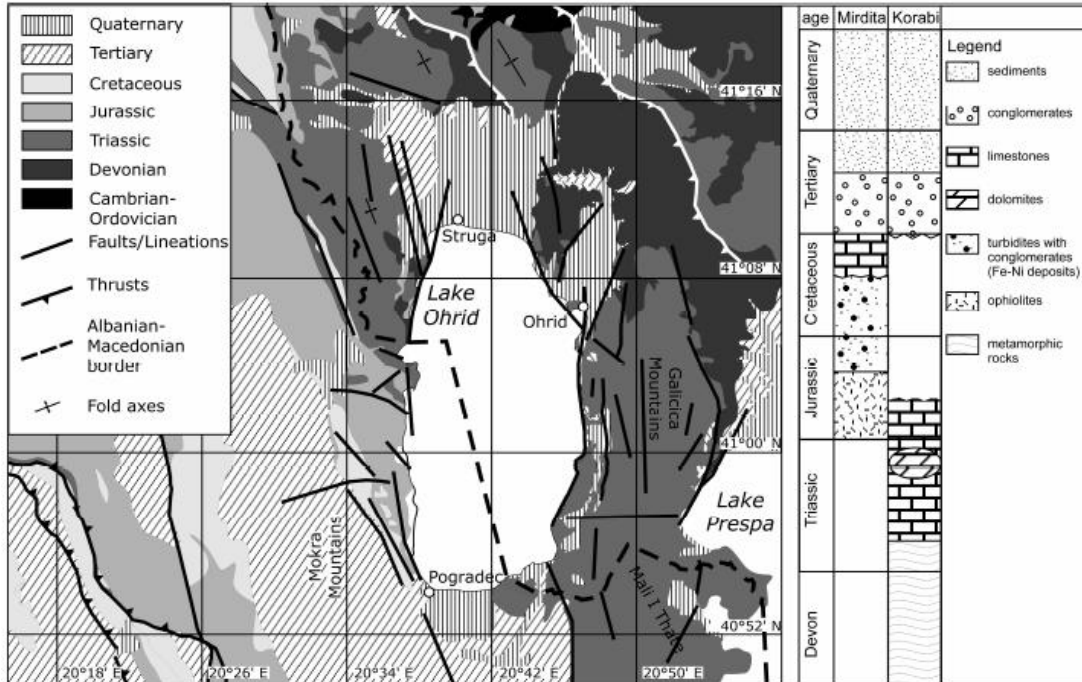


MAP 10. Map of the Ohrid Basin showing major hydrological and geological features. Map adapted from Hoffman et al. (2010).

In the lake region the Jurassic ophiolites of the Mirdita Zone are thrust over the units of the Korabi Zone during Early-Mid Tertiary (Robertson and Shallo, 2000). The contact of the two zones can be observed south of the Lini Peninsula at the western shore of the lake. The geodynamic setting with the Alpine-Dinaride-Albanide thrusting in Tertiary and today's extensional regime led to the general impression of a NW–SE striking of the large geological units. While the Shebeniku Ophiolitic Massif of the Mirdita Zone forms part of the SW graben shoulder, Triassic carbonates and clastics of the Korabi zone are widely exposed to the SE and NW of the lake. At the NE margin of the basin the underlying Paleozoic metamorphic rocks of the Korabi zone are exposed. This thrust-like geological setting is modified by the Tertiary to present extensional regime, which leads to the basin formation and the beginning of flysch and molasse sedimentation. The Lake Ohrid Basin forms the largest of a number of basins in the Dinaride-Alpine mountain belt that stretches along the western shore of the Balkan Peninsula. This belt formed as a result of the Dinaric subduction, still being characterized by a compressional stress regime nowadays (Dumurdzanov et al., 2005).

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)



MAP 11. Left: Geological map of the Lake Ohrid area. Main structural elements are shown. Right: Stratigraphy of Mirdita and Korabi units. Compiled after Dumurdzanov and Ivanovski (1977) and Premti and Dobi (1994) (Hoffman et al., 2010).

The Ohrid Basin, the Debar Basin to the north, the Korça and Erseka Basins to the south, and the lakes of Great and Small Prespa to the southwest are situated in a basin and range-like geodynamical setting. The entire area is controlled by present day E–W extension. Ohrid Basin marks the transition between the Paleozoic orogen in the east (Pelagonian) and the Mesozoic rocks (Apulian) in the west (Robertson, 2004). Jozja and Neziraj (1998) and Tremblay et al. (2009) describe these units as the Western Macedonian and the Mirdita Ophiolite Zones. Today, the main structural sections of the Eastern Adriatic coast can be subdivided into a compressional coastal domain, followed by a narrow zone of transition west of Lake Ohrid and the extensional domain, in which the Neogene basins formed.

The roll back of the subducted slab leads over time to a westward migration of the entire system. Slab roll back is generally associated with uplift as evidenced in the Gibraltar Zone (Duggen et al., 2003) and shown by fission-track dates of Muceku et al. (2008). This is also evidenced by the westward migration of the NS extensional domain of Eastern Macedonia, which is influenced by the North Anatolian Fault Zone with its extension into the Aegean and the initiation of its right-lateral slip in the Early Pliocene (Dumurdzanov et al., 2005, Burchfiel et al., 2008). The older N-trending basins in Eastern Macedonia were disrupted by E–W trending basins, so the faults become younger to the west.

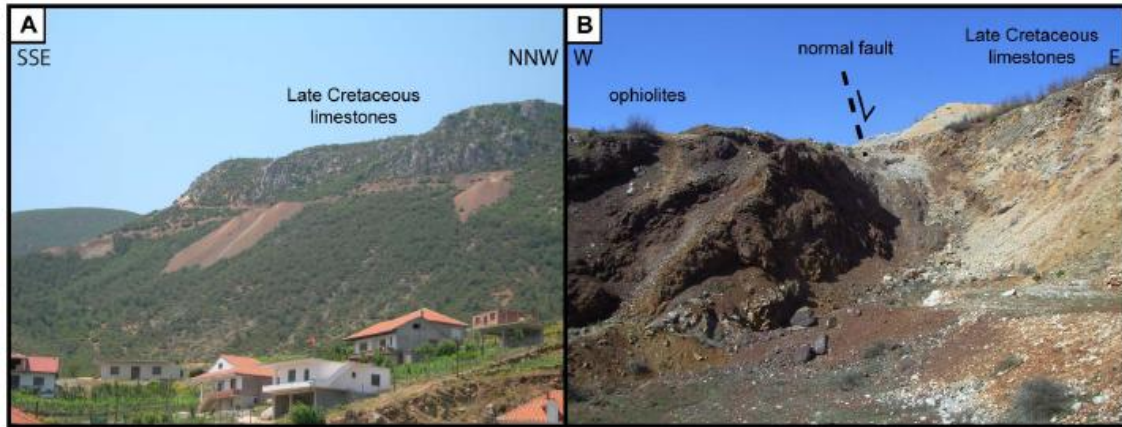


Figure 2.4: (A) The contact between Mirdita ophiolites and Late Cretaceous limestones is marked by large tailings (west coast of Lake Ohrid, Albania, view towards SW). (B) Close-up view of a normal fault that bounds the Mirdita ophiolites and the limestones of Late

During the Paleozoic, a regional foliation developed in the Cambrian and Devonian units. Thrusts and folds were the dominating deformations during the Mesozoic orogeny, later dominated by normal and strike-slip faulting, mainly in N–S direction (Dumurdzanov et al., 2005). Fault patterns of the surroundings of Lake Ohrid indicate a diverse stress history. Ohrid Basin is a graben structure caused by the E–W directed extension, while the associated Korça and Erseka Basins are halfgrabens bordered by a NW–SE trending normal fault on their eastern side. The sedimentation in the Ohrid Basin began in the Late Miocene with the formation of a pull apart basin, controlled by right-lateral strike-slip movements. Subsidence and further extension account for the major dynamic component since the Pliocene-Pleistocene. Several hundred meters of sediments accumulated since the Late Miocene. According to Dumurdzanov et al. (2004) the oldest sediments in the lake are probably the Pliocene Piskupstina and Solnje Formations. Today, sedimentation is likely to be compensated by subsidence.



Figure 2.5: Panoramic view of the Lini halfgraben (Albania; view towards SE), note the stepped landscape due to normal faulting of the ophiolites (O) and Late Cretaceous limestones and Triassic carbonates (C) (Hoffman et al., 2010).

Morphological features tend to trend mainly N–S in the west of the lake and N–S to NNE–SSW in the east. Further sets of NW–SE and E–W lineaments are also present. Latter are most likely related to the E–W extension of the basin (Wagner et al., 2008). Active faulting along an E–W trending fault has been described from Lake Prespa (Dumurdzanov et al., 2005). Between the lakes, the Galicica mountain range is separated from the Mali i Thatë Mountains in the south by a normal fault that cuts the mountain ridge at 1500 m a.s.l. (Aliaj, 2000). Fault surfaces and lineations are preserved in the entire area.

During alpine orogeny from the Eocene until Pliocene, flysch and molasse-like sediments were deposited, which are now exposed as deformed nappes (Jozja and Neziraj, 1998). They cover the ophiolitic Mirdita units to the west. Further remains are preserved covering discordant Korabi units in the south of the lake and in the Struga Plain. They consist of Paleocene conglomerates, silt- and sandstones of the flysch, overlain by Neogene molasse clastics, mainly conglomerates, sands and boulder gravels. Molasse outcrops at the lake are located near Pogradec (Pliocene) and west of Prrenjas, which consist of folded and thrustured granite-bearing conglomerates and sandstones. A further outcrop is near Ljubanista close to the southern shore of Lake Ohrid, where the river Cerava cuts into Pliocene conglomerates consisting of sands and gravels, which have been transported from Albania and Greece. The deposits are built up of eroded Cenozoic molasse of the Korça Basin, which have been redeposited in the Ohrid Basin. They are superposed discordantly by Pleistocene conglomerates, which have been transported from the heights of Mali i Thatë and Galicica Mountains.

The transportation processes were stopped by ongoing subsidence, which divided the Ohrid from the Korca Basin in the Late Pliocene and Early Pleistocene. Other areas are characterized by the formation of huge paleosols, which are for example preserved within the hanging wall of an active normal fault at the eastern graben shoulder NW of Dolno Konjsko. The youngest deposits in the Ohrid Basin are the Quaternary plains of Struga in the north and Pogradec in the south (Hofman et al., 2010). While the plain of Pogradec provides indications for a drying up of shallow lake areas filled with fine grained sediments, the northern plain is build up by gravel and sand strata from river deltas and alluvial fans.

From the substrate point of view, the ultramafic and limestone substrates dominate and cover more than 75 % of the catchment of the Albanian side of the Ohrid Lake (Table 2.1). The limestone substrate are settled in the north-western and south-eastern part of the catchment or in the border line with FYR of Macedonia, whereas small surfaces of them can be found among the ultrabasic massifs of central part (Kabo, 1990, Dumurdzanov & Serafimovski, 2004). The ultrabasic massifs of catchment are composed by serpentinites and peridotites which have shallow solis and results poor in nutrient elements and reach in heavy metals. They extend from Guri i Kuq village, City castle up to Lini village-Qafë Thanë. The geomorphology of the substrate, exposition and climate play an important role in flora and vegetation of the Ohrid Lake watershed.

Substrate type	Limestone	Serpentine	Peridotite	Schistous	Sandy bedrock	Siliciclastic bedrock	Alluvial deposits
Albania	+	+	+	+	+	+	+
F.Y.R. Macedonia	+	-	-	+	-	+	+

Table 4. The substrate types on the Albanian and F.Y.R. Macedonian side of Ohrid Lake

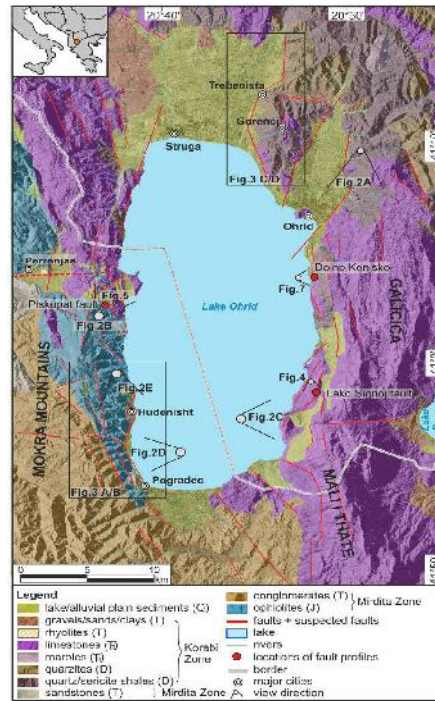


Panoramic view of the Castle hill and the Lin village where respectively the sandy rocks at the entrance of Pogradec city and Lin serpentine and limestone substrates occurs.

Tectonics

Instrumental seismicity records in the Ohrid area reach back to the early 20th Century. The strongest event ever measured here took place on 18 February 1911. The magnitude 6.6 earthquake (EMS X) occurred in the Ohrid-Korça area in a depth of 15 km (Muco, 1998). Burton et al. (2004) list only moderate events (except the 1911 earthquake) in shallow depths (<60 km) for the study area. Background seismicity is low compared to Greece. Most recent events are the 23 November 2004, Mw 5.4 earthquake in the Korca region. The normal faulting mechanism is a result of the E–W extension. Even though hundreds of houses were damaged and some dozens even destroyed, no fatalities were reported. A series of more than 35 aftershocks followed the main shock in the next days. The shallow epicenters in combination with the poor building standards in the region are held responsible for the severe damages. Smaller recent events have shallow epicenters up to 25 km depth, deeper events are rare. Most of the earthquakes are associated to the fault zones that border the Ohrid Basin (Aliaj et al., 2004). Fault plane solutions of the recent earthquakes fit the geodynamic setting with mainly compression along the Albanian coast and normal faulting mechanisms that contribute to the extensional domain inland. Besides

segmentation of longer faults and taking into account a possible rupture length of approximately 15–18 km, it is expected that the normal faults at Ohrid are prone to generate an earthquake of M 6.5–7 (Hoffmann, 2010). Taking all this into account, the Ohrid-Korca area is regarded one of the highest seismic hazard zones in Albania and Macedonia (Aliaj et al., 2004) but only medium among the Balkans (GSHAP,2010)



MAP 12. Geology of the Lake Ohrid basin (*source: Hoffmann, 2014*)

The tectonic zones of the Internal Albanides cover the Eastern part of Albania. Mirdita zone is related to the Subpelagonian zone in Hellenides and the Serbian zone in Dinarides. This wide belt extends from NW to SE. Three tectonic units were formed in Mirdita zone during different orogenic phases. The lower tectonic unit consists of ophiolites. Intensive Bouguer anomalies and turbulent magnetic field with weak anomalies characterize the ophiolitic belt of the Internal Albanides (Frasheri, 2010). There are three features in this anomalous belt: Firstly, this zone is divided in two parts, North and South of Shengjergji flysch corridor. Secondly, there are five gravity maximums (up to 105 mgal), along the anomalous chain from Tropoja-Kukesi ultrabasic massif in the North-East Albania to the Morava massif at South-East. In its Northern part, the anomalous belt takes a 60° to 70° turn to the North-East reaching the Dinarides ophiolitic belt. Thirdly, higher gravity anomalies are present in the Eastern belt over the ultrabasic massif. To the South, the ophiolitic belt exhibits limited thickness and it keeps developing Southwards in the Hellenides.

Hydrology

The Ohrid Lake is the deepest tectonic lake in the Balkans (289 m, 7th deepest lake in Europe). It covers in total an area of 358.2 km² and only 109 km² belong to Albania. The altitude of the Lake is 695 m a.s.l. The coastline of Lake Ohrid is 87.5 km long, of which 31.5 km belong to Albania and 56 km to Macedonia. The lake itself has a maximum length of about 30 km and a width that varies from 11.2 km to 14.5 km. The maximum depth is 289 m and average depth is 164 m. Lake Ohrid has 40 tributaries most of which are creeks and rivers which flow only temporarily during heavy rains and melting of the snow from the surrounding mountains. The most important tributaries of the lake are river Sateska, Koselska and Cherava. The most important inflows on the Albanian side are the Tushemisht-Driloni springs, the springs in the vicinity of Lini village, the Çerava River, Pogradec River, and Verdova River. The estimated average discharge of the Tushemisht Karstic Springs is 2.5 m³ s⁻¹, and an unknown quantity enters the lake through sublacustrine springs along the shore between the monasteries of Saint Naum to Tushemisht Springs (Figure 2.7). The Çerava River is the largest river on the Albanian side that flows in Lake Ohrid. It is located along the south part of the lake and originates from several springs in the mountainous area of Guri i Kamjes, at an altitude 1,538 m a.s.l. Generally the flow direction is toward the east up to the Çerava village, and after that, to the north, near the Lubanishte village on the Macedonian side. The river runs for 18 km and drains an area of 87 km², and the average discharge has been estimated at 1.5 m³ s⁻¹. The Pogradec River is a small stream that flows through the city of Pogradec. Its origin is in the mountains around the city and drains an area of 10.6 km². Its steep bed slope of 9.2% poses a threat to the city of Pogradec during heavy storms. To protect the city from floods, the riverbed was reclaimed with concrete in all urban sectors. Following the hydrology data for the period 1974-1990, the annual average discharge of the stream is 0.25 m³ s⁻¹. The Verdova River is also a small stream which drains into the southwest section of Lake Ohrid. The river runs for around 8 km, draining an area of 8.4 km², the average bed slope is 4.5 %.

The scattered population on the Albanian side due to water demands (including livestock and agriculture) in the last several decades was the reason for numerous interventions in the entire hydrological network of the region. Springs starting at a location close to the Albanian-Macedonian border are intensively used for the purposes of drinking water in Pogradec city and the population of other surrounding villages; other water springs (Tushemisht-Drilon and in the vicinity of Lini village it is used for recreation, aquaculture), numerous springs of water have been captured (collected) for supplying villages in the wider region. In addition, the zone which pastures use for livestock grazing, have been made into reservoirs and wells have been constructed as well.

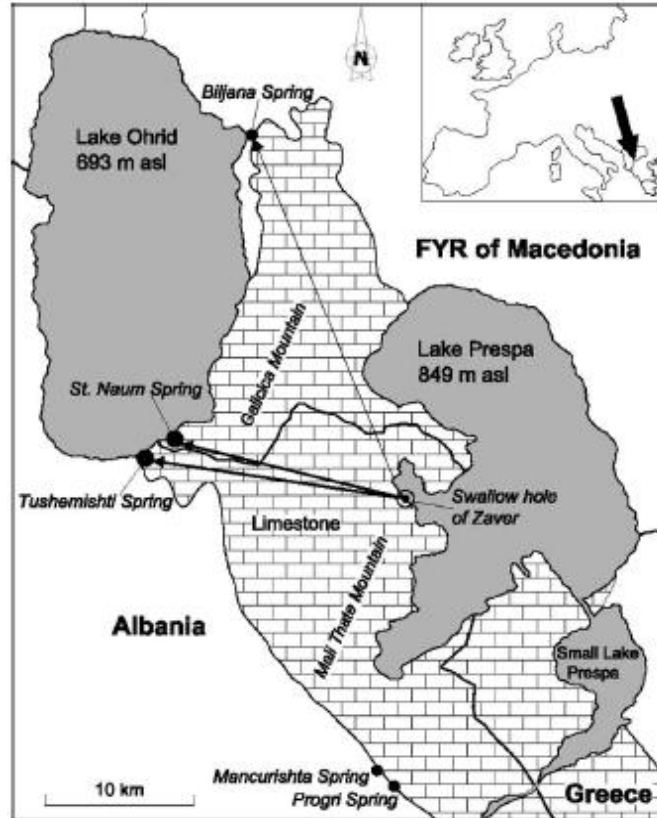


Figure 2.7: Recharge of Ohrid Lake from Prespa Lake. The black arrows show the proven underground connection (Eftimi, 2010)

Property	Unit	Lake Ohrid	Lake Prespa
Altitude	m asl	693	849 (854) ^a
Catchment area	km ²	2610 ^c	1300 ^b
Lake surface area	km ²	358	254 (282) ^a
Maximal depth	m	288	48 (54) ^a
Mean depth	m	155	14 (19)
Volume	km ³	55.4	3.6 (4.8)
Hydraulic residence time	year	70	11 (17)
Average phosphorus concentration TP	mg P m ⁻³	4.5	31
Number of endemic species	-	150	10
Number of inhabitants in catchment area	-	174,000	24, 000
Number of tourist per year	-	50,000	10,000

^a Value in parentheses: in the 1980s before recent water level decline of Lake Prespa.

^b Including Small Lake Prespa and its catchment.

^c Including Lake Prespa and its catchment.

Table 5. Characteristics of Lake Ohrid and Lake Prespa (according to Matzinger et al., 2006)

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

According to Matzinger et al. (2006) Lake Ohrid is an oligomictic lake with complete mixing occurring roughly every seven to ten years (Figure 2.8). Following Naumoski *et al.* (2007), in 2005 the Secchi disk transparency varied between 9 and 17m in the year. The hydraulic residence time in Lake Ohrid is about 70 years and average in and output rates of approximately $37.9 \text{ m}^3 \text{ s}^{-1}$ (Matzinger et al. 2006). According to these authors the water input of the lake is dominated by inflows from karstic aquifers (53%), whereas direct precipitation and river inflow contribute 23% and 23%, respectively. The inflow from karstic aquifers originates in sublacustrine (49%) and surface springs (51%). The contribution of spring water in the overall water input of Lake Ohrid was even higher before the diversion of River Sateska into the lake in 1962 (Matzinger et al. 2006a).

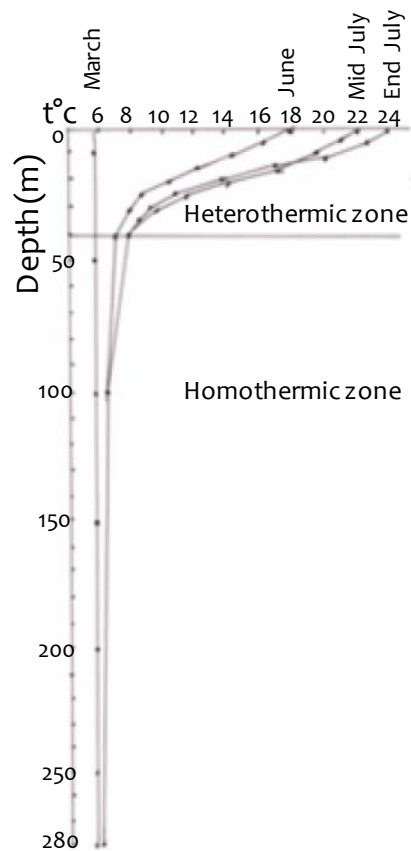


Figure 2.8: Vertical profile of temperature in Lake Ohrid

About one-third of the water output occurs through evaporation and two-thirds via the River Crni Drim - the only outlet of the lake which flows into the Adriatic Sea (Watzin et al. 2002). This outlet of the lake is human-controlled. According to an agreement between Yugoslavia and Albania of 1962, the maximum water level in Ohrid Lake is not permitted to exceed the value of 693 m a.s.l., and the minimum water level is not permitted to fall below 691.65 m a.s.l.

Soils and Substrates

Due to the vast heterogeneity of environment conditions, the Lake Ohrid region has developed a large number of soil types and sub-types. Depending on the various pedogenetic factors in the region, there are several types of soil. Dominant soils in the Albanian part of the valley are *alluvial soils* (fluvisols) located in the lowest parts of the region. These soils are formed over the sediments by the rivers. On the other hand, on the southwestern part of the region, as well as within the band closest to the lakeshore – *hydric soil* formation is ongoing, which leads to the formation of *gleysols* in different stages of evolution. Around the *fluvisols*, *colluvial soils* are well developed. These soils are formed above thicker sediments and are being created by the rivers and torrents in the area. On a significant part in the valley and hills on the western side, *chromic luvisols* have been formed and these soils are partly used for agriculture. On the mountain region various types of *cambisols* have been formed. The magmatic formations are represented mainly by ophiolites and volcano-sedimentary rocks. They occupied an important surface in the area. The thickness of the soil layer on these formations is commonly from 0.5-1.5 m because of the lack of the forests and the high pendency of the slopes in the western side of valley. At the middle part of the catchment, mostly in the ultramafic substrates, the layer of soil is less than 0.5 m. Natural vegetation adapts to the soils and on the eutric cambisols there are oak-hornbeam belt, whilst on the district cambisols beech compositions stand. On the ultramafic substrates the pseudomachia of brushwoods (*Buxus sempervirens*) cover large areas of the western part of the lake catchment. *Rankers* (humus-accumulative soils) with various phases of development are formed on the highest altitude in the subalpine and alpine areas.

The main soil types present in the area are:

Lithosols

Lithosols are fragmentarily found on the Mount Galicia massif. They are most widely present in the form of rocky ranges and have a N - NW and S - SE stretch direction. Larger complexes are found in the central part of the mountain massif, on the section Crven Kamen - Bajrace, then on the section Vetro Gumno – Golem Vrv – Vetri Gumenja, and on the shoreline section of Lake Ohrid, the section Cose – Tusima – Sveti Zaum – Gradishte - Peshtani. Lithosols have mainly formed on areas with strongly expressed relief, on steep falls, on the sharp peaks, cut off cliffs, places in which the erosion processes have been most strongly developed. They are undeveloped or weakly developed soils which have shallow solum, up to 20 cm, under which lies a compact rock. Lithosols are relatively and absolutely young soils with a barely noticeable initial - humus-accumulative genetic horizon. Their properties largely depend on the character of the parent substrate over which they have formed. As they have formed under extremely unfavourable climatic conditions (cold mountaineous climate, temperature extremes, severe physical decomposition, weak chemical decomposition, besides the dry and hot pedoclimatic conditions, especially those of limestone), the evolution, that is, pedogenesis takes place rather slowly, as a result of which they are usually found in their initial development stage.

Regosols

This soil type on the Mount Galicica and Dry Mount massif is generally found in the sector of the oak region where the forests have severely degraded. The Humus accumulative horizon is characterized by a rather intense biological activity. Regosols, as undeveloped or weakly developed, have formed on Mount Galicica either over loose sediments or over residual regolith made of compact rocks that easily decompose. Due to their permanent exposure to erosion, in addition to the short duration of pedogenesis, accumulation of humus and biogenic elements in these soils is poor. The following table gives some more significant features of the pedosystem units and their average values.

Rendzina

This soil type can locally be found in the western part of Mount Galicica massif, especially on the localities of Edreje, Cero Pole, Rakidje and Dobra. The majority of this soil type is abandoned agricultural land, plowed field and vineyard plantations. Rendzina develops on loose carbonate substrate, rich in CaCO₃ (over 10%), which, when decomposed give carbonate regolith. It is formed under the influence of oak vegetation and the low grass vegetation, in the course of which accumulation is allowed of mature humus, where the humic acids are bonded with Ca in granular structure Ca-humates.

Limestone and dolomite black soil (calcomelanosol)

Limestone and dolomite black soil is a widely present soil type and accounts for about 70% of the area of the Mount Galicica massif. Unlike the rendzinas which are formed over a loose silicate and carbonate parent substrate rich in clayey residium, the limestone and dolomite black soils are formed over “pure” hard limestone, with a residue of under 2%.

Ranker

Major complexes of this soil type on the Mount Galicica massif are found on the localities of Caskine, Dusegubje and Petrinsko Pole. The humus and silicate soil type ranker is formed on an acid parent substrate (phyllite), greatly influence by a dense cover of grass vegetation and wet cold climate. Due to the unfavorable hydro-thermal conditions transformation of organic waste is a very slow process, as a result of which coarse (blue) humus with rather high acidity deposits on the soil surface.

Eutric brown forest soils

This soil type embraces large areas in the northern silicate part of the Mount Galicica massif. The biggest complex of this soil type may be found section from the village of Ramne to the village of Velgoshti, between Dolni Istok and Petrinsko Pole, and between the village of Velevstovo and the village of Peshtani. A smaller area with soil of this type can also be found on both sides of the River Cherava. This complex has mainly north, northeast and east exposition.

Red soils over limestone and dolomite – calcocambisol

This soil type is locally found on the highest parts of the Mount Galicica and Dry Mount massif. It is usually formed over the negative forms of the relief (corrugations, hollows, karst fields), on

slightly inclined terrains and flat terraces. It is formed over pure limestone and dolomites that contain 0, 2-0, 8% of residue.

Red soil – terra rosa

This soil type is locally found at the lowest western shoreline sections of the Mount Galicica massif, particularly on the section from the village of Trpeica to the village of Peshtani. It has developed on pure and compact Mesozoic limestones and is usually overgrown with thermoxerophilic, severely degraded oak and hornbeam forests.

Alluvial soils

Alluvial soils in the Lake Ohrid region are less present in the Mount Galicica, while larger complexes are found in the field beneath the village of Trpeica and around the village on the proposed extension on the western side of the lake. This soil type is formed over modern river and lake deposits.

Climate

The Lake Ohrid region has a moderately continental climate. The climate moderation is secured by the influence of the large water volume of Lake Ohrid and Lake Prespa, and the high mountains surrounding valleys for the all sides. Ohrid valley is at a distance of about 110 km from the Adriatic Sea (Anonymous, 1996). Despite the relative vicinity of the sea, the sea itself does not have a large influence. This is due to the high mountain massifs ranging in-between. Through the rare, relatively low passes, and the valley of the Black Drini River, however, penetration of sea air masses is largely allowed. The huge amount of water volume of Lake Ohrid, which acts as a thermal regulator, has greater influence on the climate formation than has the Adriatic Sea itself. Such an influence is confirmed by the decreased annual temperature fluctuations, i.e. higher temperatures in winter, and lower during summer. The annual average temperature is 11.4°C. Medium monthly temperatures average to about 21.2°C degrees in July and August, and 34.4°C being the absolute maximum in August. The lowest medium monthly temperature amounts to 1.5 degrees in January, whereas - 17.2 degrees is the absolute minimum. Precipitation is one of the main factors influencing the climate regime of the area. Rain precipitation varies around the year and plays an important role on the water balance of the lake and its watershed. The highest precipitation rate is normally recorded in November-January and late spring, generally in May. Precipitation is at its lowest rate during July and August. The average annual rainfall in the Lake basin amounts to approximately 759 mm (Anonymous, 1996). The most common wind is the one blowing from north, particularly in autumn and winter. The winds blowing from southern and south-east directions dominate during spring and summer periods. Southeast and east winds are insignificant. Windy and calm periods change during the day, particularly in summer. Mornings are characterized by the shifts between blowing northern winds and calm periods. Weather conditions become quite different in the afternoons when the southern and south-east winds overtake the silence. Average speed of the wind in the Lake Ohrid region is relatively low, 3.4 m/sec.

The biotic environment

There are two biocycles (ecozones) in the Lake Ohrid region: Terrestrial and Fresh-water. The former includes the following biochores: Arboreal (zone of forests); Eremial (zone of steppes, semi deserts and deserts) and Oreotundral (zone of high mountain strips and Arctic tundra). The latter includes the biochores of permanent waters (lakes and rivers) and temporary waters (tributaries, puddles and marshes). The region is characterized by rich biodiversity and a high level of endemism, which can be attributed to its location (in the peri-Mediterranean zone), geomorphology, the geological substrate, the very old age of the lake, the local climate, the high altitudinal differences within a small area, its paleogeography, the long limnological and faunal history of Lake Ohrid, and also the long history of human presence. The unique flora and fauna within Lake Ohrid region has been explained by various authors with different arguments, where the Parathetis affirms the affinity of biological diversity of lake itself. That is well defined with freshwater invertebrates. In the specific condition species survived and followed diverge in the unique lake ecosystem, with specific permanent spring's water feeding, high level of oxygenation and habitat heterogeneity. From the biogeographical point of view, within region itself can be well distinguished the following main areas of living and biocycles (ecozones): (a) Terrestrial biocycle including Arboreal biochores i.e. zone of forests and numerous biomes; Eremial biochores: zone of steppes, semi deserts and deserts and Oreotundral biochores i.e. zone of high mountain strips and Arctic tundra; (b) Fresh-water biocycle including Biochores of permanent waters i.e. lakes and rivers and Biochores of temporal (temporary) waters: tributaries, puddles and marshes.

Phytogeographic zoning

From the phytogeographic point of view, the Ohrid lake watershed takes places in the Mediterranean and Alpine region. Its lower parts, above lake shore from 650 m up to 1000-1100 m a.s.l., occur in the **Mediterranean region** where the Mediterranean elements of oak-hornbeam belt and pseudomachia of brushwoods (*Buxus sempervirens*) etc., cover the main part of it. The main role in the flora and vegetation of this part play the Mediterranean climate, which penetrated through Drini Valley. The upper parts of watershed, above 1100 m a.s.l., were included in the **Alpine phytogeographic** region. This part is strongly influenced by continental climate and is characterised by the dry and warm summer and cold winter. This region is the richest in flora and vegetation units.

Based on the above, the flora of the Ohrid Lake ecosystem is closely related to the flora of Mediterranean region as much as to the flora of SE and Central Europe, European Alps and wider (arctic-alpine, Eurasian, Greek-Anatolian, Illyric, Middle and Central-Europaeen, and Cosmopolitan). The Mediterranean elements represent the second group of species that play an important role on the vegetation futures of the Ohrid Lake ecosystem. The Mediterranean species are localised mostly in the eastern and southern parts of the Ohrid Lake watershed and in the eastern slopes of the Dry Mt. *Cotinus coggygia*, *Pistacia terebinthus* and Sage (*Salvia officinalis*) are two best indicators which tell us for the strong influence of Mediterranean climate

through Devolli river valley, even on the western slopes of the Dry Mt. There are several examples of uncommon species that show biogeographic connections of the Ohrid lake flora with the flora of East and even North America flora. Among them, the best examples are the genus *Aesculus* and *Morina* with species of *Aesculus hippocastanum* (East Asia, Middle East and Eastern North America) and *Morina persica* (Asia Minor and Middle East). Some species originate from the glacial age are restricted in high mountains, around the predominantly glaciated high mountains (*Poa alpine*, *Luzula spicata*, ect.) whereas some others are tertiary relicts, scattered in rocky slopes or the stony pastures. Out from the relicts coming from this time can be mentioned *Pinus heldreichii*, *Acer heldreichii*, *Buxus sempervirens* or *Ramonda serbica*, *Pinus peuce* and *Aesculus hippocastanum* which occur only in Macedonian side of the watershed.

Zonation and main formations

The Ohrid Lake watershed vertically is vegetated from different belts, beginning with Oak-hornbeams, coniferous forests, represented by *Pinus nigra*, beach forest and above them sub-alpine and alpine meadows belt, including the vegetation of waters in the littoral and sublittoral zone. The watershed is distinguished for its diverse habitat types, which are represented by the following hierarchical levels: Freshwater habitats; Temperate heath and scrub; Sclerophyllous scrub (Matorral); Natural and Semi-Natural Grassland Formations; Rocky Habitats and Caves, and Forests. The fresh water habitat types represent the water body of the Ohrid Lake, mainly littoral zone and five others are founded in the watershed.

Habitats and vegetation

The most abundant habitat within the area is the water bodies (10,837.2 ha). Forests and open forest land (shrubs and herbaceous vegetation) occupy a considerable surface of around 8,997.89 ha. Agricultural area occupies around 4,529.93 ha in the area and is typically located close to inhabited villages. Pasture and meadow habitats, the first used mainly for grazing, cover approximately 1885.8 ha (MoE, 2014). There is however an overlap between agriculture and pastures data; indeed in some estimations of land use grassing areas are included as agriculture, in others in pasture/grassland. Other types of land use include: non productive areas (approximately 218.87ha and industrial/economic area around 817.39 ha). These areas cover a limited surface of the total protected landscape area. However these figures do not include areas such as mining, dumping sites, construction areas etc., which should also be considered as urban/industrial. An important habitat is reed bed habitat (36.2 ha). Reed bed area has a specific magnitude related to the spawning process. Most of the sub-alpine grasslands are of secondary origin, even though all species and most associations found during the observation would occur under natural conditions in the semi-open Conifer-Beech forests. Due to intensive pasture use over centuries there is little left of this forest vegetation. In fact only few trees of *Pinus heldreichii* H. Christ could be found in the watershed. The watershed is inhabited from different *Festucetum*, *Poetum* and *Seslerietum* associations as well as *Stipetum* in warmer and dry areas.

The lowlands grasslands are largely pseudo-steppes which are dominated by annual (therophytes) grasses (*Bromus*, *Vulpia*, *Dasypyrum* and *Hordeum*), but also semi-natural Stipo-Festucetum steppes can be found. All grasslands are from secondary origin growing on pastures or abandoned fields which have been formed after the oak forest was cut down centuries ago.

Meadows and Grasslands

Alpine meadows extend over beech belt, along Mali-Thate crests, steeper and narrower in eastern slopes, and broader and milder in western ones (Mersinllari, 1997; Buzo, 1991; 2000). The physic-geographical conditions, climate and soil, the karst and the lack of surface waters are the reasons for the not well developed vegetation. This is forced also by overgrazing and the lack of recovery measures. Xerophytes grassy plants, growing up over stony habitats with scarce soils, distinguish vegetation. In those summer pastures have been encountered frequently associations with *Festuca* spp., which cover the most part of surfaces, *Bellardiocloa violacea*, in many dry and cold areas, mainly in alpine pastures; in limited areas, mainly in slopes and rocks have been observed associations with *Sesleria coerulans*, and *Stipa pennata* in southern expositions. In limited spots, growing up not in uniformly and giving the pastures a gray-brown color.

This zone is considered to be important for the presence of endemic Balkan plants, such as the species *Asyneuma limonifolium*, *Alyssum corymbosum*, *Astragalus depressus*, *Anthemis pindicola*, *Dianthus minutifolius*, *Carlina acaulis*, *Arabis caucasica*. The following plant species *Carex curvula*, *Juncus trifidus*, *Carex foetida*, *Polygonum bistorta*, *Elyna bellardii*, *Gnaphalium supinum*, *Vaccinium uliginosum*, and *Trolius europaeus*, have on Pelister Mountain the southernmost limit of their distribution. In Albania, the alpine meadows extend over the beech belt, along the Mali i Thatë crests, steeper and narrower in eastern slopes, and broader and milder in western ones (Mersinllari, 1998; 2000 Buzo, 1991; 2000).

The ecology of Lake Ohrid

The analyses and assessments of Lake Ohrid ecology are well discussed in the famous book of Stankovic (1961) “The Lake Ohrid and its living world”. There are two unique communities of plants and animals in Lake Ohrid, the near shore or littoral zone community and the offshore or pelagic community in the deep waters in the middle of the lake. Each of these communities is characterized by different groups of organisms (Figure 2.10).

In the littoral zone, rooted plants grow up from muddy and sandy bottom and algae grow on the surface of the rocks and other hard surfaces. These plants often grow in distinct zones or belts along shoreline. In the deeper water (5-15 m), algae and rooted aquatic plants can grow in large beds. Among the more common species are *Potamogeton* spp., *Chara* spp., *Ceratophyllum* spp., and *Myrophyllum* spp. Closer to shore, the reeds (*Phragmites australis*) appear and grow right up to the edge of the water. In many places, the colonial algae *Chladophora* spp., grow on most surfaces. The reed zone is an especially important for many other organisms, including young fish, frogs and water birds.

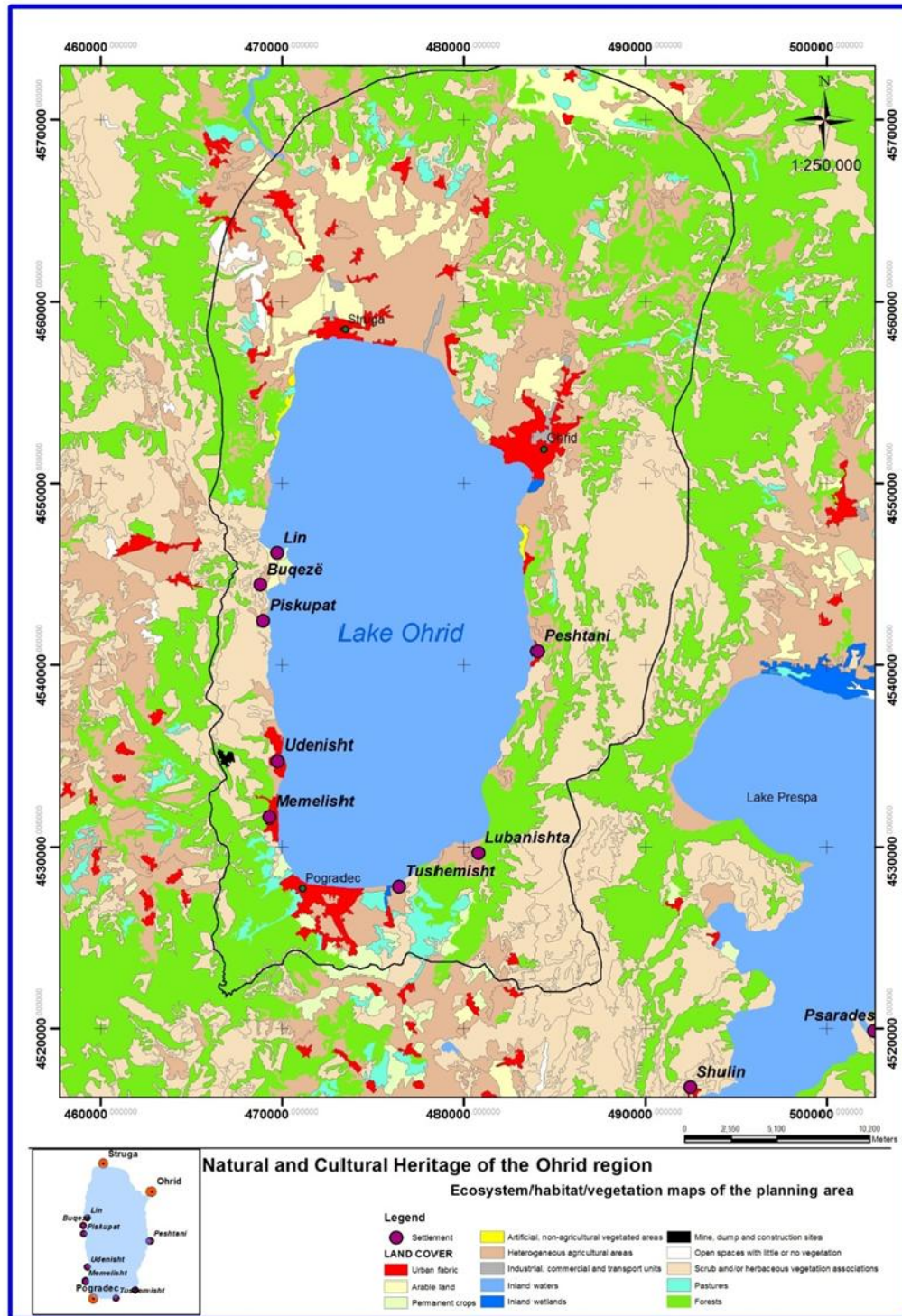


Figure 2.9: Ecosystems and habitats of the Lake Ohrid catchment

In areas of shoreline that receive river input, runoff from agricultural land, or sewerage, the littoral zone community can be thick with aquatic plants. These species that thrive with higher

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

concentrations of phosphorous are choking out other plants. *Chladophora* in particular thrives when runoff carries phosphorous into the lake in the summertime. Many of the bottom-dwelling animals in Lake Ohrid are endemic ones. For example, Lake Ohrid is the only place where the rounded sponge *Ochridospongia rotunda* is found. Its closest relatives are in Lake Baikal, another ancient lake. More than 85% of snails in Lake Ohrid are also endemic. Over the last 30-35 years, the community of snail organisms has changed significantly in areas where human pollution and intervention entered the lake. The implications of these changes for the fish and wildlife that feed on these organisms are not well understood.

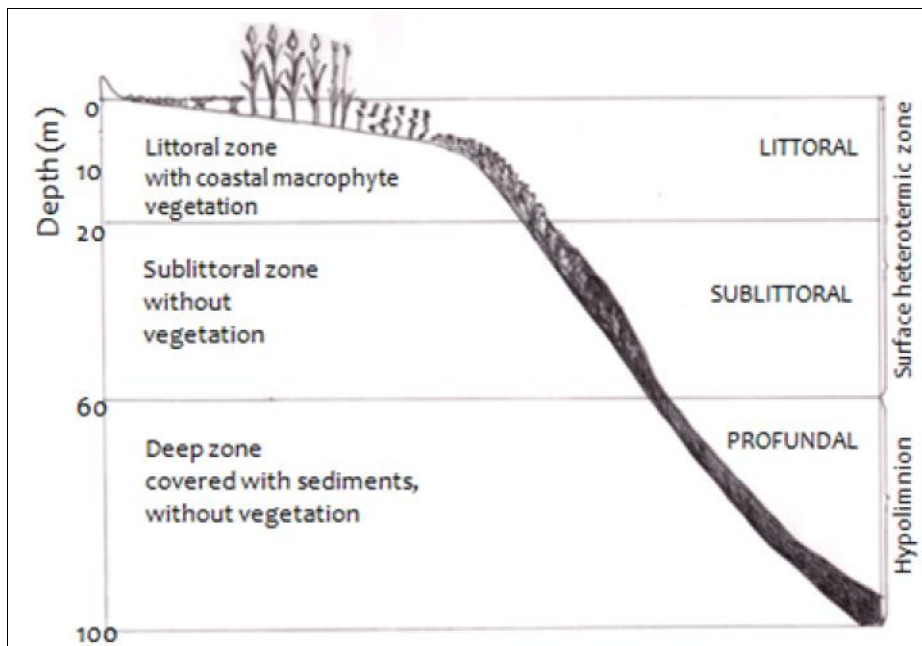


Figure 2.10: The horizontal structure of the bottom zones of Lake Ohrid

Fishes in the shallow water include a variety of minnows, as well as sought by anglers like bleak (*Alburnus scoranza*) and carp (*Cyprinus carpio*). During spawning, many other fishes come into the littoral zone, including the Lake Ohrid trout (*Salmo letnica*). The fish are a link between the shallow water habitats and the deeper water. In the pelagic community the plankton form the base of the food webs. The monitoring data collected in the last decades suggests that both the phytoplankton and zooplankton communities in the Lake Ohrid are changing. New species more characteristic of nutrient enriched conditions have been discovered, and the species composition in locations close to river inputs and near the towns and villages is changing to one that is dominated by more eutrophic species. These changes reflect the change in water quality in the lake and underscore the need to control the pollution coming into the lake.

The fish in Lake Ohrid are an important part of the local economy of both Albania and FYR Macedonia. There are six species that are regularly harvested by fisherman, including the famous Lake Ohrid trout (*Salmo letnica*), the smaller belvica (*Salmo ohridanus*), and the bleak (*Alburnus scoranza*), carp (*Cyprinus carpio*), eel (*Anguilla anguilla*), and roach (*Rutilus ohridanus*). The

shoreline and watershed of Lake Ohrid also provide critical habitat for great variety of wildlife. These include frogs, turtles, and birds that are directly dependent of the lake, and many inland species that rely on the forests and plants. The coastal wetlands provide critical habitat for hundreds of thousands of wintering water birds.

Species Diversity

In his book on Lake Ohrid, Stankovic (1960) summarized the information on the extraordinarily high degree of biodiversity and endemism in many groups organisms of Lake Ohrid taking into account relevant studies conducted in the first half of the twentieth century (Figure 2.11). More recently, Albrecht and Wilke (2008) provide an extensive review of the patterns of biodiversity and endemism of Lake Ohrid taking into consideration the emerging new results on systematics, biogeography, and evolutionary relationships of most groups that had been studied since the monograph of Stankovic (1960). According to these authors there are more than 1,200 species of plants and animals in Lake Ohrid, including about 500 species of diatoms. More recently, however, Levkov and Williams (2012), summarizing a century of diatom research on Lakes Ohrid, listed 789 taxa (species, varieties and unidentified species) bringing the total number of species in the lake above 1489.

Algae

The best studied groups among algae in of Lake Ohrid are diatoms (*Bacillariophyceae*) that seem to be an important group, followed then by *Chlorophyceae*. From an overview of *taxa* found in the whole Lake, more than 350 diatoms have been found in the Albanian part, where more than 15 *taxa* have been considered interesting or new for science (Miho et al., 2003; Lange-Bertalot, 2001). Six of them, *Aneumastus albanicus*, *A. rosettae*, *A. humboltianus*, *Navicula pseudoppugnata*, *N. parahasta* and *N. hastatula*, have been described as new *taxa*. It may be concluded that in whole Lake around 1/4 of *taxa* have a rare or endemic origin. Most of species are *oligotraphent*, growing up only in clean waters with quite low nutrients. However, in littoral habitats, especially nearby Pogradeci town, there have been observed tolerant species as dominant that grow up from *oligotrophic* to *eutrophic* waters. Some *poly-hypertrophic* species of diatoms and high presence of *Cyanophytes* have been observed in planktonic samples, too. Miho & Lange-Bertalot (2006) in a recent publication related with the diversity of genus *Placoneis* in Ohrid Lake, describe also two additional new species: *Placoneis juriljii* and *Placoneis neoexigua*. A total of 789 taxa were reported for Lake Ohrid of which 117 taxa (14%) are considered to be endemic to the lake and 15 (c. 2%) considering to be relict species. The number of species recorded for Lake Ohrid continues to increase. In the last 10 years there have been descriptions of at least 100 new species (Lange-Bertalot 2001; Levkov *et al.* 2007; Levkov et al., 2011; Levkov et al., 2012). Further to that Pavlov et al. 2011; 2013 and Levkov et al. 2011, described fifteen new species were found, each possessing unique morphological features. The flora and fauna and the degree of biodiversity in Lake Ohrid is strongly connected with the lakes water quality and the ecosystem conditions.

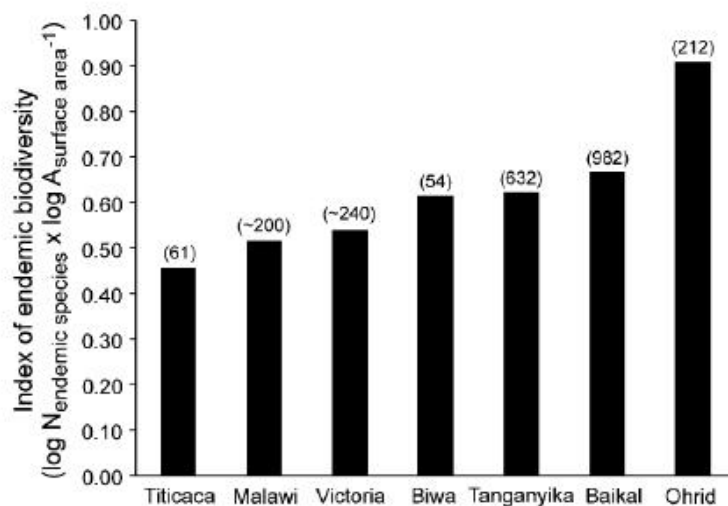


Figure 2.11: The Index of endemic biodiversity for selected worldwide ancient lakes and Lake Victoria taking surface area into account. Numbers in parentheses above the lakes indicate the total number of respective endemic species (source: Albrecht and Wilke 2008)

Macrophytes

The vegetation of the Ohrid Lake consists in a variety of aquatic vegetation communities, out of which, the wet meadow vegetation is of great importance, especially because they are periodically floated, according to the variations of depth. Most of them belong to hydrophylic or hygrophilic plant species (Imeri et al., 2001). The richest zones, from the floristically point of view are Buqeza and Driloni zones. More distributed or common species are *Phragmites australis*, *Potamogeton* spp., *Chara* spp., *Ceratophyllum* spp., *Myriophyllum* spp., etc. The littoral vegetation of Lake Ohrid is rich of 125 aquatic plants. Most common species are common reed (*Phragmites australis*), pondweed (*Potamogeton* spp.), green algae (*Chara* spp.), hornworts (*Ceratophyllum* spp.), and watermilfoil (*Myriophyllum* spp.). Six successive zones of vegetation are defined as follows: Zone 1: *Chara* spp., Zone 2: *Potamogeton* spp., Zone 3: Reed bed zone - *Phragmites australis*, Zone 4: floating leaf species, Zone 5. Palustrine zone and Zone 6: *Charatea*.

The Ohrid Lake is known also as one of the richest habitats of *Charophytes* in the Balkan Peninsula, but on the Albanian side of the lake there are no studies on this group of algae (Kashta et al., 2013). In the fresh waters of the lake there are identified 12 species of Charophytes. Some of them are assessed as threatened and are included in the Red List of Balkan Charophytes as critically threatened (*C. ohridana* CR, *Nitella hyalina* CR), endangered (*Nitella syncarpa* EN) or vulnerable (*C. hispida* VU, *Nitella flexilis* VU, *Nitelopsis obtusa* VU). Rakaj & Kashta, reports also 48 aquatic tracheophytes species from the Lake Ohrid, compared with 76 on Shkodra Lake, and 58 species in the Lake Prespa. The number of species based on growth forms is given in the following table (Table 6).

Nr.	Growth forms	L. Ohrid	L. Prespa
1.	Hydrophytes	28 (59%)	35 (60%)
2.	Amphiphytes	11 (22%)	14 (24%)
3.	Helophytes	9 (19%)	9 (16%)
	Total	48	58

Table 6. Number of aquatic tracheophytes according to growth forms in Prespa and Ohrid Lake (according Rakaj & Kashta, 2017).

Vascular plants

The flora of Ohrid Lake watershed is distinguished by large number of plant communities and vegetation entities and particularly high number of Balkan relicts and endemic species. There are found ca. 1350 plant species in the Ohrid Lake watershed, from which 48 species are aquatic tracheophytes (Shuka et al., 2013, Shuka & Kit Tan, 2013; Kashta & Rakaj, 2017).



Chamaecytisus pseudojankae and *Dianthus galicicae* in open oak forests, two local endemics of the Lake Ohrid region

Fungi

Albania belongs to countries that are poorly explored in regard to mycological aspect, and the number of recorded fungi species is much smaller compared to neighbor countries, including

Macedonia. The first comprehensive approach in the LOR is very recently done (Ivan evi , 2012). The research of fungi diversity recorded over 174 fungi species. The recoded data for the Albanian side (Ivan evi , 2012) shows that of the total number of fungi recorded at Prespa Albania, for 82 species this is the first record for the whole Ohrid lake region. These species were not previously recorded at the neighboring National Park Gali ica in Macedonia. These are internationally significant species, which have found satisfactory conditions for growth in region, and their optimal areal of distribution i.e. most of its population is located in this area. These species are included in conservation programmes worldwide (European Red List of Threatened Macromycetes, European Council for Conservation of Fungi etc). They include: *Amanita caesarea*, *Antrodia juniperina*, *Boletus aereus*, *Boletus impolitus*, *Boletus regius*, *Hygrophorus lindtneri*, *Pyrofomes demidoffii*.

Main important Fauna groups

Phylum Mollusca: Based on recent publications and reviews for the Albanian side of the Lake Ohrid there is a list of 45 Gastropoda and 13 Bivalvia species (Dhora, 2012; 2014). There are no studies regarding terrestrial mollusks on Albanian side of the Lake Ohrid region. 31 species of gastropods are considered as endemic (68.8%), while the rate of endemicity among Bivalvia is 8%.



The common snail leech Glossiphonia complanata complanata (right) and the lake Ohrid endemic Glossiphonia apulchella

Phylum Annelida: There are no specific studies of Annelida species on national level, the only data referred for the group are in various publications for the region are those as a part of macrozoobenthos. So, several species of the family Lumbricidae (Earthworms) of the Class Oligochaeta (Oligochaetes) are covered as well. On the Macedonian side Sapkarev (1978, 1987) for the territory of Ohrid Lake watershed has recorded presence of 23 earthworm species, which is 55% of the total fauna of earthworms on national level consisted of 42 species. Berqiraj et al. (2013 in NIVA, 2013) in his report for macrozoobenthos is also refereeing to endemic taxa *Eiseniella ochridana ochridana* (Cernosvitov, 1931). In addition Beqiraj (2013) in his report refereeing to his and previous studies mention that Hirudinea in

Lake Ohrid is represented with 26 species, out of them 14 (54%) are endemic, while Oligochaeta includes 26 species with rate of endemism 33% (9 endemic species).

Cladocera (Crustacea): There are 31 species of Cladocera in Lake Ohrid. Of these 26, represents benthic and 5 pelagic species. The only endemic species seems to be *Alona smirnovi* Petkovski & Flossner 1972, which lives in the lake and its feeder springs. The rate of endemism thus is 3% (Shumka, 1998).

Copepoda (Copepods): The Copepods in the LOR are represented by all three orders of the freshwater copepods (Calanoida, Cyclopoida and Harpacticoida). Altogether, 36 copepod species have been recorded, of which 4 calanoid copepods, 31 cyclopoid copepods and 2 harpacticoid copepods. *Cyclops ochridanus* Kiefer, 1932 is considered as endemic species with limited distribution in Europe, (Shumka, 1997; Petkovski and Karanovic 1997). Within group there are 6 endemic species thus rate of endemism is 13%.

Ostracoda (Crustacea): In the Check list of Albanian Fauna (Dhora, 2010; 2011) for the LOR are listed 52 species. Among them there are 33 endemic species, making the group with highest rate of endemism (63%). Species *Paralymnocythere ochridense* (Klie, 1934), *Candona hartmanni* Petkovski, 1969 and *Candona sketi* Petkovski (unpublished) are considered as hosts of springs areas including the Tushemisht and Driloni. According to Petkovski (2009), the species *Paralymnocythere ochridense* is not only a local endemic species, but also a living fossil, since fossil remnants of this species have been ascertained in the soil layers of the Metohija Valley (a former ancient lake).

Amphipoda, Decapoda, Isopoda (Crustacea): The Malacostraca Crustaceans that belong to the orders Amphipoda (Freshwater Shrimps) Isopoda (Water Lice) and Decapoda (Freshwater Crayfish) in the region are represented by 16 species. The order Amphipoda is represented by 10 species. The rate of endemism is 90%, where can be mentioned the following species: *Gammarus ochridensis ochridensis* (Schaferna, 1925); *Gammarus triacanthus prespensis* (Karaman S et G., 1959); *Niphargus maximus petkovskii* Karaman, 1963; *Niphargus ohridanus fontophilus* Karaman, 1943; *Niphargus sanctinaumi* Karaman, 1943 and *Niphargus stankoi* Karaman, 1973 are local endemics, with distribution range restricted to the Ohrid Lake watershed. The Decapoda group according to Petkovski (2009) is represented by the freshwater shrimps: *Gammarus rambouseki* (Karaman, 1931) and *Niphargus pancici pancici* Karaman, 1929. This species are not reported as common for the Albanian part of the watershed. The Isopoda is represented with 4 species out of which 3 are endemic to lake Ohrid (75%).

Phylum Porifera: There is very little contribution towards knowledge of Spongia of lake Ohrid. Dhora (2010; 2011) in its register of invertebrates mention records of five species, referring to Arndt (1937) and Hadzisce (1953). The lake is inhabited by five freshwater sponges, four of them (80%) endemic. The endemic genus *Ochridospongia* is represented with two species in Lake Ohrid. The rounded sponge *Ochridospongia rotunda* (Arndt, 1937) lives in deeper zone,

lacking a gemmule stadium in its life cycle. That lead the authors to propose its relictary status with a tertiary origin (Gilbert and Hadzisce, 1977). They also described *O. interlithonis* in (Gilbert and Hadzisce, 1984). In addition the *Ochridospongilla stankovici* and *Spongilla stankovici* ate two other endemic species. The only non endemic species with lake Ohrid is *Eunapius fragilis* (Leidy, 1851), that can be found in other Balkan lakes.

Phylum Chordata-Superclass Pisces (Fish): Lake contains a lot of endemic species, with nearest neighbours in Pliocene. The size of Lake Ohrid and the quality of the fish fauna, gives to the lake an important significance from the fishery point. The quality and the economical value of the fish populations of this lake are on a much higher level than the rest of the Balkan's lakes, even above those shallow and high productive ones from the Aegean zone (Stankovic, 1960). The fish fauna is represented with 17 autochthonous species from four families: Salmonidae (2), Cyprinidae (12), Cobitidae (2) and Anguillidae (1) and 6 allochthonous species or in total twenty-one taxa. None of them is migratory species.

In the fishery 10 species have commercial value with prior to the two relic and endemic trout - *Salmo letnica* (Karaman) and *Salmo ohridana* (Steind) - than the European eel *Anguilla anguilla* (L.) and the bleak *Alburnus scoranza* (Filipi). Also there are several temporary present allochthonous species, among which only *Carassius gibelio* (Bloch) is evident in the fishery catch. According to the previous fishery statistic at the Macedonian part of the lake, for the periods 1930/57 (Stankovic, 1960), 1929/73 (Tocko, 1975), the salmonid fishes and the eel were represented with 45.6% of the mean annual catch where 43% belongs only to *Salmo letnica*. Due to this fact, from the fishery aspect the lake itself was characterised like a typical salmon lake. The same statistics were used to estimate the mean annual fish yield per unit of lake's surface and it has a value of cca 9 kg/ha, for the Macedonian part. This in other hand again shows the scarcity of nutrients in the lake and in the same time its oligotrophic character. All these things make the fishery as an important economy branch in this part of the country. Besides its scientific and economical value Lake Ohrid's ichthyofauna hasn't been so much investigated in manner of presence of alien species and mainly those recordings have been represented sporadically without any continuous monitoring attention. As in other fishery intensive exploited water bodies most of the work has been paid to commercially valuable species mainly Lake Ohrid trout, Lake Ohrid belvica, eel, carp and bleak. The ichthyologic investigations were mainly addressed to reproduction of the native species their forage and the relation between cyprinid and salmonid species in the terms of their food competitiveness (zooplanktonphages). In the beginning of the 60's of the past century at the River Drim (Drini) forming like an outlet of Lake Ohrid and entering the Adriatic See, on the Macedonian side two dams were constructed for electric hydropower production and later on, on the Albanian side three more were constructed. Concerning the fishery this had let to cut of the natural recruitment of the eel population in the lake. From other hand enlarging of the watershed of the Lake Ohrid with additional 463 km² with the diversion of the River Sateska which was naturally a tributary to

River Drim, large area of trout spawning grounds on the north part of the Lake were devastated due to erosion (siltation) and nutrient load.

The cultural component of the proposed extension embraces significant cultural values. The proposed extension with its prominent position and peculiar morphology, the surrounding cultivated fields, the exceptional open views towards mount Galicica, mount Mali i Thatë, Struga plains and Ohrid, the archaeological remains of the paleo-christian basilica and of the pile dwelling settlement in Zagradie, and the village of Lin, a unique example of a fisherman village developed along the lake shore, with its street pattern adjusted to the terrain and that preserves elements of traditional architecture, represents a concentration of heritage resources and values that need to be cared of and specifically protected. These buildings exhibit a very simple architectural form and language with little or no decoration. Their interest resides mainly in the use of traditional materials (e.g., adobe, or bricks, wooden beams and opening frames, brick tiles, thatched roofs, etc.) and their small scale having associative significance with the local community's harmonious relationship with the land over centuries through sustainable use patterns. The sites identified through archaeological investigation have witnessed human presence in the region since the early Neolithic and some of them, e.g. Maliq, attest to the continuity of settlement along the Late Neolithic, Copper and Bronze Ages in the region. A number of hill fortifications (Zvedza, Gradishta of Symiza) dated to the Early Iron Age have been studied with major density of traces of fortifications dating back to the Late Antiquity period (kalaja Dishnicë, Mborja, Kloca, Gopesh, Podgorie). In the immediate vicinity of the Lake Ohrid, some archaeological sites have been detected and, in some cases, investigated. Some pile dwelling settlements were discovered along the shore of the lake Ohrid in Zagradie, Lin, Udenisht dhe Pogradec. Further archaeological surveys need to be conducted in order to fully understand the extent of evidences in the overall landscape. Important archaeological traces of human settlement in the Lake Ohrid area are located in the inland west of the lake. These include important remains of the Illyrian Monumental Tombs of Selca (4th – 3rd cent. BC) with the town of Lower Selca, and the fortified settlement of Gradishta e Sllabinje.

The monumental Tombs of Selca are located in the hills west of the lake, south of Qafë Thanë, not far from the route followed by the ancient Via Egnatia, in the hill known as “Gradishtë” where also lie the remains of the ancient Illyrian town of Lower Selca. Though there are traces of human activity in Neolithic times, the settlement proper dates to the Iron Age through to the Illyrian urban period (5th to 2nd centuries BC), and reached its flourishing period under settlement by the Illyrian tribe of Enchele. From the 4th to 1st centuries BC the city was the royal residence of Illyrian kings and therefore, also probably an important political and economic centre.

From 1969 to 1972 excavations were conducted by the Albanian archaeologist Neritan Ceka. According to Ceka, the settlement has five phases of occupation. Selcë I to III are divided into: late Neolithic, early Bronze Age and Late Bronze Age, all represented by different ceramic forms. The settlement was continuously inhabited from the Bronze Age into the Iron Age.

During the 6th to 5th centuries BC the settlement developed as a proto-urban center on the road that ran along the river Shkumbin connecting the coast of Albania to Macedonia. From the Iron Age there is a permanent settlement at the site. Around 570 BC/550 BC we arrive at the phase of Selcë IV, evidenced by traces of burnt dwellings, pottery, including imports from Corinth in the lower horizon, and some Ionian wares. In the upper horizon, local, red-brown painted pottery, wheel made pottery with two handles and Ionic and Attic products were found. The local potters copied Greek models and were also influenced by their style. During the 4th century the acropolis was fortified by an encircling wall of well-cut stone. The city occupied an area of 30,000 m². In the 4th and 3rd centuries BC Selca was an important trading center and was the administrative center of the Illyrian region of the Dassaretae. Terraces were created in order to develop the settlement across the hilly terrain. In the 3rd century monumental tombs were cut into the rock around the acropolis, some with Ionic columns. One of these tombs was reused at the end of the 2nd century and wide arrays of finds were discovered therein, including weapons, bronze vessels, ceramics and gold jewelry. The construction of the Via Egnatia, which bypassed the city, led to its decline. During the 4th century AD Selca, as a military and administrative center, was re-fortified with stone walls bound with mortar. Houses were constructed from reused Roman and Illyrian masonry. The tombs of Lower Selca were proclaimed Monument of 1st Category in 1948 and then were subject to extensive archaeological excavations in 1970-1972. The tombs of lower Selca, are since 1994 in the WH Tentative List of Albania.

Tomb I (4th to 3rd centuries BC)

Tomb I consists of a rectangular burial chamber with an antechamber or forecourt. A barrel vault covers the burial chamber, whose height is 2.10m. Outside the door there is a rain gutter and mortises. The facade of the tomb has a colonnade of Doric pilasters with capitals resembling the Ionic order decorate the facade on which traces of painting can still be seen, with an entablature above. The doorway is substantial. In the burial chamber, there are two rock-cut couches, one against the side wall and the other against the rear wall.

Tomb II – theatre burial (mid-3rd century BC)

Tomb II has two elements: below is a rectangular burial chamber with stairs leading down. It would originally have been sealed with stone slabs. Above there is a theatre-like complex with two stepped rows of seats that could have served for any rituals or family visits to do with the deceased.

Tomb III - Central burial (mid-3rd century BC)

This tomb is on two levels. The upper level is a rock cut exedra as an Ionic hemicycle, with eight pilasters whose capitals were made separately flanking the entrance. To the left there is a niche with a relief engraved with a Bucranium and a helmet of the Pergamene type. The floor of the

tomb had a mosaic, but nothing of this remains. The door, which would have been sealed, leads to a narrow chamber. It is considered that this chamber may have been abandoned due to the irregularity of the rock, and that the chamber below may have been cut as a result.

Tomb IV

The second chamber has a high barrel vault and contained two beautifully carved sarcophagi in the form of couches. 10 burials were recovered from this chamber, some in the sarcophagi and others in the floor. A second burial period is attested. These date to the last decades of the 3rd century and produced many grave goods, now on display in Tirana. Some scholars believe that this may have been the tomb of a royal family or dynasty. Among the grave goods are golden earrings, necklaces, pins, rings, all of the Hellenistic type, belt fittings, iron, a silver ornament depicting a battle scene, armor, spear points and 30 ceramic vessels.

Part of the facade of Tomb IV (second half of the 3rd century BC)

Tomb IV has a 5m high facade with two separately carved Ionic columns and the entablature and tympanum of a temple. It is the most monumental of all. The facade is no longer in situ, though some parts can be seen on the ground. There was originally a double leaved stone door. The slots in the threshold are clearly visible. The burial chamber roofed is carved into a barrel vault and was originally covered in painted plaster. The chamber contains a single sarcophagus of stone slabs, which was robbed in antiquity. The grave dates from the second half of the 3rd century BC. Seven niches are carved into the rock of the long facade, partially covered with inscriptions that could have been made by the builder or the work supervisor, according to archaeologists.

Tomb V (late 3rd century)


The last tomb consists of an antechamber and the actual burial chamber, both covered and built in ashlar construction. A stone slab with relief serves as a false door to the grave chamber. In the chamber itself are the remains of three sarcophagi in the form of klinai, built of upright stone blocks. They were used primarily for body burials. Later, urns and grave goods were laid in the sarcophagus.





The Castle of Pogradec, from where derives the name of the city itself, located in the top of the hill overlooking the city of Pogradec, belongs to the group of the early Illyrian-Albanian settlements. The site itself has been used by the local population for more than 1000 years. The settlement has been first inhabited in the 6th century BC. During the mid 4th century BC this Illyrian settlement was fortified with walls. From the archaeological findings, it was concluded that the local community used to practice agriculture, fishing and various crafts and had relations with the neighbouring settlements. As a result of the archaeological excavations, we can determine that the site has been inhabited through time till the Early Middle Age. The castle of Pogradec continued to be inhabited also during the roman period, but without the protective walls and the intensity of life experienced before. By the end of the 4th century AD new

defensive walls were erected and the fortress was used by the locals during the barbarian invasions. In the 6th century AD the walls were once again reconstructed. The fortress, with a strong strategic position was transformed again in an important residential centre and remained in this position until the invasions of the 9th century.

Important traces of the Christianisation of the region, initiated in the 1st century AD, are found also along the today Albanian side of the Lake Ohrid: on the top of the peninsula of Lin, the remains of the Early Christian church of Lin dated back to 5th-6th century AD, one of the most important archaeological sites in the area, have been discovered in 1968 by a researching expedition of the local museum of Pogradec. It was dated at the 6th century AD, and it seems to have been in use until the medieval period. Recent archaeological findings, the wall traces near the basilica apse show the pre-existence of a more ancient construction dating around the 3rd – 4th century AD. Also the water reservoir outside the perimetral walls of the basilica, the fortified wall in the southern nave and other spaces discovered sustain the thesis of the existence of previous structures than the basilica.




On the stratigraphy of his period it is well evidenced the presence of fire indicating that the church was burned and its walls destroyed. The basilica’s plan development shows a direct typological connection with the ones in Ohrid, even though in smaller dimensions. Studies have shown the evident twinning of the martyrium of Ohrid and Lin, pretending that they reflect the empirical style of the Justinian period, due to the similarities of the mosaics used in both basilicas realized by the same atelier. The Lin basilica is decorated with mosaics pavements in almost all of its inner spaces, with a wide range of colors, motives, compositions, that represent realistic elements of life in this area. These elements are closely related to the geographic position, to the lake panoramas and rich flora and fauna of the region. The church has seven premises paved with mosaics where white, black and red are the main used colours, but also brown, green yellow and orange. Similar in style to the early medieval mosaics in Macedonia (basilicas in Oktis, Radolisht and Studencisht) just across the lake, biblical scenes (Eucharistic), flowers, animals, svastica and many other objects are depicted on the church floor, some in very good condition (Table 7).





No.	Site	Description	Illustration
Within the proposed extension of the property			
1	Lin 1	Underwater site. Pile dwelling on the lake shore. Prehistoric.	
2	Lin 2	Underwater site. Remains of probably modern period.	

3	Lin Church	Early Christian church on the Lin promontory. One of the most important monuments in the region. Tri-conch ground plan and architecturally a very complex building. High quality mosaic floors.	
4	Boqezë	Underwater site. Pile dwelling on lake shore. Very good preservation and material culture of Neo Eneolithic periods are easily identifiable on the lake floor. Very good potential for future research.	
5	Hudenisht 1	Underwater site. Pile dwelling on lake shore. Prehistoric, mainly Bronze and Iron Age materials identified.	
6	Hudenisht 2	Underwater site.	
7	Pogradec 1	Underwater site. Prehistoric, mainly Bronze and Iron age identified.	
Within Buffer zone			
1	Piskupat	Casual findings reported. Neolithic.	

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

2	Hudenisht	Casual findings	
3	Memëlisht	Roman inscription and numerous grave offerings.	
4	Castle of Pogradec	Very important hill fort site to the north of the city of Pogradec. Inhabited from the late prehistory to the Medieval period.	
5	Pogradec Neolithic	Limited but very interesting research here. Early Neolithic.	
6	Vërdovë	Tumulus burial of the Iron Age reported here, along with a number of chance finds of Roman and medieval periods. Byzantine church, probably of the 7 th century, reconstructed in the 15 th century.	
7	Starovë	Chance finds. The most significant is the Illyrian helmet shown at the local Pogradec museum. Well preserved.	

8	Gështenjas	Numerous chance finds, probably from damaged graves. Belong to different time periods, mainly Roman and Medieval.	
9	Tushemisht	Several finds reported. Mosaic remains of an early Byzantine church. Surrounding walls reported on the low hill known as <i>kalaja</i> (the castle), together with many finds of pottery and storage pithoi. Other finds include late Antique grave offerings	
10	Peshkëpi	Chance finds of several time periods. Most important a series of bronze spearheads of the late Bronze Age.	
In the immediate surrounding area			
1	Selca e Poshtme	A very important site in southeastern Albania. Rock-cut chamber tombs unparalleled elsewhere in the country. Probably royal tombs. Settlement also identified adjacent to the tombs site.	

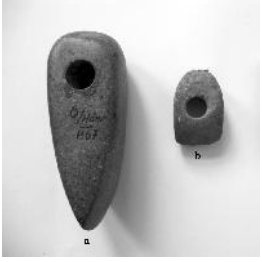




2	Homezh	Chance finds of the prehistoric times, probably late Neolithic or Eneolithic. Probably indications for an open-air settlement.	
3	Hoshtec	Prehistoric finds and an interesting coin of Alexander II of Macedon have been reported from this area.	
4	Slabinjë	Late Antique hilltop settlement. Several chance finds of Roman and late Antique periods.	
5	Çërravë	Chance finds of Bronze and Iron Age, but also of the late Antiquity and Medieval periods.	
6	Bllacë	Hilltop site of the late Bronze – early Iron Age.	

Table 7. Description of sites shown in the cultural heritage distribution map



Figure 2.12: Plan of the Lin church and partial view of its mosaic floors

Interaction of natural and cultural values in the proposed extension

The spectacular land and waterscapes of the Lake Ohrid are one of the main reasons why the area is so well loved. The combination of still, smooth waters of the lake and distant views of green forested slopes, bare rock, mountains and sky is made more vivid by the clear, clean air. These special qualities give the area a particularly peaceful and contemplative atmosphere, particularly when looking out across the lake to the far shore. The gradation of ecosystems and cultural land use from the lake shore, through the cultivated lowlands, the forested slopes and the rocky upland pastures provide a rich and natural setting for the lake. In most cases the settlement structure of the villages is still largely preserved and the residential architecture still retains its traditional layout, features and traditional materials, contributing to the overall ambiance of the landscape and attesting to the local community's long and harmonious relationship with the land. This exceptional setting is, however vulnerable to excessive lakeshore development, landscape fragmentation, inappropriate restoration, construction on open hillsides and high-rise buildings. On a finer scale, the quality of land and waterscape is diminished by inappropriate shoreline development, solid waste and air and water pollution. Coastal development is breaking the ecological linkages between the lake and its setting; the remaining intact areas between the Lin Peninsula and the border with Macedonia and elsewhere along the coast are of particular importance for conservation and wise management.

Local customs and traditions

The proposed extension has a rich intangible cultural heritage, which is currently the subject of detailed studies. Coexistence of diverse cultures is one of the greatest assets of the area. Key values include notable traditional crafts such as boat building and decorative wood carving, traditional stone carving, needle works, basket weaving, embroidery etc. The city of Pogradec is known as the "city of poets", being the native city of the poet Lasgush Poradeci, the painters Anastas Kostandini (TASO), Gjergji Lako, Gentian Zeka, Vangjo Vasili dhe Ilir Dhima, and the photographer Vangjel Cici. The influence of regional ateliers of mosaic and painting masters

during Early Christian period is an associative value that links to the World Heritage property as well.

Several local festivals maintain local traditions of music, performing arts, folkloric balads, wedding songs, songs of mourning, handicrafts, foods and traditional products. Oral traditions and legends, as legend of Emperor Justinian, by the Illyrian origin, who is believed to have hidden a part of the treasure of the Byzantine Empire, on the shore of Lake Ohrid in the vicinity of Lin Peninsula, as well as the legend of St. Marena and stories about Church of St. Mitri (Demetrius) and the Church of St. Ilia (Elijah) are very common in the area.

The area is known for cultivation of various distinctive local crops and for culinary products such as mountain cheeses, honey and other bee products, wine and liquor, herbs, herbal teas and traditional medicinal plants. Traditional knowledge still persists about the healing properties of local plants. Traditional dishes as "Tavë Peshku" (Pogradeci fish casserole), "Çorbë peshku" (fish soup), "Lakror" (Nettles pie), "Koran me Arra" (Koran Fish with nuts), "Eel with rice", etc. Production of wine and raki, is considered a family tradition and produced following the traditional way having ancient roots. Wine feast celebrates this tradition yearly.

Prehistoric technology of house building (pile dwelling - palafite) is peculiar to this area and is evidence of the close relation between people and the Lake. Traditional house-building techniques evolved in the coast area to form ensembles of diverse residential buildings coming together to work as traditional villages tied with natural elements of the landscape. Traditional stonework and building skills still persist, but few craftspeople remain. The historic centre of Pogradec shows various examples of 20th century vernacular architecture being individual buildings build in ensemble.

Drilon Springs besides bearing exceptional natural values, is also place where the former albanian dictator Enver Hoxha constructed the 20th century personal villa which is example of architectural planning at the service of elite representation and division of social hierarchy.

History of research

Climate, geological, ecological and biological research in Lake Ohrid region had a very early start from the last decades of 19th Century and has contributed essentially to the understanding of the Lake Ohrid ecosystem and its watershed functioning. Possibly the oldest research for the lake Ohrid dates back to Boué (1840), while more intensive studies are those of Sturany and Steindachner (1892), Richards (1892), Brusina 1896. These studies are representing the first serious steps towards knowledge and understanding of Lake Ohrid biotic and non biotic components. Further on Cviji in the period of 1998-1899 was performing his fundamental geomorphologic, geologic and limnologic surveys of the catchment. Particular role in understanding the lakes biota and its physical environment was given by the Hydrobiological Institute in Ohrid, FYR of Macedonia after its establishment in 1935. In the following period the lake is of scientific interest for a number of disciplines. Biologists carry out research on endemic species that evolved in the almost 300 m deep lake. Hydrologists and hydrogeologists investigate the inflow rate variations, the chemical content and the origin of the karst springs that mainly feed Lake Ohrid besides only small streamlets. Geoscientists focus their research on the

evolution of the lake and the neighboring intramontane basins. Paleoclimatologists expect one of the furthest reaching sediment archives for the reconstruction of paleoenvironmental conditions. In the Pogradec area, research on cultural heritage values still awaits systematic reactivation: in most cases, archaeological sites have been investigated around the 1960s-1970s and here the vestiges of prehistoric human occupation appear less dense than around Korça but promising in terms of future investigations and certainly interesting in relation to their potential for attracting visitors and to their ability to shed light on the history of human settlement pattern within the Lake Ohrid Region. A research expedition of the local museum of Pogradec made possible the discovery of the Early Christian church of Lin, one of the most important archaeological sites in the area. This discovery is also an important evidence of the Christianisation in the region, initiating in the 1st century AD. However, it should also be noted that the intense building activity in Pogradec has limited the possibility for archaeological investigations (Allen, Gjipali, 2014).

Recent archaeological research of the Institute of Archaeology in the coastal area and underwater (2015-2017) are still ongoing but the preliminary data and findings are fascinating. They provide traces of several pile dwelling settlements which testify on the prehistoric human presence in the proposed extension area.

3.3. History and Development

Natural History

Lake Ohrid Region is characterized throughout by a continuous record of part of the Earth's history extending from the lower Cambrian to the lower Ordovician. The role that time and history have played in the formation of Ohrid Lake region is thoroughly highlighted in the above section of Description.

Early Geomorphological and tectonic developments

During the Paleozoic, a regional foliation developed in the Cambrian and Devonian units. Thrusts and folds were the dominating deformations during the Mesozoic orogeny, later dominated by normal and strike-slip faulting, mainly in N–S direction (Dumurdzanov et al., 2005). Fault patterns of the surroundings of Lake Ohrid indicate a diverse stress history. Ohrid Basin is a graben structure caused by the E–W directed extension, while the associated Korca and Erseka Basins are halfgrabens bordered by a NW–SE trending normal fault on their eastern side. The sedimentation in the Ohrid Basin began in the Late Miocene with the formation of a pull apart basin, controlled by right-lateral strike-slip movements. Subsidence and further extension account for the major dynamic component since the Pliocene-Pleistocene. Several hundred meters of sediments accumulated since the Late Miocene. According to Dumurdzanov et al. (2004) the oldest sediments in the lake are probably the Pliocene Piskupstina and Solnje Formations. Today, sedimentation is likely to be compensated by subsidence. Morphological features tend to trend mainly N–S in the west of the lake and N–S to NNE–SSW in the east. Further sets of NW–SE and E–W lineaments are also present. Latter are most likely related to the E–W extension of the basin (Wagner et al., 2008). Active faulting along an E–W trending fault

has been described from Lake Prespa (Dumurdzanov et al., 2005). Between the lakes, the Galicica mountain range is separated from the Mali i Thatë Mountains in the south by a normal fault that cuts the mountain ridge at 1500m a.s.l. (Aliaj, 2000). Fault surfaces and lineations are preserved in the entire area. During alpine orogeny from the Eocene until Pliocene, flysch and molasse-like sediments were deposited, which are now exposed as deformed nappes (Jozja and Neziraj, 1998). The transportation processes were stopped by ongoing subsidence, which divided the Ohrid from the Korca Basin in the Late Pliocene and Early Pleistocene. Other areas are characterized by the formation of huge paleosols, which are for example preserved within the hanging wall of an active normal fault at the eastern graben shoulder NW of Dolno Konjsko. The youngest deposits in the Ohrid Basin are the Quaternary plains of Struga in the north and Pogradec in the south (Hofman et al., 2010). While the plain of Pogradec provides indications for a drying up of shallow lake areas filled with fine grained sediments, the northern plain is built up by gravel and sand strata from river deltas and alluvial fans. There are three phases of deformation left their imprint in the geological units around Lake Ohrid. The first phase of NW–SE shortening during the Late Cretaceous formed folds and thrust faults (Hofman et al., 2010), with NW–SE striking fold axes and faults. Younger Cenozoic (Late Miocene) deformation is characterized by normal and strike slip faulting, which is caused by NW–SE shortening and uplift. This led to the reactivation of inherited faults and subsequently pull apart-like opening of the Ohrid Basin. The staircased geomorphology gives evidence for several fault generations that become younger to the center of the basin (Reicherter et al., 2010) due to a progressive hanging wall directed migration of activity within the fault zone (Stewart and Hancock, 1994). This can also be seen from the displacement of the Cretaceous limestone caps, which protect the ophiolites from erosion. This morphological structure is typical for the basin and also continues into the lake. Seismic surveys in the lake (Lindhorst et al., 2010), preservation of fault scarps and tectonically cut alluvial fans show that the faults get younger towards the lake. Wagner et al. (2008) present hydroacoustic data that clearly show the extension of the N–S trending normal faulting that deforms the lake sediments. This step-like expression of extensional deformation is typical for tectonic landscapes as promoted by Michetti et al. (2005). Usually, the youngest elements become activated by neotectonic activity; however, a reactivation of older faults may also occur.

Land use changes

Understanding possible lake impacts from past management practices and changes in biophysical processes in the lakes require accurate quantitative assessment of historic and current landscape patterns. Indeed, obtaining accurate quantitative assessment is a complex process because the lakes are shared among different countries that recently experienced uneven and rapid changes at many levels including agricultural, natural resources, demographic, political, socioeconomic and climatic. For instance Ohrid Lake region shared between Albania and Macedonia, countries with different political and socioeconomic governance agendas. The Lakes Ohrid and Prespa are linked by artificial channels constructed in the past few decades. Among them it is worth to mention the changes in the Albanian part where channel system was built to link the Devolli

River to the Small Prespa Lake and intervention in the connection of Big and Lesser Prespa Lake. Further on the connection of Lake Ohrid via Black Drini with Adriatic Sea was affected by construction of large hydropower in both FYR Macedonia and Albania. In Albania, the forest has experienced heavy damages from cutting and fires. Most of the cutting is for fuel wood although lumber is also produced. In the hills above Pogradec, chestnuts are harvested from the remaining forests. There are few reforestations after cutting, and erosion is a serious problem in much of the forest. The use of the forest for pasturing goats has also contributed to the erosion problem by overgrazing the understory vegetation. Contrary to that, the forests in Macedonia are in generally better condition. Cutting is regulated and the land must be left in good condition for regeneration. The expansion of inhabited area, increase of population and infrastructure developments were significantly affecting the littoral part of the lake and its ecosystems.

In both inscribed and proposed extension the vital small wetlands in vicinity of Ohrid city and in between Pogradec and Driloni springs were converted through infrastructure and agriculture development. The ecosystems that have been modified by human interventions - mostly for forestry, agriculture and fishery purposes - are still conserving the features of the original landscape; there are no intensively mechanised activities in the territories of the inscribed and proposed extension and no particularly destructive settlements. In the urban areas, sprawl has expanded, primarily in response to touristic demands. Nevertheless, the phenomenon has not reached disastrous consequences yet, and the adoption of integrated land use planning, linking urban and rural areas, is considered to be an element of key importance in the future proper management.

Recent Conservation history

Pogradec Terrestrial/Aquatic territory Protected Landscape Area

Law no. 8906, dated 6.6.2002 “On protected area” as amended, distinguishes six different categories of protected areas, corresponding to those of IUCN. Accordingly the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area is protected under the fifth category and covers an area of 27, 232 ha (The decision of Council of ministers No. 80, date 18.02.1999) (Figure 2.14). The lake itself is part of the core zone due to importance as breeding areas for fishes and other important biodiversity components. A terrestrial core zone is proposed in the higher part of the Mali i Thatë above 1450 m of altitude and it create a bio-corridor with two other protected areas Galicica National Park and Prespa National Park. The vision and guiding principles of the management plan for the area is: ‘Lake Ohrid region with its unique and inspiring landscape, where natural and cultural values are intertwined with traditional ways of living, constitutes a natural history archive, a sustainable tourist destination and a source of pride for the regional and national identity’. There are six guiding principles defined for the management of the area: Observing responsibilities and obligations associated with World Heritage Status, Application of the precautionary principle; Integrated management; National and transboundary collaboration; Stakeholder engagement and Rule of law. The World Heritage

extension property and buffer zone includes seven designated Monuments of Nature as shown in Table 8. These include ancient trees, geological and hydrological sites.

Name	Legal framework
Cypress of Saint Mary Church Sallkeni i Tushemishtit	DCM no.676 dated 20.12.2002
Kamja Stone Najazma Cave Tectonic detachment fragment of Ohrid Memlishti Cave	DCM no.676 dated 20.12.2002
Driloni Springs	DCM no.676 dated 20.12.2002

Table 8. Natural monuments of the World Heritage extension property and buffer zone

Ohrid-Prespa Transboundary Reserve

The Ohrid-Prespa area was declared a biosphere reserve on 11 June 2014 at the UNESCO international commission session held in Jönköping, Sweden and has a surface of 4462.445 km² (Figure 2.14). The proposal was made by the Lake Ohrid Bilateral Secretariat, together with the UNESCO national commissions of Macedonia and Albania, as well as their respective environment ministries. The Ohrid-Prespa Transboundary Reserve includes various ecosystems, ranging from the mountainous areas around the lakes, to the temperate sub-tropical forests found at lower altitudes around the water basins. The Ohrid-Prespa lake system is one of the largest in Europe of its kind. Both lakes possess exceptional value on a national and international level because of their geological and biological uniqueness.

Prespa National Park

The Prespa National Park is approximately 27,750 ha large. The designation as National Park was published in the official gazette 18.2.1999 and officially inaugurated in February 2000. There is high habitat diversity in the Prespa basin, with a flora of more than 1,200 species. The indigenous fish species are all endemic; while endangered mammals include brown bear *Ursos arctos*, wolf *Canis lupus*, chamois *Rupicapra rupicapra balcanica* and European otter *Lutra lutra*. The area is especially important for water birds, notably the largest breeding colony of Dalmatian pelicans *Pelecanus crispus* in the world, as well as a substantial number of white pelicans *P. onocrotalus* and pygmy cormorants *Phalacrocorax pygmeus*.

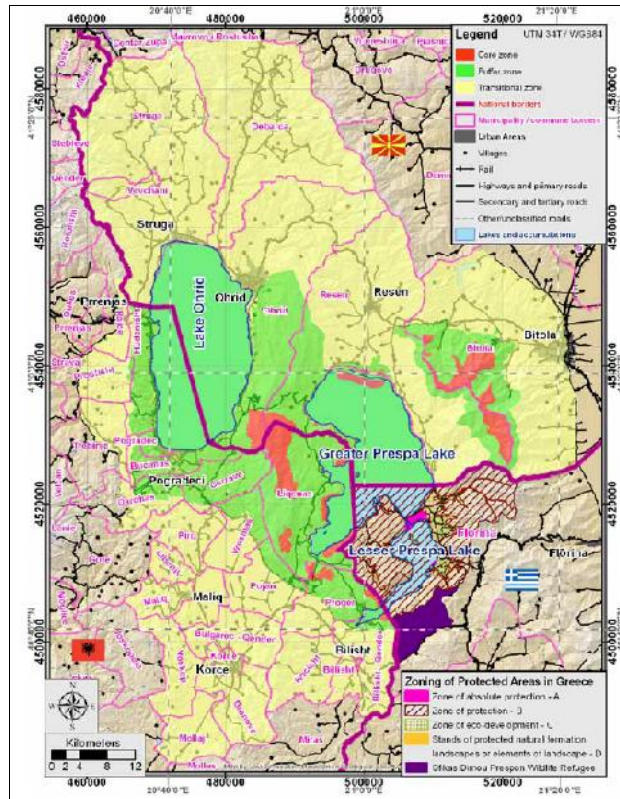


Figure 2.14: Transboundary Biosphere Reserve of Ohrid and Prespa

Human history

Situated 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.

The proposed extension has developed over several millennia a specific cultural and historic profile. One of the main features of this profile is certainly the continuity of life and human occupation in the area. Within the framework of the historical continuity, there are numerous highlights, rises and falls of systems, traditions and socio-political organizations that deserve attention. The wider area have witnessed human presence in the region since the early Neolithic and some of them, e.g. Maliq, attest to the continuity of settlement along the Late Neolithic, Copper and Bronze Ages in the region. The very early radiocarbon date obtained from the Neolithic site to the east of the city of Pogradec shows clearly that the area offered very good opportunities for the earliest farmers. Even if absolute dates from other sites of the region do not exist yet, it is clear that after its introduction in the middle of the 7th millennium B.C., farming spread in many areas of Lake Ohrid region as indicated by numerous sites and casual findings. An important stage to be mentioned for the area is the shift in the settlement pattern from open

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

sites near the lake shores to hill tops in the Bronze Age, which became dominant in the following Iron Age. This major shift is also associated with the introduction of tumuli burials which together create a very different landscape around the lake. This phase is well documented from sites in Bllacë, Tushemisht, Castle of Pogradec, Vërdovë, Lin, among others.

A number of hill fortifications (Zvedza, Gradishta of Symiza) dated to the Early Iron Age have been studied with major density of traces of fortifications dating back to the Late Antiquity period (kalaja Dishnice, Mborja, Kloca, Gopesh, Podgorie). Important archaeological traces of human settlement in the Lake Ohrid area are located in the inland west of the lake. These include important remains of the Illyrian Monumental Tombs of Selca (4th – 3rd cent. BC) with the town of Lower Selca and the fortified settlement of Gradishta e Sllabinje. The monumental Tombs of Selca are located in the hills west of the lake, south of Qafë Thanë, not far from the route followed by the ancient Via Egnatia, in the hill known as “Gradishtë” were also lie the remains of the ancient Illyrian town of Lower Selca. The tombs of lower Selca were declared Monument of 1st Category in 1948 and then were subject to overall archaeological excavations in 1970-1972. The tombs of lower Selca, four clustered in two groups in the area between the Acropolis and the outer quarters of the ancient city, are now in the WH Tentative List of Albania. They have been in use during the 3rd century BC, a period which corresponds to the flourishing period of the development of the city, and stand as the only known architectural feature of this urban ensemble.

The second phase (lasting from the 4th century BC until the 1st century AD) marked the major flourishing period of the settlement, during which it was a craft oriented and the most important trade centre of the region, overseeing the main trade-route passing nearby. The construction of Via Egnatia, avoiding the old route controlled by the Illyrian town, and preferring the main track along Qafë Thanë, was the key factor for the decline of Selca. The last documented phase dated back to the Late Antiquity period (4th–6th century AD), when the town was already reduced within the walls of the fortress situated in the highest part of the acropolis. The peninsula of Lin, which is the only one along the Albanian shores of the Lake, has been inhabited since the neolithic period, with traces also of human habitation dating back to the first half of the first millennium BC (proto-Illyrian period), Early Iron Age. This has been proved by some archaeological findings from this period, such as clay gray vessels discovered in the site. Roman conquest and the subsequent pax romana mark a significant change for this territory. Not only were many political and administrative changes introduced, but also profound transformations in the areas of settlement pattern, exchange, communication, and material culture. Via Egnatia which passed through the region played a very important role with its strong impact on the local economy and connectivity with the vast areas of the Roman territories.

During the Roman rule, the Balkan region was organised into provinces which changed over the centuries and the needs of the romans to control and administer the area: initially a wide province was established in the year 146 BC, under the name of Macedonia, from the geographical name under which the wider region was known. Later, under Diocletian's rule, the provinces in the

Balkan region were restructured and it is presumed that the Lake Ohrid Region was included in the newly created province of Epirus Nova, which bordered Epirus Vetus to the south and Paeonia to the east.

The province of Epirus Nova was later to become a district of the Byzantine Empire. Further changes to these districts were to occur, due to the variable expansion and shrinking of Byzantium's control over the Balkans and the lake Ohrid region witnessed many of these changes.

The Castle of Pogradec located in the top of the hill overlooking the city of Pogradec, belongs to the group of the early Illyrian-Albanian settlements. The site itself has been used by the local population for more than 1000 years. The settlement has been first inhabited in the 6th century BC. During the mid 4th century BC this Illyrian settlement was fortified with walls. From the archaeological findings, it was concluded that the local community used to practice agriculture, fishing and various crafts and had relations with the neighbouring settlements. The castle of Pogradec continued to be inhabited also during the roman period, but without the protective walls and the intensity of life experienced before. By the end of the 4th century AD new defensive walls were erected and the fortress was used by the locals during the barbarian invasions. In the 6th century AD the walls were once again reconstructed. The fortress, with a strong strategic position was transformed again in an important residential centre and remained in this position until the invasions of the 9th century.

The Late Antique and the early Christian period are without doubt one of the most representative stages in this region's history. The numerous Late Antique sites and early Christian monuments mark the landscape of the proposed property and its buffer zone. From Lin to Vërdovë and Tushemisht, early Byzantine art and architecture is well radicated and has reshaped the cultural history of the region.

The spread of Christianity in this region, presumably initiated in the 1st century AD, are found also along the today Albanian side of the Lake Ohrid: on the top of the peninsula of Lin, the remains of the Early Christian church of Lin dated back to 5th -6th century AD, one of the most important archaeological sites in the area, have been discovered in 1968 by a researching expedition of the local museum of Pogradec. It was dated at the 6th century AD, but it seems to have been in use until the medieval period. On the stratigraphy of his period it is well evidenced the presence of fire indicating that the church was burned and its walls destroyed. The church has seven premises paved with mosaics where white, black and red are the main used colours, but also brown, green yellow and orange. Similar in style to the early medieval mosaics in Macedonia (basilicas in Oktis, Radolisht and Studencisht) just across the lake, biblical scenes (Eucharistic), flowers, animals, svastica and many other objects are depicted on the church floor, some in very good condition.

Between the 7th and 11th century AD the region found itself at the centre of important changes: Slavic tribes progressively settled in the Balkans and in the Lake Ohrid Region, the encounter of the Slavic and Byzantine cultures gave rise to outstanding artistic, literary and cultural expressions, which is materialised in the cultural heritage of the “natural and cultural heritage of the Ohrid region” World Heritage Property”. However, from a political point of view, Byzantium struggled to recover control over the territory that came under Slav control since the 7th century AD. The region also assisted to the power struggle between the Byzantine Empire and the Bulgarians. Despite the Byzantines were able to regain control over its possessions, the progressive weakening of Byzantium brought the entire Balkan region under the Ottomans' rule and sphere of influence at the beginning of the 15th century AD. Under the Ottoman rule the Lake Ohrid region was part of the wide Rumelia Eyalet and administered through subdivision into smaller districts (sanjaks) that, in the region, were modified along the centuries and included the Sanjak of Monastir, the capital of which was in alternation Bitola – Monastir or Ohrid: this administrative unit extended also into present-day Albania. On the other hand, the sanjak of Albania covered a much wider area closer to the Adriatic coast. The boundaries and extension of the Ottoman administrative units in the Lake Ohrid Region were modified over time, for different reasons, including efforts to counteract pushes for independence. Eventually, in the 19th century, the Sanjak of Ohri was split into two units: the sanjak of Monastir and the sanjak of Goricë (present day Korça). Information on the profile of the region under the Ottoman Empire could be found in the accounts of travellers, among whom, it is worth recalling the famous traveller and writer Evliy Çelebi, who left a description of the Sanjak of Ohri in his Book of Travels. However this long period of the history of the region still awaits systematic investigations aiming to reconstruct the cultural, socio-economic as well as physical settings under the Ottomans. The Ottoman period has left significant urban and architectural imprint, particularly in Korça but also in Pogradec, where a part of the traditional urban area city of Pogradec including buildings and street pattern has been recently protected under the Albanian legislation for Cultural Heritage as the Historic Centre and Buffer Zone of Pogradec. Some of the historic houses have already been restored, while other ones still await some maintenance works. The houses presumably date back to the 19th – 20th century AD, however further information would assist also to understand the history of Pogradec.

Tranboundary cooperation history

Looking to the past two and a half decades the major transboundary cooperation on Lake Ohrid conservation issues started in 1998 with the Lake Ohrid Conservation Project and further on the Lake Ohrid Management Board was formed after the signing of the Memorandum of Understanding between the Governments of Albania and Macedonia in 1996. The “Agreement of the Protection and Sustainable Development of Lake Ohrid and its Watershed” between Albania and Macedonia was signed on 17 June 2004 and ratified in 2005. This resulted in founding of the Lake Ohrid Watershed Committee (LOWC) with legal authority over the entire Lake Ohrid watershed, i.e. in both countries. The LOWC-secretariat began to work in May 2006

in Ohrid. It provides general support to the LOWC and members from both countries and it is one of the organizations concerned with the Strategic Action Plan for management of the Lake Ohrid watershed. It was established in 2008 but is not yet implemented due to financial sources. The bilateral secretariat is responsible for ensuring the implementation of the major goals of the bilateral “Agreement on Protection and Sustainable Development of Lake Ohrid and its Watershed”. In the following table are given transboundary/international research projects and also other project (Table 9).

Name of strategy/plan/project	Legal basis (if any)	Responsible entity	Implementing partners	Key objectives/purpose
IPA CBC Cross Border Programme 2007-2013	Stabilisation and association agreement for both countries.	Government of Macedonia Government of Albania	National and Local governments	Environmental issues (with particular focus on the LOR).
Albania-Macedonia: Tourism marketing strategy (2014).	IPA CBC Project ‘Virtual Action –Real Result’	Government of Albania; Government of Macedonia.	Local governments of both countries.	Marketing recommendations of for the development of tourism.
Nomination file for the Ohrid –Prespa Watershed Biosphere Reserve (2014).	UNESCO	MoE. Ministry of Culture.	NAPA, RAPAs. ICM. Regional Directorate of Culture.	Preparation of a complete comprehensive file to be presented to UNESCO for the nomination of the area as a UNESCO site.
Solid Waste Management Plan for Pogradec Municipality (under development 2016).		Municipality of Pogradec		Prepared under the project ‘Towards Strengthened Governance of the Shared Trans-boundary Natural and Cultural Heritage of the Lake Ohrid Region’
Draft Management Plan for the Natural and Cultural Heritage of the Ohrid Region (Macedonia). (Under development).	Article 5 of the World Heritage Convention	Ohrid Municipality; Government of Macedonia.	National and local government.	Management of the property; preservation of the property; presentation.
Project: Conservation and sustainable use of biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar (2012- 2017)	Various	Ministries responsible for nature conservation and environmental	GIZ	Includes a detailed report on the state of EU Water Framework Directive elements in Lake Ohrid.

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

		protection in Albania, Macedonia, Montenegro		
Project: Enabling transboundary cooperation and integrated water resources management in the extended Drin River Basin	Various	Ministries environmental protection and water management in Albania, Macedonia and Montenegro	UNDP	Aims to foster joint management of shared water resources of the extended transboundary Drin River Basin, including coordination mechanisms among the various sub-basin commissions and committees (Lakes Prespa, Ohrid and Skadar).

Table 9. Transboundary/international research projects and also other project

4. JUSTIFICATION FOR INSCRIPTION

4.1. Brief synthesis

Lake Ohrid is a superlative natural phenomenon, providing refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 200 species of plants and animals unique to the lake, including algae, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish including two species of trout, as well as a rich birdlife.

Situated on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mostly between the 7th and 19th centuries, Ohrid is home to the oldest Slav monastery and more than 800 Byzantine-style icons of worldwide fame dating from the 11th century to the end of the 14th century. Ohrid's architecture represents the best preserved and most complete ensemble of ancient urban architecture of this part of Europe. Slav culture spread from Ohrid to other parts of Europe. Seven basilicas have thus far been discovered in archaeological excavations in the old part of Ohrid. These basilicas were built during the 4th, 5th and beginning of the 6th centuries and contain architectural and decorative characteristics that indisputably point to a strong ascent and glory of Lychnidos, the former name of the town.

The Albanian side of the Lake Ohrid enjoys some of the most evocative views over the lake and the surrounding mountains. The form and prominent position of the Lin peninsula projecting into the lake, surrounded by a still preserved cultivated plain with the backdrop of Mount Galicica and Mali i Thatë is the first visual and astonishing experience that visitors can have of the lake-scape when descending from Qafe Thanë towards the lake. The presence of the archaeological sites (pile dwelling settlements) by the lake shore and the vestiges of paleo-christian tri-conch church of Lin, with its precious mosaics, on top of the promontory give evidence that the advantages of that location were understood and already exploited since ancient times. The fishermen and agricultural settlement of Lin village, with its street pattern adjusted to the morphology of the peninsula completes the visual picture of a settlement pattern that characterizes the entire lake area. The convergence of well-conserved natural values with the quality and diversity of its cultural, material and spiritual heritage makes this region truly unique. The Lake Ohrid region is a specific area of South Eastern Europe where the variety of sub-regions, complex geological history and interactions between populations and species have all resulted in remarkable diversity within the abundance of plants, animals and ecosystems (*Savi* , 2008). Human use and transformation patterns of this natural environment over several millennia, and the cultural heritage they have produced, are inextricably tied to the natural formations and ecological systems that have sustained lives without being diminished in the process. Only in recent generations has the fragility of this equilibrium been exposed as local development pressures have taken their toll on the Lake Ohrid environment and its heritage values. Archaeological findings attest to the early human occupation in the area, at least from the Neolithic Age. This region has a prominent position and peculiar morphology. The surrounding cultivated fields, the exceptional open views towards mount Galicica, mount Mali i Thatë, Struga

plains and Ohrid, the archaeological remains of the paleo- christian basilica and of the pile dwelling settlements along the coast of the Lake, and the traditional fishermen village of Lin with its street pattern adjusted to the terrain and the still rather preserved visual integrity and traditional architecture, represents a concentration of heritage resources and values that need to be cared of and specifically protected.

4.2. Criteria under which inscription is proposed

The “Natural and Cultural Heritage of the Ohrid Region” in the Former Yugoslav Republic of Macedonia, inscribed in the World Heritage List in 1979 initially as a natural property, under former natural criterion (iii), today criterion (vii). In 1980 the site was extended under cultural criteria (i), (iii) and (iv), and became a mixed property. The concept and practical application of Outstanding Universal Value (OUV) have evolved over last 40 years, including changes in the criteria for assessing OUV of the Lake Ohrid region. The property Natural and Cultural Heritage of the Ohrid region was first inscribed in 1979 under natural criterion (iii), following its formulation from 1977:

“contain unique, rare or superlative natural phenomena, formations or features or areas of exceptional natural beauty, such as superlative examples of the most important ecosystems to man, natural features, (for instance, rivers, mountains, waterfalls), spectacles presented by great concentrations of animals, sweeping vistas covered by natural vegetation and exceptional combinations of natural and cultural elements.”

The formulation of the criterion at the time of inscription still applies and this has been reflected in the Retrospective Statement of Outstanding Universal Value, adopted in 2016 (Decision 39 COM 8E): *“The preservation of Lake Ohrid dating from pre-glacial times is a superlative natural phenomenon. As a result of its geographic isolation and uninterrupted biological activity, Lake Ohrid provides a unique refuge for numerous endemic and relict freshwater species of flora and fauna. Its oligotrophic waters contain over 200 endemic species with high levels of endemism for benthic species in particular, including algae, diatoms, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish. The Lake Ohrid region also harbours a rich birdlife.”*

The proposal is an extension of the already inscribed property and the criteria under which the latter was inscribed unreservedly apply also to the proposed extension. Proposed extension manifests outstanding universal values with respect to four separate, but but fully complementary, World Heritage criteria:

Criterion (i): represent a masterpiece of human creative genius;

The town of Ohrid is one of the oldest human settlements in Europe. As one of the best preserved complete ensembles encompassing archaeological remains from the Bronze Age up to the Middle Ages, Ohrid boasts exemplary religious architecture dating from the 7th to 19th centuries as well as an urban structure showcasing vernacular architecture from the 18th and 19th centuries. All of them possess real historic, architectural, cultural and artistic values. The

concentration of the archaeological remains and urban structures within the old urban centre of Ohrid, along the coast of Lake Ohrid as well as the surrounding area creates an exceptional harmonious ensemble, which is one of the key features that make this region truly unique. Within the proposed extension of the property there are several archaeological remains of lakeshore settlements dating back to the Neo-Eneolithic period. The peninsula of Lin represents one of the core areas of human settlements of the entire proposed extension property. It seems to have been inhabited since the late Neolithic period and bears witnesses of human activity throughout Bronze and Iron Ages continuing also through the 4th – 3rd centuries B.C.E. during the First Illyrian Kingdom. The remains of the early Christian church in Lin Peninsula is very similar to the religious architecture of the same period in Ohrid.

Criterion (iii): *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;*

The property is a testimony of Byzantine arts, displayed by more than 2,500 square metres of frescoes and more than 800 icons of worldwide fame. The churches of St. Sophia (11th century), Holy Mother of God Perivleptos and St. John Kaneo notably display a high level of artistic achievements in their frescoes and theological representations, executed by local as well as foreign artists. Ancient architects erected immense basilicas, which were to serve as models for other basilicas for centuries. The development of ecclesiastical life along the shores of the lake, along with its own religious architecture, frescoes and icons, testifies to the significance of this region as a religious and cultural centre over the centuries.

The early Christian church of Lin in the proposed extension property, being very similar to the churches of the same period in Ohrid, holds beautifully paved mosaic floors depicting biblical scenes (Eucharistic), religious symbols. These similarities between the World Heritage property and the proposed extension and researches on this issues are evidence that same ateliers of mosaic and painting masters operated in this area during the Early Christian period.

Criterion (iv): *be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;*

The Lake Ohrid region boasts the most ancient Slavonic monastery and the first Slavonic University in the Balkans – the Ohrid literary school that spread writing, education and culture throughout the old Slavonic world. The old centre of Ohrid is a uniquely preserved, authentic ancient urban entity, adjusted to its coastal lake position and terrain, which is characterised by exceptional sacred and profane architecture. The architectural remains comprising a forum, public buildings, housing and sacred buildings with their infrastructure date back to the ancient town of Lychnidos (the former name of the town). The presence of early Christian architecture with the lofty basilicas from 4th to 6th centuries, together with the Byzantine architecture with a great number of preserved sacred buildings of different types from 9th to 14th centuries, is of paramount importance and contributes to the unity of the urban architecture of the city.

The remains of lake-shore pile dwellings are the oldest evidences of human settlements in the proposed extension. Together with the sepulchral and religious monuments and also traditional

villages adjusted to natural coastal terrain, have created a unique landscape, underlined by its harmonious and functional relationship with the lake-dominated natural environment.

Criterion (vii): contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

The preservation of Lake Ohrid dating from pre-glacial times is a superlative natural phenomenon. As a result of its geographic isolation and uninterrupted biological activity, Lake Ohrid provides a unique refuge for numerous endemic and relict freshwater species of flora and fauna. Its oligotrophic waters contain over 200 endemic species with high levels of endemism for benthic species in particular, including algae, diatoms, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish. The Lake Ohrid region also harbours a rich birdlife.

Both the inscribed and the proposal for extension are areas of exceptional natural beauty with its morphology and clear waters set against the background of the Galicica, Mali i Thatë and Mocra escarpment. Habitat types vary from rocky shorelines to sandy beaches and from wooded hillsides to swamps and tributaries. The current inscribed property of Lake Ohrid region has on its core the Lake Ohrid a deep, oligotrophic lake of tectonic origin and amongst the few ancient lakes in the world. This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbours an outstanding degree of endemic biodiversity. The lake is host of about 1,500 species, and more than 300 endemic species, and it is probably by far the most diverse lake in the world taking surface area into account. The endemism occurs at different spatial scales with some species being endemic to the lake proper and other restricted to its adjacent and surrounding springs or only certain locations isolated by horizontal and vertical barriers. The most important locations for the conservation of the endemic aquatic biodiversity within Lake Ohrid in Albania include the feeder spring complex at Tushemisht/Zagorican (Drilon) in Albania. Currently there is no comprehensive and systematic review of the distribution of the endemic species in Lake Ohrid and its watershed, but probably a high number of endemic species are distributed throughout the lake, including four endemic species of sponges and several endemic fish. Other endemic species have been described from locations in the Albanian part of the lake, such as several endemic diatom species that have been published recently as new to science. A very high number of Palearctic water birds regularly winter at Lake Ohrid, rendering it an internationally important wetland. The watershed of Lake Ohrid also harbours rich and important biodiversity. Based on a number of species of international and national conservation values have been identified in the Albanian part of the watershed: 44 taxa of invertebrates, 21 fish species, 6 amphibians, 13 reptiles, 137 birds, and 21 mammals.

Based on the strong morphological and ecological differences and genetic patterns observed, it might be concluded that some endemic species occur in the littoral and sublittoral of the Lake Ohrid. The authors (Stelbrink et al. 2016) hypothesize that possibly these ecological (along a vertical habitat gradient) and geographic (spatial isolation on a horizontal scale, patchiness of suitable habitats, and low mobility of the populations) speciation gave rise to the different species, though a clear distinction between these two modes poses a significant challenge.

However, assuming that the different morphology and ecology are conservative features, it seems reasonable to assume that ecological speciation along a vertical habitat gradient may have been the predominant process in the early stage of speciation, triggered by the onset of deep-water conditions. Subsequent geographic processes then gave rise to the phylogeographic patterns observed today. Further on the evolution of the exceptionally rich biodiversity of Lake Ohrid is closely related to its specific ecology. Like for most other lakes, the ecology of Lake Ohrid is a mirror of its catchment and its ecoclimatological setting. The presence and evolution of the rich biodiversity of the lake was supported by the subaquatic inflow of cool, clean and oxygen rich water into the lake. The subaquatic springs contribute to the establishment of specific habitats for endemic species as they supply oxygen, nutrients, and ions and by creating distinctly different, but constant boundary conditions. The occurrence of a number of endemic taxa is exclusively linked to the springs and this seems to indicate that the spring water may have been important for the evolution of the unique ecosystem of Lake Ohrid. Due to the long hydraulic residence time in Lake Ohrid the water through-flow is weak and the subaquatic springs contribute a significant portion of the water budget. The dilution of regular lake waters with pure spring waters is important for the oligotrophic status of Lake Ohrid and its subsequent low algae productivity. The lake is still highly oligotrophic, with a transparency of 14m, but the mean total phosphorus concentration has risen to 4.5 mg m^{-3} . Lake Ohrid also provides invaluable archives of tectonic, climate, environmental, and evolutionary histories (Albrecht *et al.* 2010). Recently, Lake Ohrid has been recognized as a site of global importance for long term palaeoclimate reconstruction. With its long sediment record and key geographic location between the Mediterranean and Western Europe it is increasingly used to test hypotheses concerning biodiversity and the evolution of endemism in ancient lakes (Reed *et al.* 2010).

4.3. Statement of Integrity

The proposed extension is sufficiently large (11.378,6 ha) to adequately represent both natural and cultural, terrestrial and water features, and processes that are of importance for long term conservation of the lake's region rich biodiversity and exceptional natural beauty. The water area within the Ohrid and Prespa Biosphere Reserve and Pogradec Protected Landscape is the most important element of the lake's biodiversity. The property also protects all major terrestrial vegetation types and important breeding sites for the various species. With already nominated Natural and Cultural Heritage of the Ohrid region in Macedonian side, the current proposal for nomination will fully encompass all of the features that convey the property's Outstanding Universal Value. The proposed extension fully encompasses all the features that convey the property's Outstanding Universal Value. The integrity of the property is strengthened by including to the already inscribed world heritage property, the one-third of Lake Ohrid located in Albanian territory and other areas essential to the protection of the lake's watershed, in order to adequately protect the lake's exceptional biodiversity. Main threats to the integrity of the property include uncoordinated urban development, increasing population, old infrastructure, inadequate treatment of wastewater and solid waste, illegal interventions to the water springs and tourism pressure. In addition, pollution from increased traffic influences the quality of the water,

which leads to the depletion of natural resources. The overall coherence of the property, and particularly the relationship between urban buildings and the landscape, is vulnerable to the lack of adequate control of new development.

4.4. Statement of Authenticity

Lin Peninsula is reasonably well preserved, regarding its setting, visual integrity although uncontrolled incremental interventions have impacted the exterior outfittings of the residential buildings in the ensemble as well as the lakeshore. These are also vulnerable to major infrastructure projects and other developments. Concerning the cultural heritage values periodic conservation works have been carried out. Archaeological evidences have been researched and documented, but still the underwater heritage of the site is not fully explored.

Even though the original residential function of the buildings has not changed over time, the exterior and interior outfittings of many residential buildings, have been altered to improve living conditions. Still original features and volumes are conserved to a good extent. Reconstructions often used materials identical to those used at the time of construction and new materials have also been used, which presents a threat for the authenticity of the property.

4.5. Protection and management requirements

The inclusion of the proposed extension in the world heritage list is essential for an integrated management and protection of natural and cultural heritage of the whole area. Long-term protection and management in the proposed extension of natural and cultural assets is ensured through national legal protection such as national parks designation, core areas of biosphere reserves or other types of protected areas, cultural monuments and historic centre designation. The Management Plan for Pogradec Protected Landscape, also integrated with the General Local Plan for Pogradec Municipality are the key management and planning instruments for the area. Effective implementation of an integrated management plan and a multilateral integrated management system is required to guide the planning and management of this property. Key management issues include pollution control and reduction, fishery management, protection of attributes of the proposed Outstanding Universal Value, integration of local development with proposed World Heritage values, ecosystems, land use and livelihoods (in the buffer zone). Transboundary cooperative management agreements between the two countries as well as agreements between local governments and other entities can enhance the achievement of management goals and ensure local community engagement in the component parts.

The property is subject to a comprehensive protection and management scheme. The Albanian extension is part of the Lake Ohrid watershed and lies within boundaries of Pogradec Terrestrial/Aquatic Territory Protected Landscape Area. It has the legal purpose of preserving and protecting the Lake Ohrid unique natural assets and landscape, to ensure that the natural processes in these habitats remain in force and to conserve the natural diversity of the plant and animal species. It is dominantly state owned property and the competent management authority is the National Agency of the Protected Areas.

The property is “relatively” adequately staffed and resourced to meet current and future challenges, while the information and awareness on the area is lacking a net of information centers. The Albanian Area of Pogradec Terrestrial/Aquatic Territory Protected Landscape is subject to a protection in the framework of the Law on Protected Areas. No. 8906, dated 6 June 2002, amended by law no. 9868, dated 4. February 2008. This is the legal basis for the establishment and management of protected areas and affects the management of the Pogradec protected landscape. The overall objective of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area is to protect and conserve the area as a complete nature area of national and international importance including its natural dynamic processes and ensure a sustainable use taking account of the overall protection goal. The protected area is zoned into areas with different protection regime.

As is the case for the inscribed property in FYR Macedonia extension, the Albanian part of the Lake Ohrid region is fully embedded within the Agreement between the government of the Republic of Albania and the government of the Republic of Macedonia on the protection and sustainable development of Lake Ohrid and its watershed ratified with “Law on the ratification No. 9347, dated 24.02.2005”. The Joint Agreement includes the principles for the conservation of Lake Ohrid and its watershed with final purpose to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way”.

The inscribed property of the Natural and Cultural Heritage of the Ohrid region is managed by two ministries (the Ministry of Culture and the Ministry of Environment), via three municipalities (Ohrid, Struga and Debrca), although the municipalities legally do not have the authority to protect cultural and natural heritage. The Institute for Protection of Monuments of Culture and Museums in Ohrid has the authority to protect cultural heritage, and the Natural History Museum in Struga is responsible for protecting movable heritage. The Galichica National Park is authorized to manage natural heritage within the park as a whole, and part of the cultural heritage located within the territory of the Park. The Institute for Hydrobiology in Ohrid is responsible for the continuous monitoring of the Lake Ohrid ecosystem, the research and care for Lake Ohrid’s flora and fauna, as well as the management of the fish hatchery, also to enrich the Lake’s fish stocks.

The management plan for the Pogradec Protected Landscape provides the basis for the management of the lands, waters and resources in the buffer zone of the World Heritage Extension Property. Land use in the area needs to be both ecologically and economically viable, while enabling local communities to continue to benefit from land-based livelihoods. Implementation of that plan should ensure adequate management of ecosystems, habitats and species in the buffer zone, and of local land and resource use. This programme supplements that plan with actions to support maintenance of the values of the World Heritage Property, in particular the landscape setting of the Lake and the ecosystem services (erosion control, water regulation, local climate regulation) provided by the catchment. It would be desirable to integrate buffer zone management of the Albanian and Macedonian parts of the property, particularly in border areas.

Establishment of the National Agency for Protected Areas in Albania, with a strong focus on improving capacity and performance is a step forward towards enforcement of conservation and management. The ongoing moratorium on hunting in Albania, which provides high level of protection for water birds and other wild fauna of the catchment in an important element along with further legal improvements. Establishment of the Ohrid-Prespa Transboundary Biosphere Reserve is demonstrating an international commitment to conservation and sustainable development of entire lakes area at the transboundary scale.

Currently the competent management authority for the Albanian part of the nominated proposed extension is the National Agency of The Protected areas under the Albanian Ministry of Tourism and Environment. It is adequately staffed and resourced to meet current and future challenges and the information and awareness on the protected area is provided by various means and information centers. Further on the proposed extension is part of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area which, in addition to the objectives presented above, aims to support the sustainable development of the region in cooperation with the local stakeholders through the Joint Watershed Committee (Albanian-Macedonian).

With regards to the cultural component of the proposed extension, the Law on Cultural Heritage No 9048 dated 7 April 2003, as amended is the most important legal framework which includes activities in relation to the preserving, promoting and managing the Albanian national heritage. In application of and in accordance with this framework law, a series of bylaws are adopted, defining and governing through regulations the management of historical centres, archaeological areas and parks, cultural monument and ensembles. Article 17 of the Law provides for the establishment of a National Council for Restorations, chaired by the Minister of Culture (NCR) which assumed the right to grant permission for any restoration of cultural heritage buildings or monuments. NCR is a collegial decision making body consisted of representatives from the specialised state institutions and personalities of the field. Restoration, conservation and rehabilitation works are carried out by entities licensed for this purpose, supervised and tested by state institutions, specialised and legally assigned for the protection and preservation of cultural heritage assets.

The National Council for Archaeology (NCA) is the second collegial decision-making body established in 2008 and chaired by the Minister of Culture. The NAC approves in principle the research criteria, documentation and archiving of data and archaeological materials, driven by developments, defines the criteria for the exercise of archaeologists' profession, approves permits of private entities and individuals involved in archaeological excavations and archaeological activities in general, as well as the approval of all projects of intervention in archaeological areas, in accordance with article 30 of Law No.9048, dated 7 April 2003 "On Cultural Heritage", as amended. The law in force protects movable and immovable objects having historic, cultural, technological, ethnographic value. The Law also covers intangible manifestations of cultural heritage, from processes of production of tradition products along with the instruments used for this purpose, to the use of language, performing arts, traditional customs and records of traditional cultural expressions in oral or written forms.

The main actors for the protection of cultural heritage are: the Ministry of Culture and its subordinate national institutions central and regional (19), the Centre for Albanian Studies, the General Directorate of State Archives, the Universities and the local governing bodies, in accordance to their respective roles and sphere of competencies. The law identifies four levels of protection for the immovable heritage: watching, preliminary protection, cultural monument of 2nd category, cultural monument of 1st category. The 'watching' status is permanent, while preliminary protection status acts as a form of temporary protection needed to prepare the documentation to achieve one of the other protection status. Monuments of 2nd category are protected mainly for the architectural values of their outer envelope, while monuments of 1st category are protected in their entire substance and appearance.

In the proposed extension the protection tasks are a responsibility of the Regional Directorate of National Culture in Korça, Institute of Cultural Monuments, Archaeological Service Agency. However the Law provides for cooperation with regional and local administrations, the forms this cooperation should assume is defined by the Ministry of Culture. Mechanisms are in place to provide funds for heritage conservation /restoration and percentages vary according to the grading of the protection and the type of works.

In case projects have negative impacts on cultural heritage, they should be modified and modifications should be proposed by the relevant institutions that have made the assessments with their expenses covered by the developers. More specifically, according to articles 47 and 48 of the Law: “In cases of major constructions within the territories under state or private ownership, such as roads, highways, airports, ports, industrial works, new residential areas, investors are required to obtain the written consent of the National Restoration Council and the National Archaeological Council during the process of project design and implementation. The experts carry out the inspection of the area and prepare the respective documentation. When the area contains key archaeological, ethnographic values or traces of ancient or traditional architecture, changes may be required to the project design, “proposals for changes are made by the institutions which have carried out the inspection.” “Additionally, when works have commenced and traces or objects of archaeological-ethnological values are accidentally discovered, the works are immediately suspended. The administrators and investors in the works are required, within three days, to inform the local government bodies, the Archaeological Service Agency and regional Directorate of National Culture , which carry out the respective inspection, report about the identified values and make respective proposals whether to continue works or not. If evidence of significant values is found, the commenced works have to be subject to changes or can be indefinitely suspended.” The Cultural Heritage Law is currently under revision and since 2014 under consultation process is foreseen to be approved during 2018. Due to its complexity the integrated management of natural and cultural heritage through a joint coordinating body and joint management planning are urgently needed to ensure that the values of the property are rightly conserved. Based on the various impacting factors as infrastructure and tourism the management requirements for the proposed extension on Albanian side of the

Lake Ohrid region need new approach of collaboration in line with national and international regulatory framework.

4.6. Comparative Analysis

The Ohrid Lake Region is proposed for nomination as an extension mixed natural and cultural site under criteria (i), (iii), (iv) and (vii).

Due to the number of criteria selected, the comparative analysis included herewith builds on comparing Ohrid Lake Region with a series of other sites of mixed values, or of either natural or cultural value based on their relevance (see sets of values used for comparison below), be they inscribed on the World Heritage list or not. It is understood however that comparison between a mixed sites and sites whose values lie either in their natural or cultural features can only be partial. As is clearly set out in paragraph 132 of the Operational Guidelines for the Implementation of the World Heritage Convention, the nomination for inscription should incorporate a comparative analysis with other similar properties, which may or may not be registered on the World Heritage List, in order to justify its Outstanding Universal Value within a national or international context.

The methodological approach of the comparative analysis is based on the study ‘The World Heritage List’. Filling the gaps-an action plan for the future, which was developed by the International Council on Monuments and Sites (ICOMOS) and published in 2005. This document was designed as a contribution to the development of the Global Strategy, in order to achieve a representative, balanced and credible World Heritage List. With regard to operational matters, the use of three frameworks for the identification of gaps in the World Heritage List is proposed: typological, regional-chronological and thematic. As recognized by the UNESCO World Heritage Global Strategy (Paragraphs 54-58 of the Operational Guidelines, 2005), natural and mixed sites are priorities for future inscription in the World Heritage List. In addition, in 2009, IUCN encourages the States Parties of the Former Yugoslav Republic of Macedonia and Albania to cooperate towards the preparation of a new nomination for a transboundary extension of the property, to include the Albanian part of Lake Ohrid and its watershed, in order to strengthen the values and integrity of the property. Further on ICOMOS in 2009 considered that such a trans-boundary nomination should be for a mixed property, as is the existing property, and therefore urges consideration of the cultural aspects of the Albanian lake shore.

Comparison of other similar properties, Lakes World Heritage sites

There are few examples of wetlands of international importance declared as World Heritage sites. There are only four lakes that are World Heritage sites:

Willandra lakes Region (Australia): Inscribed 1981, boundaries revised 1995 Criteria C (iii) N (i): The fossil remains of a series of lakes and sand formations that date from the Pleistocene can be found in this region, together with archaeological evidence of human occupation dating from 45-60 000 years ago. It is a unique landmark in the study of human evolution on the Australian continent. Several well-preserved fossils of giant marsupials have also been found here. In

comparison with Ohrid lake region it provides evidences of evolution of nature and mankind, while region have completely different character in terms of cultural development and rate of endemic species within context of surface and other particularities. The geographical and geological patterns are different in case of inscribed nomination.

Lake Baikal (Russian Federation): Inscribed 1996 Criteria N (i)(ii)(iii)(iv): Situated in south-east Siberia in the Russian Federation the lake covers an area of 3.15 million ha. Lake Baikal is the oldest (25 million years) and deepest (1,637 m) lake in world. It contains 20% of the world's surface unfrozen freshwater reserve. Known as the "Galapagos of Russia", its age and isolation have produced one of the world's richest and most unusual freshwater faunas which are of exceptional value to evolutionary science. With its outstanding variety of endemic animals and plants Lake Baikal is one of the most biologically diverse lakes on earth.

Lake Malawi National Park (Malawi): Located at the southern end of the great expanse of Lake Malawi, the property is of global importance for biodiversity conservation due particularly to its fish diversity. Due to the isolation of Lake Malawi from other water bodies, its fish have developed impressive adaptive radiation and speciation, and are an outstanding example of the ecological processes. The lake is been inscribed based on Criteria (vii) (ix) and (x).

Out of 1052 heritage sites on the World Heritage List, 9 are lakes of considerable size, including 6 natural, 1 mixed and 3 cultural heritage site. Based on the comparison it can be concluded:

Comparison with lakes of natural heritage the included 6 lakes on the World Heritage List have outstanding universal value due to special natural attributes, similarly to the inscribed Lake Ohrid region. In comparison with Lake Ohrid region they do have much larger size; the endimicity rate per surface are in case of Lake Ohrid region is much higher; the other lakes do not have integration with surrounding cultural meanings. In comparison with mixed heritage site: Willandra Lakes Region, it provides similar evidence of nature an mankind, but the region do not posses values of cultural meaning, no description on natural beauty. In comparison with lakes of Malwi and Baikal this property is a environment of human settlement, while it provides evidences of natural evolution, speciation and species richness. As conclusion, in the World Heritage List there are no properties is high number of enedemic species per surface unite, evolutionary patterns expressed in relatively small lake (compared with other natural properties in the World Heritage List) and cultural meaning/values.

Global comparison of World Heritage sites

There are several examples of wetlands of international importance declared as World Heritage sites considered in these analyses: Lake Baikal (Russian Federation); Malawi National Park (Malawi); Kenya Lake System in the Great Rift Valley (Kenya); Willandra lakes Region (Australia). Lake Baikal (Russian Federation): Inscribed 1996 Criteria N (i)(ii)(iii)(iv): Situated in south-east Siberia in the Russian Federation the lake covers an area of 3.15 million ha. Lake Baikal is the oldest (25 million years) and deepest (1 637 m) lake in world. It contains 20% of the world's surface unfrozen freshwater reserve. Known as the "Galapagos of Russia", its age and

isolation have produced one of the world's richest and most unusual freshwater faunas which are of exceptional value to evolutionary science. With its outstanding variety of endemic animals and plants Lake Baikal is one of the most biologically diverse lakes on earth. *Lake Malawi National Park (Malawi): Located at the southern end of the great expanse of Lake Malawi, the property is of global importance for biodiversity conservation due particularly to its fish diversity. Due to the isolation of Lake Malawi from other water bodies, its fish have developed impressive adaptive radiation and speciation, and are an outstanding example of the ecological processes. The lake is been inscribed based on Criteria (vii) (ix) and (x).* Out of 1052 heritage sites on the World Heritage List, 9 are lakes of considerable size, including 6 natural, 1 mixed and 3 cultural heritage site. Based on the comparison it can be concluded: Comparison with lakes of natural heritage the included 6 lakes on the World Heritage List have outstanding universal value due to special natural attributes, similarly to the inscribed Lake Ohrid region. In comparison with Lake Ohrid region they do have much larger size; the endimicity rate per surface are in case of Lake Ohrid region is much higher; the other lakes do not have integration with surrounding cultural meanings. As conclusion, in the World Heritage List there are no properties is high number of endemic species per surface unite, evolutionary patterns expressed in relatively small lake (compared with other natural properties in the World Heritage List) and cultural meaning/values.

Global comparison to other ancient lakes

Biwa (Japan), El'gygytgyn (Russia), Tanganyika (Tanzania, Congo, Burundi, Zambia), Titicaca (Bolivia, Peru), Bear (USA), Victoria (Tanzania, Uganda, Kenya), Khövsgöl (Mongolia). Lake Biwa is the largest and oldest lake in Japan with a geological history of four million years, making it the third oldest lake in the world. It is called a biodiversity hotspot, where 1,769 aquatic species including 54 endemics are recorded, providing a rare opportunity to study the evolutionary diversification of aquatic biota and its ecological consequences. In this book, we first narrate the evolutionary history of biological diversity, especially of fish diversity in this lake, focusing on its paleogeography and molecular phylogeny. It harbors more than a thousand animal and plant species, including 67 indigenous freshwater fish species/subspecies with 16 endemic or semi-endemic forms. Paleogeographical and paleontological studies have revealed that the location and environment of the lake have changed during its history of more than four million years. The current Lake Biwa, with its unique environments, was established 0.4 million years ago. Endemic fishes in Lake Biwa are traditionally divided into old "relict species" and new "species that evolved in the lake," the latter being assumed to have evolved through ecological adaptations to the present lake environment. However, recent molecular phylogenetic/population genetic analyses have revealed that many of the "species that evolved in the lake" have origins that are older than the present Lake Biwa, while other species likely evolved in the present environment through ecological adaptation. On the other hand, many fish populations that inhabit Lake Biwa, irrespective of their origin, show similar patterns involving recent population expansions that occurred several tens of thousands of years ago.

Lake Tanganyika and its basin are endowed with exceptionally large and highly diverse heritage of flora and fauna. The lake is a global hotspot of biodiversity, and an extremely valuable aquatic ecosystem containing almost 17% of the global available surface freshwater supply and some of the largest freshwater fisheries on the African continent. Estimates suggest that Lake Tanganyika harbors at least 1500 species out of which 632 are currently considered endemic to the lake. In addition to Lake Tanganyika's elevated levels of aquatic biodiversity, the basin is renowned for its terrestrial biodiversity and scenic beauty. The Basin contains several forest reserves and national parks including Rusizi Nature Reserve and Kigwena Forest Reserve in Burundi, Gombe Stream, Katavi and Mahale Mountains National Park in Tanzania, and Nsumbu National Park in Zambia. The lake and its basin provide a diverse range of ecosystem services that sustain the livelihoods of millions of people. The lake is valuable not only for the presence of these unique species, but also as a microcosm in which to study the processes of evolution that have led to this diversity.

Lake Victoria is the largest lake in Africa with an edge of more than 0.4 million years and with the largest freshwater fishery in the world. It has a surface of 68,800 km² and 240 species are currently considered endemic to the lake. There are nine main affluent river basins (Sio, Nzoia, Yala, Nyando, Sondu-Miriu, Awach, Kuja, Mara, and Kagera), and one surface outlet, the River Nile. The basin has extensive wetlands and small water bodies, which have (or had) a hydrological connection with Lake Victoria and therefore constitute potential "refugia" for biotic and genetic diversity from the main lake. The biological diversity in these waters is known to be exceptional both in number of species and in their endemism. The wetland ecosystems in Lake Victoria basin are rich with vertebrates. The ecosystems are quite diverse and provide different ecological niches or habitats for different species.

Lake Titicaca, situated in the Altiplano high plateau, is the only ancient lake in South America. The lake originated during the Late Pliocene/Early Pleistocene about 2–3 million years ago and its is ancient water body that has had a complex history that included at least five major hydrological phases during the Pleistocene. It is generally assumed that these physical events helped shape the evolutionary history of the lake's biota. Lake Titicaca has a surface of 8,372 km² and maximum depth of 284 m. The Lake Titicaca region contains at least 533 aquatic species and at least 61 of these (12%) are considered to be endemic. However, these numbers are considerably smaller than in most other ancient lake basins. The relatively small number of endemic species in this lake has been attributed to (1) the possibility that the ancestral biota was tropical in origin and consequently was depleted during the uplifting of the Altiplano because few species could tolerate high elevations and/or low temperatures and (2) the large variation in lacustrine water chemistry during the late Cenozoic, which resulted in extinctions.

Lakes name	Lakes age (Ma)	WHL (Yes/No)	Surface area (km ²)	Maximum water depth (m)	Number of endemic species	Index of endemic biodiversity
Baikal (Russia)	25	Yes	31,722	1741	982	0.66
Biwa (Japan)	4.5-5		670.4	104	54	0.17
El'gygytgyn (Russia)	3.6		110	170		0.52
Malawi (Malawi)	7	Yes	29,600	706	200	0.52
Tanganyika (Tanzania, Congo, Burundi, Zambia)	2-12		32,900	1470	632	0.62
Titicaca (Bolivia, Peru)	2.8		8,372	284	61	0.45
Ohrid (AL-Mac)	2-5		352	288	212	0.91
Bear (USA)	6		280	63	24	0.56
Victoria (Tanzania, Uganda, Kenya)	0.4		68,800	84	240	0.47
Khövsgöl (Mongolia)	2		2,760	138	9	0.28

Table 10. Summarized data for the main global ancient lakes

Although the total number of endemic species is higher in lakes Baikal, Tanganyika, Victoria and Malawi, Lake Ohrid is much smaller than these lakes and thus by far the most diverse lake in the world for its size. According to these authors, the adjusted rate of endemism at Lake Ohrid is estimated at 36% for all taxa and 34% for Animalia. According to Albrecht et al., (2008) in contrast to African and southeast Asian ancient lakes where vertebrate species play a major role in ancient lake species flocks, no such extensive species flocks have been reported for vertebrate species in temperate ancient lakes, with the exception of Lake Baikal. However, unlike vertebrate species, endemism in European ancient lake invertebrates is high, with several species flocks being reported. Among these invertebrate groups, benthic and semi-benthic taxa appear to be particularly diverse. The comparison of Lake Ohrid Region concerns both sites inscribed on the World Heritage List Global and other non-registered property. The Exceptional universal value of Lake Ohrid Region is thus demonstrated and underlined. To get accurate and scientific comparative analysis the best approach will be ones it is compared with other ancient lakes. An ancient lake is a lake that has consistently carried water for more than 1 million years. Lake Ohrid is probably of early Pleistocene or Pliocene origin and amongst the few ancient lakes in the world (Albrecht et al. 2010). This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbors an outstanding degree of endemic biodiversity. Following different sources there are 212 taxa that are endemic to Lake Ohrid. Following the approach chosen by Albrecht and Wilke (2008) Lake Ohrid is probably by far the most diverse lake in the world taking surface area into account.

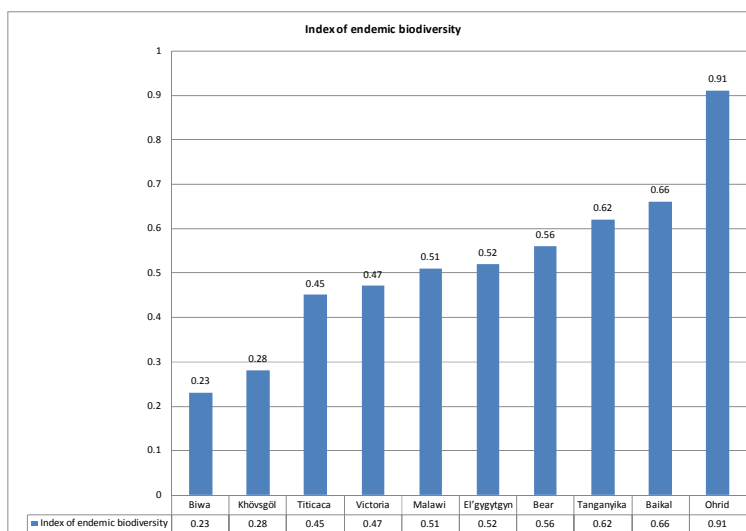


Figure 3.1: Index of endemic biodiversity for selected worldwide ancient lakes and Lake Victoria taking surface area into account (Extended version of Albrecht & Wilke, 2008).

Use of specific group like diatoms in comparison of Lake Ohrid with other ancient lakes is also very useful in terms of very specific values. So, in Lake Tanganyika 474 diatom taxa from 43 genera have been recorded (Cocquyt et al. 1993), of which only 30 species (c. 8%) are considered as endemic (Cocquyt & Vyverman 1994) with the majority of species apparently “cosmopolitan” or at least with wider distributions than in the lakes in which they were described (c. 70%). Further on the diatom flora of the ancient Mongolian Lake Khövsgöl (Hövsgöl) is composed of 373 diatom taxa from 67 genera (Edlund et al. 2001, 2006b). Lake Baikal is well known for its high level of endemism, including its benthic diatoms (Levkov, et al., 2012). Early in the history of studies on Lake Baikal are listed over 450 taxa with 148 taxa (c. 33%) endemic (Table 11).

	Number of Taxa	Number of Endemic Taxa	% endemism
Lake Ohrid	789	132	16.7
Lake Baikal	450	148	32.9
Lake Tanganyika	474	30	6.3
Lake Hövsgöl	373	1	0.3

Table 11. Comparison of numbers of diatom taxa in ancient or large lakes (Levkov et al., 2012)

4.7. Proposed statement of outstanding universal value¹

a) Brief Synthesis

The Lake Ohrid region, a mixed World Heritage property covering 83,350 ha, was inscribed for its natural values in 1979 and for its cultural values a year later. Lake Ohrid is a superlative natural phenomenon, providing refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 300 species of plants and animals unique to the lake, including algae, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish including two species of trout, as well as a rich birdlife.

Situated on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mostly between the 7th and 19th centuries, Ohrid is home to the oldest Slav monastery (dedicated to St. Pantelejmon) and more than 800 Byzantine-style icons of worldwide fame dating from the 11th century to the end of the 14th century. Ohrid's architecture represents the best preserved and most complete ensemble of ancient urban architecture of this part of Europe. Slav culture spread from Ohrid to other parts of Europe. Seven basilicas have thus far been discovered in archaeological excavations in the old part of Ohrid. These basilicas were built during the 4th, 5th and beginning of the 6th centuries and contain architectural and decorative characteristics that indisputably point to a strong ascent and glory of Lychnidos, the former name of the town. The structure of the city nucleus is also enriched by a large number of archaeological sites, with an emphasis on early Christian basilicas, which are also known for their mosaic floors. Special emphasis regarding Ohrid's old urban architecture must be given to the town's masonry heritage. In particular, Ohrid's traditional local influence can be seen among its well-preserved late-Ottoman urban residential architecture dating from the 18th and 19th centuries. The limited space for construction activities has led to the formation of a very narrow network of streets. Although the town of Struga is located along the shores of Lake Ohrid, town life is concentrated along the banks of the Crn Drim River, which flows out of the lake. The existence of Struga is connected with several fishermen settlements on wooden piles situated along the lake shore. A great number of archaeological sites testify to origins from the Neolithic period, the Bronze Age, the Macedonian Hellenistic period, the Roman and the early Middle Age period. The convergence of well-conserved natural values with the quality and diversity of its cultural, material and spiritual heritage makes this region truly unique.

¹ The proposed statement of outstanding universal value is similar with the Statement of Outstanding Value for Lake Ohrid region in FYR Macedonia to align with and reaffirm the existing statement as the proposed extension is an extension of the already inscribed one.

c) Statement of Integrity

The proposed extension is sufficiently large (11.378,6 ha) to adequately represent both natural and cultural, terrestrial and water features, and processes that are of importance for long term conservation of the lake's region rich biodiversity and exceptional natural beauty. The water area within the Ohrid and Prespa Biosphere Reserve and Pogradec Protected Landscape is the most important element of the lake's biodiversity. The property also protects all major terrestrial vegetation types and important breeding sites for the various species. With already nominated Natural and Cultural Heritage of the Ohrid region in Macedonian side, the current proposal for nomination will fully encompass all of the features that convey the property's Outstanding Universal Value. The proposed extension fully encompasses all the features that convey the property's Outstanding Universal Value. The integrity of the property is strengthened by including to the already inscribed world heritage property, the one-third of Lake Ohrid located in Albanian territory and other areas essential to the protection of the lake's watershed, in order to adequately protect the lake's exceptional biodiversity. Main threats to the integrity of the property include uncoordinated urban development, increasing population, old infrastructure, inadequate treatment of wastewater and solid waste, illegal interventions to the water springs and tourism pressure. In addition, pollution from increased traffic influences the quality of the water, which leads to the depletion of natural resources. The overall coherence of the property, and particularly the relationship between urban buildings and the landscape, is vulnerable to the lack of adequate control of new development.

d) Statement of Authenticity

Lin Peninsula is reasonably well preserved, regarding its setting, visual integrity although uncontrolled incremental interventions have impacted the exterior outfittings of the residential buildings in the ensemble as well as the lakeshore. These are also vulnerable to major infrastructure projects and other developments. Concerning the cultural heritage values periodic conservation works have been carried out. Archaeological evidences have been researched and documented, but still the underwater heritage of the site is not fully explored.

Even though the original residential function of the buildings has not changed over time, the exterior and interior outfittings of many residential buildings, have been altered to improve living conditions. Still original features and volumes are conserved to a good extent. Reconstructions often used materials identical to those used at the time of construction and new materials have also been used, which presents a threat for the authenticity of the property.

e) Requirements for protection and management

The Natural and Cultural Heritage of the Ohrid region has several layers of legal protection. The protection of cultural heritage is regulated by the Law on Cultural Heritage Protection (Official Gazette of RM No. 20/04, 115/07), by-laws and a law declaring the old city core of Ohrid as a

cultural heritage of particular importance (Official Gazette of RM No. 47/11). The protection of natural heritage is regulated by the Law on Nature Protection (Official Gazette of RM No. 67/2004, 14/2006 and 84/2007), including within and outside of protected areas. There is also the Law on Managing the World Cultural and Natural Heritage of the Ohrid Region (Official Gazette of RM No. 75/10). Legal instruments need to be kept updated and implemented to protect the property.

The property is managed and protected through a range of relevant management documents, and an effective overall management plan is a clear long-term requirement. The “Physical Plan of the Republic of Macedonia” of 2004 provides the most successful long-term and integrated document for land management, providing a vision for the purpose, protection, organization and landscape of the country and how to manage it. This plan needs to be maintained and updated regularly, although some deficiencies have been noted in the general implementation of urban planning regulations and plans.

The property is managed by two ministries (the Ministry of Culture and the Ministry of Environment), via three municipalities (Ohrid, Struga and Debrca), although the municipalities legally do not have the authority to protect cultural and natural heritage. The Institute for Protection of Monuments of Culture and Museums in Ohrid has the authority to protect cultural heritage, and the Natural History Museum Dr Nikola Nezlobinski in Struga is responsible for protecting movable heritage. The Galichica National Park is authorized to manage natural heritage within the park as a whole, and part of the cultural heritage located within the territory of the Park. The Institute for Hydrobiology in Ohrid is responsible for the continuous monitoring of the Lake Ohrid ecosystem, the research and care for Lake Ohrid’s flora and fauna, as well as the management of the fish hatchery, also to enrich the Lake’s fish stocks.

The inclusion of the proposed extension in the world heritage list is essential for an integrated management and protection of natural and cultural heritage of the whole area. Long-term protection and management in the proposed extension of natural and cultural assets is ensured through national legal protection such as national parks designation, core areas of biosphere reserves or other types of protected areas, cultural monuments and historic centre designation. The Management Plan for Pogradec Protected Landscape, also integrated with the General Local Plan for Pogradec Municipality are the key management and planning instruments for the area. Effective implementation of an integrated management plan and a multilateral integrated management system is required to guide the planning and management of this property. Key management issues include pollution control and reduction, fishery management, protection of attributes of the proposed Outstanding Universal Value, integration of local development with proposed World Heritage values, ecosystems, land use and livelihoods (in the buffer zone). Transboundary cooperative management agreements between the two countries as well as agreements between local governments and other entities can enhance the achievement of management goals and ensure local community engagement in the component part.

5. STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY

5.1. Present State of Conservation

The ancient Lake Ohrid is threatened by a wide variety of human impacts. Following the information collected during the implementation of the first transboundary project on the conservation of Lake Ohrid and its watershed, Watzin *et al.* (2003) observed that population growth and development have impacted the lake in many ways. The most significant threats according to these authors include fishing pressures, destruction of the reed beds and other natural habitats around the shoreline of the lake and the introduction of pollutants, especially phosphorus, into the lake water (Watzin *et al.*, 2003). Phosphorus is stimulating algae growth that threatens the oligotrophic conditions in the lake which in turn is important for the conservation and evolution of the lake's unique biodiversity. Matzinger *et al.* (2004) conducted chemical analysis of lake sediments and found out that eutrophication of Lake Ohrid is progressing; households were identified as the main anthropogenic source of phosphorus, followed by agriculture. In another paper Matzinger *et al.* (2007) conclude that although the lake is still oligotrophic the global warming may exacerbate the negative effects of eutrophication. It is expected that with the rising temperature the vertical mixing of water will decrease and that complete deep convection will be less frequent. According to these authors, the changes in the vertical mixing may affect the levels of dissolved oxygen at greater depths and subsequently affect the unique endemic bottom fauna. Given the predicted atmospheric warming of $0.04\text{ }^{\circ}\text{C yr}^{-1}$ they have calculated that the phosphorus load must decrease by 50% in coming decades in order to keep the concentrations of dissolved oxygen falling below currently observed minimal levels. They expect that even with such a reduction in phosphorus load, anoxic conditions would nonetheless start to develop toward the end of the century if the rate of warming follows predictions (Matzinger *et al.*, 2007). A rapid expansion of settlements and an explosion of the population have been observed on the Albanian side, in particular in Pogradec. Across the border, in particular around the towns of Ohrid and Struga Also, the number of weekend houses, hotels, beaches with tourist facilities, sports recreational areas, campsites, and resorts is rising rapidly. More recently, based on the results of their analysis of ostracode valves and ostracode diversity in Lake Ohrid, Lorenschat *et al.* (2014) conclude that the "living conditions for the endemic species in Lake Ohrid have become less favorable in the northern part of the lake, which might threaten the unique flora and fauna of Lake Ohrid." Fungi are under the biggest threat due to habitat loss and pollution. At the present time there is no definitive scientific attitude about the exact consequences of collecting mushrooms for commercial purposes. They may be under threat in some areas due to over collecting. The long-term effects of removing such large quantities of fruit bodies of a small selection of species are as yet unknown. But some experts believe this will eventually lead to a reduction of fruit body productivity by the species concerned, restriction of the colonization of new areas, genetic impoverishment, and shifts in the species composition of forests, resulting in edible species being replaced by inedible species. The

methods of harvesting frequently appear to involve picking of very young fruit bodies, raking of litter and soil, intensive trampling and soil erosion. These methods may damage the habitats of the edible fungi, perhaps in an irreversible way. Intensive harvesting has many other negative side effects, such as damage to populations of other, inedible mushrooms and of higher plants, the deposition of waste and disturbance to wild life. Intense trampling and raking of soil litter destroy and hamper mycelial development and may locally be fatal. These effects are threatening other species of plants and animals native to the forest. Forest resources in Albania are in a very vulnerable condition. A considerable loss of forest area already took place before '90, due to agricultural expansion, but also industrial and demographic expansion. Forest depletion has continued since then, mainly because of persistent poverty in rural areas (Naka *et al.*, 2000) and lack of alternatives, mainly concerning energy. In entire LOR, especially in the mountainous zones, forest serves as a source of livelihood, goods and income. First, the firewood collected by villagers, without mentioning a good part of the population in urban areas which are supplied with firewood, is vital for heating and cooking almost year round. Firewood is an important commodity for the area (with particular heavy winter) because it is used for heating by a majority of households, and in both rural and urban areas it is also used for cooking. Nationally it accounts today 36% of energy demands for heating and 12% of energy for cooking (REC, 2012). This means that firewood is still a very important energy source and it will continue to be so for many decades ahead. In case of PAs it is not only used by the locals, but the illegal trading to urban centres and illegal cuttings from the residents outside PAs increases the pressure to integrity of the forest ecosystems. The management of forest resources in the country has been weakened by the poor legal enforcement, frequent changes in the organization of the forestry service, and contested use and ownership rights.

Mollusks: the distributional data records for mollusks (both gastropods and bivalves) appeals on the importance of coastal diverse habitats including vegetation. Not only should such vegetation management include specific structural features, but it should also provide vegetation at the air–water interface (in case of wetlands on the southwestern reach) to allow livings to reach the surface in ditches that appear typically to have low oxygen concentrations. Some of the conflicts in effectiveness conservation are as follows:

Environmental degradation: the environmental threat caused by the coastal degradation (due to road extension, solid waste, sewages, agriculture run-off etc). The loss of specific habitat due to siltation is common and is a natural threat to the open part of the water ecosystem. In case of Albanian side of the lake, extension of the road lead to serious damage of the eulittoral (defined as the area between the highest and the lowest water level and is thus subjected to natural water level fluctuations) and the infralittoral (the area containing emerged macrophytes, and the sublittoral that is characterized by the occurrence of floating or submerged vegetation). These sections are vital for conservation of mollusks. Construction and Sand excavation at the southwestern side is leading to alteration of habitats.

Aquaculture, livestock and agriculture farming: the accelerated aquaculture within basin (including very important wetland complex in Driloni springs), expansion of agriculture and manures discharge are affecting the water quality.

Lakes fisheries policy and practice in Albanian side of the Lake is the subject of considerable debate, reflecting the great importance of these fisheries. There are several concerns that can be identified.

Overfishing: The fisheries are seen to be at risk from over-fishing. This is a natural inference from the reduction in total catches when there is no sign of reduced fishing effort. In addition, there is particular concern that the stock of important trout fish has been depleted. The National fishery policy has two approaches (stocking and conservation) and these two approaches are interrelated; the stocking of Ohrid trout increases arguments to reduce early stage fishing, in order to let more of the trout grow to a reasonable size before capture.

Environmental degradation: Additional environmental threat to the capture fisheries is thought to be coastal degradation (due to road extension, solid waste, sewages, agriculture run-off etc.). The loss of fish habitat due to siltation is common and is a natural threat to the open part of the water ecosystem. Poverty and employment effects: In the long transitional period (more than two decades) with a considerable rate of unemployment, fishery has been considered as an easiest option and that led to enormously increase of fishermen number (both registered and non-registered). The fishery inspectorate in Pogradec and FMO indicate that concern.

Birds: The objectives for an effective bird conservation and management (both water and terrestrial) in the period before moratorium (March, 2014) has been affected by different conflicting issues. Unsustainable hunting and poaching: Within region there are different motivations for illegal hunting and poaching: economic, food source, recreation, trophy, thrill, culture and disagreement over conservation regulations. However, these have never been applied to the issue of illegal killing, trapping and trade of birds (easily recognizable before March 2014 in the lakeside, particularly in Lin).

Lack of awareness and consideration of human attitudes: While there has been considerable biological and legal work focused on bird conservation, there has been a lack of addressing the same issue from a human perspective. Land abandonment hampers terrestrial bird communities: In the last two decades due to movements of population from rural to urban centres, considerable land areas have been abandoned. Beside that, this issue has been poorly studied within the region, it is believed that this will threaten significant bird species.

The causes of conflicts can be divided into four categories: (i) *Demographic change*; (ii) *Natural resources competition*; (iii) *Developmental pressures* and (iv) *Structural injustices*. The combination of demographic change and the limits to sustainable harvesting of renewable natural resources (forests, water bodies, fish, grazing areas, freshwater resources, wildlife and agricultural land) are often cited as the underlying cause of conflict over natural resources, both

among community groups, and between community groups and outside public and private companies.

The cultural heritage values on the proposed extension could be considered vulnerable and its state of conservation uneven. This is due to different factors; primarily *the lack of or low shared knowledge and understanding and recognition of the specificity of this Region*, which is the result of geographic, historic, cultural and political factors that have shaped it throughout the ages.

The process of investigation, documentation and recognition, also through formal designations, and conservation intervention has been recently revived in the area, especially in the Korça district, and more recently also in Pogradec municipal territory. Despite the fact that built and archaeological heritage in public ownership suffer from poor maintenance, due to the lack of funds and sufficient numbers of professional staff, recent efforts have been undertaken thanks to international financial resources that have been made available through EU or other donors' funding, to rehabilitate and to bring back to use historic neighborhoods.

Built heritage in private ownership risks neglect due to limited financial resources of the owners. It also risks alterations, due to inappropriate and unlawful interventions, as well as due to intentional demolition by owners, in cases when land plots have potential for development. The archaeological potential in the the coastal area of the lake and inland is very high. The archaeological resources not known or mapped risk to be negatively influenced by unsupervised new developments.

The rural landscape is prone to urban encroachment in the vicinity of towns or more developed villages, while in more remote areas, poverty and lack of vision favor emigration of the younger generations and prepare the ground for the abandonment of villages and farming activities, which ensure the maintenance of the territory and sustainable economic development.

5.2. Factors affecting the property

(i) Development Pressures (e.g. encroachment, adaptation, agriculture, mining)

Encroachment

The Pogradec Terrestrial/Aquatic Territory Protected Landscape Area lies within the wider boundaries of the Lake Ohrid watershed, in addition to the PA regulations and bylaws, local self government have developed and put in place a territorial plan with clear land-use plan for the whole of the region falling under its jurisdiction (Pogradec Municipality with new administrative organization).

Further on the land use plan has to be associated with several acts and by-laws governing land use around the Protected Area. These include urban organization, tourism development, agriculture development and environmental assurance. This arrangement is considered a crucial vehicle for management of the area. The new management plan for Pogradec Terrestrial/Aquatic Territory Protected Landscape Area 2015-2025 includes measures to achieve full synergy and close coordination between the Protected Area and Municipality and its units in charge of land

use management and control. To date, there are no serious encroachments into the Protected Area from activities surrounding it. However, some activities are close to the Protected Area boundaries and will be fully addressed as mentioned above. This includes mainly tourism, agricultural, forestry, mining, aquaculture activities as well as urban and infrastructure expansion and development.

Agriculture and farming

Nationally wide the share of agricultural land in total land is only 24 % (compared to 40.8% in EU25). Nevertheless the agriculture sector continues to play an important role in the economy, providing for about 24 % of the total GDP in 2010, a share, which is not only high compared to the EU-25 (1.6%) but also to all other countries in the region. For the Koça Region the percentage of labor force working in agriculture in 2006 was close to 70%.

The agriculture in the Ohrid Lake region is characterized by a low intensity with limited use of pesticides and mechanic equipment, and includes crop production and livestock breeding. The lands used for agriculture are irrigated using Ohrid Lake water via pumping stations. The agriculture sector in Ohrid Lake region is covered by the Regional Agriculture Office in Korca that is responsible for policy and support mechanisms.

Livestock breeding and the dairy production is practiced in the traditional old ways using simple methods at family level, which in some cases affect the quality and the safety of the product. Product quality improvement, better processing technology and certification of local products would increase the quality of farming products giving the possibility of future economic development in the sector. Livestock graze mainly in abandoned areas. Grazing fee is not collected by local administration. This could be a possible source of funds for local administrations to be used for improving the management of the area in the future.

Cultivation of hazelnut and wine production are common activities in the area, however the quantities obtained are limited due to the old technologies utilized. The quality of the products is also affected by the use of these old techniques.

Forestry

Contrary to its unique significance for the local economy, the forest sector continues to suffer from several transitions related problems. Among these are declining investments, the practical breakdown of forest management and maintenance, and lacking public supervision and law enforcement. As consequence, the resource base has been declining significantly for years on end, not only in terms of quantitative aspects, but also in terms of even more widespread forest degradation. Growing stock/increment per ha is seriously affected, and substantial amounts of mature timber are nowadays only to be found in the most physically inaccessible parts of the country. At the same time, economic restructuring caused logging and wood-processing efficiency-rates to drop; while rampant illegal logging distorted market prices.

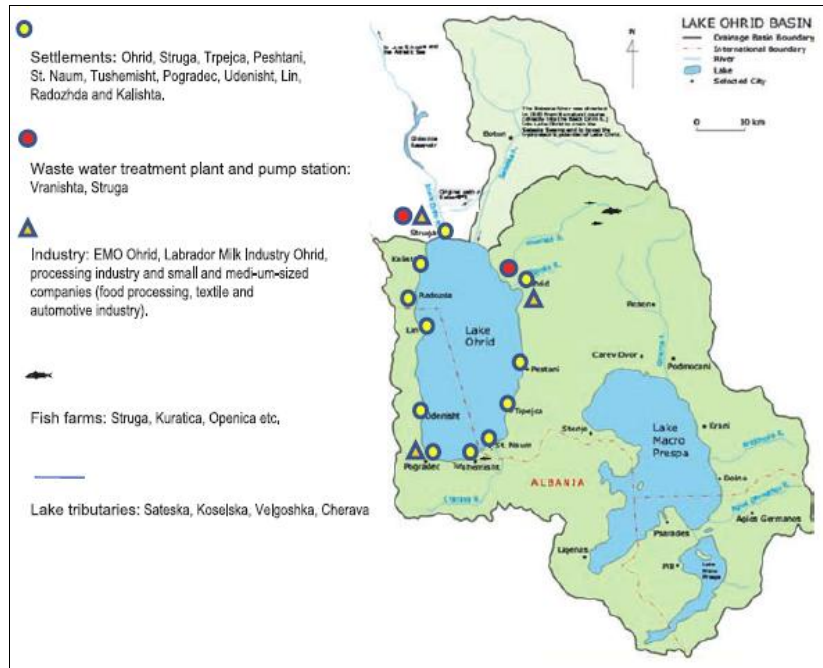


Figure 4.1: Major point sources of pollution in the watershed of Lake Ohrid (GIZ, 2015)

In the region, especially in the mountainous zones, forest serves as a source of livelihood, goods and income. First, the firewood collected by villagers, without mentioning a good part of the population in urban areas which are supplied with firewood, is vital for heating and cooking almost year round. Firewood is an important commodity for Albania because it is used for heating by a majority of households, and in rural areas it is also used for cooking. Nationally it accounts around 36% of energy demands for heating and 12% of energy for cooking. This means that firewood is still a very important energy source and it will continue to be so for many decades ahead (REC, 2010). There are no data about the locally use of firewood, but according to the information secured at the Forestry unite in Pogradec, it is believed that about 80% of the regional population is based on this commodity. According to the RFD the production capacity for firewood within Pogradec district is 14700 m³ and for timber wood, 1200 m³. This figure is based on annual forest grow and its carrying capacity.

Fishery

Commercial fishery in Lake Ohrid exists already for decades, exploiting 11 species, out of 24 that occur naturally in the lake. For the last two decades fishery resources and particularly the trout species have come under serious pressure. The activities were controlled until 1992 by state fishery enterprises whose task was to enforce the fisheries law with respect to licenses and mesh sizes. In those years the fisheries law was adhered to and there was no need to resort to illegal fishing gears and methods as the total fish production was relatively stable. In 2002 the Fisheries Management Organization (FMO) for Lake Ohrid was formed, which has been authorized by the Fishery Inspectorate to license 140 boats with a maximum of 280 fishermen. The boats of the

licensed fishermen are painted yellow and are supposed to be provided with a registration number. In the majority of the cases no legible registration numbers were observed and as such the individual boats cannot be recognized. As a result any boat could be painted yellow to avoid inspection. For the period from 1969 to 1991 catch figures are of reliable quality as all catches were recorded, particularly weight by species for individual fishermen at certain landing sites. Data collection was not conducted in a standardized manner from the early nineties up to present and officials had to resort to estimates of the fish production. In recent years fishermen were obliged to complete catch return forms, which were collected by the resident fisheries inspector. The latter monitored the quality of the returns, which were processed by the Fisheries Inspectorate in Tirana.

The FMO, based on implementation of the law “On Fishery and Aquaculture” and its specific regulations, have to apply management measures. Based on catch statistics for the Lake Ohrid (1947-1993), due to the centralized regime of the period all data shows for: The increase of belushka (*Salmo ohridana*) and bleak (*Alburnus scoranza*) catch is due to the use of bottom trawl and purse seine fishery from 1962-1990. Squalius catch includes also the following species (Barbus – approx. 20.5 %), (Gobio – approx. 1.5%) and (*Scardinius* – approx. 0.5 %). In the period 1947-1988 (*Rutilus*) was included in the bleak statistics representing nearly 12-15% of the bleak catch data. In the period 1947-1993, fishery was a state activity. During the 1947-1993 periods 0.5-1 % of the trout catch was represented by the *Salmo letnica* forms *Salmo lumi* and *Salmo balcanicus*. The fish hatchery in Lin has been in operation since 1995 in Albania with a goal to produce 1 million fingerlings (6-8 cm in length) every year. Due to the economical and political transition period, the production decreased sharply but in the last decade years has showed a positive upward trend. The commercial catch is composed of koran (*Salmo letnica*), belushka (*Salmo ohridanus*), bleak (*Alburnus alburnus*), and common carp (*Cyprinus carpio*), etc.

The natural lakes were subject of an annual restocking of considerable numbers of fry and fingerlings. In practice, breeders taken from each lake produce common carp fingerlings which are stocked every year in the Prespa and Ohrid.

Aquaculture

The aquaculture state within Lake Ohrid region in this document is characterized following the farmed organisms/species, the culture environment, production intensity and the type of production system used. Along with that determining the interactions of aquaculture operations with the environment is been considered.

Regarding the production intensity, it is usually understood that in extensive aquaculture there is no external supply of feed and this type of culture depends entirely on natural processes for production and supply of feed (the cyprinids cultivation in reservoirs). In semi-intensive aquaculture supplementary feed may be used in addition to natural capacity to increase the production of fish (river/stream based rainbow trout and carp hatchery). In intensive culture systems there is a greater dependency on the usage of external feeds (Ohrid trout hatchery in

Lin). The widely used system in aquaculture is the traditional flow-through, where water passes (i) through the culture system only once and is then discharged back to the aquatic environment, or in many other extends in Zagorcha the cages are placed directly at the flow-through. The most widely-practiced form of flow-through aquaculture is trout farming (Rainbow trout - *Oncorhynchus mykiss*), which is spread throughout Albania. In spring networks at the Tushemisht-Zagorcan area the cultivation of Ohrid trout (*S. letnica*) is practiced as well.

Mining

For several decades the area surrounding Lake Ohrid regiona have been considered as an important mineral resources region. Both excavation and processing were actively developed in a short distance from the lake shore. Further to that, out of 752 mining permits issued until November 2011, in districts of Pogradec, Korca and Devoll are offered respectively 29, 24 and 8 (AKBN, 2014). According to Bode (2009) in Albania, the littoral zone adjacent to the town of Pogradec is heavily impacted. Impacts are also apparent to the northeast, at Tushemisht and also at the western and northwestern part, Lin. The abandoned mines and their associated waste piles are a source of metal contamination to the adjacent waters and sediments. Parts of the catchment of Lake Ohrid Albania (Ultra-Basic Massif of Shebenik–Pogradec) are well known for their high potential in chromium ore, comparing to other Mediterranean and Balkans countries. The main chromium deposits are located in the Ophiolites of this massif. In this massif are distinguish the following mineralization levels: Chromatic level Katjel-Memelisht including Memelisht, Kosharisht, Pishkash, Qafa Dinarit; Chromatic level of Govate-Shesh Bush is located in the intercalated horizon arzburgite–dunite, that are connected with the deposits “1 Qershori ” Pojske, Bushtrica. Further to that the iron nickel and nickel silicates are considered, excavated and planed for the future. The region (Guri Kuq, Cervenaka, etc) has very large reserves of iron-nickel ores which has led to the opening and development of several mines where mining has been successful. Mining of nickel ore has started since 1958 in the first iron-nickel mine of Eastern Pishkash. The extracted ironnickel ore was exported to central European countries and later it was used as raw material in the Metallurgical Combine of Elbasan. Devolli Region (Bilishti, Bitincka, etc) is also heavily used for its iron-nickel and nickel-silicate deposits of Bitincka and Kapshtica and also occurrences of Shkoza and Vernik. The deposits of iron-nickel and nickel-silicate in Bitincka are the biggest deposits explored in Albania. The ore body is located between the ultra basic rocks as floor and sedimentary rocks as roof. Chemical composition of nickel-silicate and iron-nickel ores in general follows the laws of iron-nickel ores and nickel content depends on the ore type, politic type is Ni grade, meanwhile Fe higher grade in oolotic-pisolotic type. In general values of Fe content vary between 38-48%, Ni 0.8-1.3%.

All types of cool within region, in general, are of lignite type with calorific analytical value of 2000-5600 kcal/kg (averagely 3200-3300). This type of coal is located in the coal-bearing basins of Pogradec and Korça. The evidence of ecological impacts of human activities is apparent in both macrophytes community and the phytoplankton in the near shore waters. In the region of Pogradec, phytoplankton densities are much higher than elsewhere along the shoreline, and the macrophytes community has a higher tolerance for the level of pollution. In the mining area of

Memelisht and Guri i Kuq, the macrophytes show evidence of metal contamination and stunted growth (Bani et al., 2011). In vicinity of the lake shore currently there are several mines and one mineral enrichment plant all located within a distance of 2.5 km from the lakeshore. These mines, as well as other mines located within 10km of the lakeshore, are the source of major impacts on both shore and offshore areas (MPRI, 1999). Both the residue landfills or slag piles were separated from the ground with an impervious liner and other treatment processes, such as a drainage system to collect and treat the wastewater were generally not operated. Large depositions of residual material left in the region in open pits, which means that every time it rains, meteoric waters contact them, they are contaminated and so they pollute the underground water, streams on the site, and finally go to the lake itself.

Following the current state of mining activities around the Lakes Ohrid, it can be concluded that there is considerable potential for significant ecological impact resulting from this contamination. With current measures taken by the governmental authorities the translocation of residues is ongoing.

(ii) Environmental pressures (e.g. pollution, climate change, desertification)

Pollution - Water pollution from urban and industrial sources

According to Cohen (1994), the large water volume found in big lakes has slowed the impact of pollutant impacts into the basins although the threats of these impacts continue to grow. In the last several decades serious water pollution problems have been concentrated around the moderate-sized urban and industrial area of Pogradec, where the lakeshores of the species rich aquatic systems were affected by the influents of small rivers and drains of industrial areas (Guri i Kuq, Verdova River, etc).

There are no permanent river inflows in Albanian side of the lake, but transboundary and temporal ones like Cerava, Pogradec and Verdova rivers on the Albanian side carry considerable anthropogenic nutrients and sediment loads and thus pose a threat to entire trophy state Lake Ohrid (Vogel et al., 2010). All these tributaries flow through populated areas where an efficient sewage treatment system covers only part of the area. In the catchment area, currently some 60% of wastewater is treated at the newly constructed unite in Zagorcan.

Water abstraction is currently considered to be of minor importance in Lake Ohrid (Matzinger et al., 2006), partly because annual balance is achieved by regulating the affluent Crni Drim River and the diversion of the Sateska River. It is, however, a serious problem in tributary system. Given the underground hydraulic karstic connection between these two lakes, several studies have investigated the impact of Lake Prespa waters on Lake Ohrid (e.g. Amataj et al., 2007). It was concluded that the phosphorus transported from eutrophicated Lake Prespa may jeopardize Lake Ohrid in the future (Matzinger et al., 2006a). Increased phosphorus concentrations were identified in Lake Ohrid, which facilitate the process of eutrophication (Matzinger et al., 2007) and which pose a serious threat to hypolimnetic dissolved oxygen.

On Albanian side of the lake, karstic springs in Zagorcan and Tushemist are playing an important and major impact on the water balance, temperature regime, and oxygen supply of Lake Ohrid.

These springs are some of the most affected water bodies in the Ohrid Basin. Negative impacts are most obvious in the Zagorican and Tushemisht feeder spring complex of Driloni. According to Albrecht and Wilke (2008), these springs are not only very important from a hydrological standpoint; they also harbour several endemic species themselves. The current water use practices with intensified aquaculture development close to the water sources, agriculture and livestock use, household's pollution etc, are threatening the vital role of springs for the livings and lake itself.

Metal contaminations from, for example, Cr or Fe-Ni mines on the Albanian side, however, remain a major problem with unforeseeable long-time consequences to be caused by up to 56 000 tons per year of waste flowing into the 20 lake (MPRI, 1999). Remaining stockpiles also present a permanent threat to Lake Ohrid, particularly large waste dumps close to the shore (Watzin et al., 2002). Moreover, though mining and metal processing has been reduced in the past years, this may only be temporary. Further to that the solid waste washed into the lake is another problem as sanitary landfill in vicinity of Tushemisht, where new intention for an regional solid waste collection and treatment could resolve the issue in an medium term.

Invasive species

Presence of exotic fishes like the rainbow trout and the Chinese carp have been recorded by the local fishers. The rainbow trout farms in several tributaries including springs of Driloni (Zagorcan) are a particular concern, since it might be able to displace the native Ohrid trout. Changes in zooplankton communities are evident with recent invasions of crustacean species such as *Diaphanosoma brachiurum* and *Leptodora kintii*, which prefer warmer water bodies. This could potentially be related to an increasing average water temperature in Lake Ohrid (Kostoski et al., 2010). The introduction of non-indigenous macrophytes such as *Elodea canadensis* has spread on Albanian side as well. Following Albrecht et al., (2009) in general, Lake Ohrid appears to harbour far fewer invasive species than other Balkan lakes. It is, however, obvious that highly impacted littoral parts such as Albanian littoral side along with extended road might become home to several non-indigenous species. The number of observations of non-indigenous species will probably rise in the coming years and such species should be carefully monitored and the issue is properly addressed in the management plan of the protected area.

Pollution from agriculture and forestry

Land use changes and particularly intensified agriculture in the Ohrid watershed are a major concern, and their impacts are of great importance to the Lake Ohrid ecosystem (Watzin et al., 2002). Small scale agriculture is carried out on many areas, but it is more concentrated at the southwest of the Ohrid basin. Historically at the wider area a negative example of the effects of agricultural activities in the surrounding areas is provided by the complete draining of Lake Maliq in Albania approximately 70 years ago. In the last two decade the fertilizer use is been reduced, 80 kg per hectare in a year in 2011 (source: Office of Agriculture, Pogradec). A variety of pesticides are used, including copper sulfate, lindane, organophosphates, synthetic fungicides, and others. In 2001, 8901 kg of pesticides were applied in the Pogradec district of Albania. Other

major impacts of agriculture and forestry are disruption of formerly interacting lake-watershed habitats due to land use, increased sediment loads and erosion due to deforestation of nearby areas. Given the underground connection between lakes Prespa and Ohrid, water level changes in Lake Prespa might, however, impact the water balance of Lake Ohrid as well. Logging and subsequent silt runoffs into Lake Ohrid are a reason for concern as well. Wood processing plants, particularly along the Albanian shore are another significant source of concern in Lake Ohrid.

Climate Change and Desertification

Based on broad references number used in compiling the nomination file there are concrete data available on the impacts of climate change on the various environmental parameters in Lake Ohrid region. Various experts' observations have included in several approaches the risk and tendency of such impacts on specific ecosystem such as Lake Ohrid. Further specialized research and monitoring on these phenomena is to be fully addressed in the new plans for the management of the area.

Climate change is expected to increase the frequency and magnitude of extreme events with related damages caused by floods, droughts, forest fires, heat waves and other climate related hazards. It is also expected to cause reduction in crop yield and decreases water availability. Climate changes are likely to have strong impact on the biotic components of the lake. Moreover the process of eutrophication is expected to be significantly amplified by global warming. Variations in temperature, precipitation anomalies and increased frequency of extreme events may lead to water resources degradation and may cause severe consequences for ecosystems. Changes in average precipitation can potentially have impacts on ecosystems, biodiversity food production, water resources availability and river flows.

The impacts of climate change on biodiversity components are based on modified environmental factors as temperature and water availability. Several signals with appearance of non-native species (beside that they do not have established populations yet) in Lake Ohrid are already witnesses of such changes. The flora and fauna species need to be adapted to changed conditions so that the ecosystem structure may change.

(iii) Factors affecting the Integrity of Cultural Attributes

Main threats to the integrity of the property include uncoordinated urban development, increasing population, old infrastructure, inadequate treatment of wastewater and solid waste, illegal interventions to the water springs and tourism pressure.

The lack of adequate control of new development affects the overall coherence of the proposed extension, and particularly the relationship between urban buildings and the landscape.

Even though the original residential function of the buildings has not changed over time, the exterior and interior outfittings of many residential buildings have been altered to improve living conditions. Still original features and volumes are conserved to a good extent. Reconstructions often used materials identical to those used at the time of construction and new materials have also been used, which presents a threat for the authenticity of the property.

There is a growing number of new residential and commercial buildings through conversion of the agricultural land in this area which is in turn increasing the level of influence on the lake shore, in particular during the summer season.

Many of the historic buildings in the centre of Pogradec urgently require repair or restoration.

Since a permanent shelter for the Early Christian Church on the Lin peninsula was abandoned as a strategy, covering of the mosaics with sand and other measures have reduced active decay significantly. However, further conservation measures of the archaeological remains are desirable, as is better management of the immediate setting, where the removal of some inappropriate walls and structures, alternative fencing solutions and other improvements should be considered. Furthermore, the surrounding area and wider settings of the early Christian church at Lin peninsula may include other as yet unrevealed remains.

Knowledge of the full location and extent of the prehistoric pile dwellings along lakeshore is still limited. The newly discovered sites are not all legally protected, and the areas have not yet been fully surveyed for other sites (which may exist both on the land and underwater).

Rapid development of the Lake Ohrid Region and the anticipated increase in tourism has the potential to erode the distinctive character of the area, and its rich local customs, crafts and traditions. There is a danger that the area will become a typical, generic coastal resort, and those local traditions, vernacular building styles and distinctive local products will be lost. While many local residents still value their traditions, outward migration of young people from the area threatens intergenerational transfer of local knowledge and customs and local residents may be displaced from their traditional homes as property values increase.

(iv) Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)

Instrumental seismicity records in the Ohrid area reach back to the early 20th Century. The strongest event ever measured here took place on 18 February 1911. The magnitude 6.6 earthquake (EMS X) occurred in the Ohrid-Korça area in a depth of 15 km (Muco, 1998). Burton et al. (2004) list only moderate events (except the 1911 earthquake) in shallow depths (<60 km) for the study area. Background seismicity is low compared to Greece. Most recent events are the 23 November 2004, Mw 5.4 earthquake in the Korca region. The normal faulting mechanism is a result of the E–W extension. Even though hundreds of houses were damaged and some dozens even destroyed, no fatalities were reported. A series of more than 35 aftershocks followed the main shock in the next days.

The shallow epicenters in combination with the poor building standards in the region are held responsible for the severe damages. Smaller recent events have shallow epicenters up to 25 km depth, deeper events are rare. Most of the earthquakes are associated to the fault zones that border the Ohrid Basin (Aliaj et al., 2004). Fault plane solutions of the recent earthquakes fit the geodynamic setting with mainly compression along the Albanian coast and normal faulting mechanisms that contribute to the extensional domain inland. Besides segmentation of longer faults and taking into account a possible rupture length of approximately 15–18 km, it is expected that the normal faults at Ohrid are prone to generate an earthquake of M 6.5–7

(Hoffmann, 2010). Taking all this into account, the Ohrid-Korca area is regarded one of the highest seismic hazard zones in Albania and Macedonia (Aliaj et al., 2004) but only medium among the Balkans (GSHAP,2010).

(v) Responsible Visitation at World Heritage Sites

Tourism

The last few years have seen an increase in tourist numbers in Albania. The number of weekend houses, hotels, beaches with tourist facilities, sports recreational areas, campsites, and resorts is rising rapidly, mainly around the city of Pogradec. Particularly the Albanian side has seen a rapid expansion of settlements, and an explosion of the population living in Pogradec after the former communist system collapsed (GEF, 1997). Since then, bacterial pollution has increased tremendously in this area (Watzin et al., 2002). Again, these developments are not controlled by any western European standards and many impacts on the lake ecosystem will only become evident at a later date. Slopes in the catchment area have become densely populated as well.

According to the municipality in Pogradec there were 150,000 visitors in 2013 staying at its 27 hotels for weekends and in summer for 5 to 10 days (see figures 1 and 2 below). Foreigners only accounted for 10,000 visitors but a growing number of tourists were from Kosovo and Macedonia. Tourism is concentrated in the vicinity of the lake, along the shoreline between Tushemisht and Pogradec. In Buçimas 12.5% of families secure their incomes from tourism. As for the Hudënisht administrative unit, around 35 hotels/restaurants have been demolished in the shore as illegal construction. These have a substantial impact on the activity of the area. The level of income collected by the Commune was decreased by 30%, while the number of people who lost their job was estimated to be around 100.

Most visitors to the area are domestic, where a good part coming from Tirana. The number of tourist has been increased from 2006 to 2010, while it has been decreased slightly in 2011. Also, the area is visited by international visitors who visited the area through a number of tour operators based in Tirana. Tourists usually spend one to two nights in the area. There are several locations which provide services for business meeting and seminars in the main cities, at hotels by Ohrid Lake. Larger gatherings such as conferences and conventions can be hosted in Pogradec. There are no figures for the number of business travelers to the region, however anecdotal evidence and hotel occupancy data would suggest that there is a substantial business market to the main centers of the region.

Waste water and littering

The Water Service of the Water and Sanitation Company (UK JSC) in Pogradec serves 100% of the total population and in 2012 it had 9,722 customers. Among these customers, about 8,794 are households, 865 commercial units and 63 are institutions. The distribution network extends for 109 km of which 12 km is the main network and 89 km the distribution network. Over 90% of the system has been rehabilitated. The entity responsible for the operation and management of the water and sewerage system is Ujesjelles Kanalizime JSC. 71.1% of shares of UK JSC are

owned by the Municipality of Pogradec. The waste water collection system covers 74% of the population in the District of Pogradec. The final aim on this direction is: the network of drinking water in Pogradec to supply 24 h/d to be realized 100%. The network of water supply in the area of Buçimas to supply 24 h/d in total to be 95% %;

Connecting to the sewerage system to 80% of the population in Pogradec, 70% in Buçimas and 100% in Tushemisht. Sanitation sewerage system currently exists only in the villages of Tushemisht, and partially in Verdova village, while other villages of the commune household use septic tanks. The collection of urban waste is done twice a week in seven villages

The waste in general and solid waste in particular has been considered as one of the threat to natural values of lake Ohrid ecosystems. Different types of the waste: (i) the current solid waste disposed at the lakes catchment, in vicinity of Tushemisht, and Alarup; (ii) waste scattered in the wider area as an illegal disposals type, (iii) waste, mainly plastic remaining within streams and lake shore; (iv) mining residues in vicinity of Guri i Kuq; (v) inert waste throw in different illegal locations and (vi) waste generated by the lake on its littoral zone, etc.

In the period of 2005 – 2015, the Services Department of the Municipality of Pogradec played the role of waste management in the city of Pogradec. This period is considered the transitional stage and infrastructure costs have been covered by state budget (in fund unconditional) or the donors/international projects. Similarly to that, the former Communes have played the role of solid waste administration. After 2015 when territorial reform included in the Municipality Pogradec the other 7 administrative units (former Communes: Hudenisht, Buçimas Çërravë, Dardhas, Proptisht, Velçan and Trebinje), the Municipality itself enforced the role and functions in terms of waste management and more precisely fund cleaning, collection, transportation and disposal of waste and the cleaning setting tariffs particularly in Pogradec city (households and businesses).

Integrated Solid Waste Management Plan (draft document of March 2017) is a guidance document for waste management planning. It enables the implementation of national waste policy at the local level i.e. in the Region of Pogradec and will facilitate a strategic orientation towards an integrated and sustainable waste management Pogradec Municipality.

The purpose of this plan is facilitate local policy and planning for an integrated waste management system in the Region of Pogradec based on the new Maliq landfill site. The plan will encourage a harmonization of the interests and common positions among different stakeholders within this new sustainable system for the management of solid waste.

(vi) *Number of inhabitants within the Lake Ohrid region*

The population in the Lake Ohrid region is 49,534 inhabitants. The district of Pogradec alone contributes 28% to the population of the Korça prefecture. The average population of the area is 16,511 residents. The smaller unit is Hudënisht (5,990 inhabitants). The majority part of population is living in the city of Pogradec (20,848 - 42%), in Buçimas (15,687 - 32%). Following 2011 census data, there are 6,042 families in the Municipality of Pogradec, representing a household size of 3.5 persons per family. In the communes the average household

size is higher, about 4 persons per family. The average household size for the district is 3.9 persons per family, being slightly higher than that of Korça Prefecture where the average household size is 3.7 persons per family. The number of families in the Municipality shows an increase from 1998 to 2005. From 2005 to 2011 there are not substantial changes related to the number of families. Pogradeci has a very high population density, (9182 inhabitants/km²), whereas this figure is quite low in the neighbouring communes. The lowest population density is in Hudënisht, i.e. 89 inh/km², Çërravë 198inh/km² and Buçimas 326 inh/km². The average density of the area is 59 residents per km².

Recent analysis shows depopulation followed by inter-regional migration from rural to urban centers. In the recent years the municipal population grew by 3.8%, while in municipalities it has fallen by 2.5%. The political and social changes that occurred after 1990 caused demographic movement of the population of the city, as well as the communes. The population started to decline from '90 as a consequence of massive emigration. The main factors contributing to these demographic developments are related to the economic transition: the closure of many state-owned enterprises and the unemployment that followed it. On the other side the favourable climate and geographic position, of the city the connection to the Korça city, as well as being a trans-boundary city made Pogradec an attractive destination to live. Migration from rural to urban areas within the region occurred as well. The boom of the people coming in the area is in 2005, followed by a very high decrease in 2010. As for persons who left, two periods showing big movements are from 1998 to 2001 and from 2009 to 2010. After 2010 the number has been decreased. Due to the economic crises in Greece many emigrants have returned to the area. There are not official data, but from the discussion with local people it results that there is a considerable number of persons returned to the area from Greece.

6. PROTECTION AND MANAGEMENT OF THE PROPERTY

6.1. Ownership

Historically the systems of land tenure applied to the land in the proposed extension and its support zone has changed following political and economic particularities.

Land use type	Area (ha)	% of the PPL
Forest and shrub land	8,997.9	32.9%
Grassland	1,992.0	7.0%
Agricultural and arable land	4,529.9	16.6%
Non productive areas	218.9	0.8%
Urban/industrial areas	817.4	3.0%
Water bodies	10,837.2	39.7%
TOTAL	27,323	100%

According to the Macedonian Institute for Statistics and information provided by the forest enterprises, the land area in forest, pasture and agricultural uses in the six municipalities in the watershed are approximately as follows:

Arable land 53,303 ha

Pasture 27,319 ha

Forests 61,225 ha

Water (lakes only) 41,000 ha

Table 12. Land use in the Pogradec Protected Landscape

Current status of ownership in the proposed extension

The type of property present is a state and private owned one. The most abundant habitats within the area are the water bodies (10,837.2 ha). Forests and open forest land (shrubs and herbaceous vegetation) occupy a considerable surface of around 8,997.89 ha. Agricultural area occupies around 4,529.93 ha in the protected area and is typically located close to inhabited villages. Pasture and meadow habitats, the first used mainly for grazing, cover approximately 1885.8 ha. There is however an overlap between agriculture and pastures data; indeed, in some estimations of land grassing areas are included as agriculture, in others as pasture/grassland.

Other types of land used within the protected landscape include: non productive areas (approximately 218.87ha and industrial/economic area around 817.39 ha). These areas cover a limited surface of the total protected landscape area. However these figures do not include areas such as mining, dumping sites, construction areas etc., which should also be considered as urban/industrial areas. An important habitat, mainly linked to Ohrid trout reproduction, is reed bed habitat (36.2 ha). Reed bed area has a specific importance related to the spawning process.

6.2. Protective Designation

Monuments of Nature

The lake Ohrid and its surrounding area is part of the National Emerald network with site code AL0000019. By means of the Council of Ministers Decision No.80, date 19.02.1999, the wider area within district was designated a Protected Area of Terrestrial/Aquatic territory of Pogradec, “Landscape Protected” with surface area of 27,323 ha.

In the area of Pogradec District there are 18 natural monuments (NM) that has been proclaimed with Government decision No. 676 date 20.12.2002, as protected areas of category III (IUCN categories). Among them there are 10 geo-monuments, three hydro-monuments and five bio-monuments. In the following table are given the most valuable natural monuments of the region.

The protected landscape is considered as one of the most important tourist sites, considering the natural and cultural values it has, as well as the combination of terrestrial and aquatic landscape. The World Heritage proposed extension and its buffer zone includes 7 (seven) designated Monuments of Nature as shown in Table 13. These include ancient trees, geological and hydrological sites.

Name	Legal basis and date
<i>Biological Monuments</i>	
Cypress of Saint Mary Church Sallkeni i Tushemishtit	DCM no.676 dated 20.12.2002
<i>Geo Monument</i>	
Kamja Stone Najazma Cave Tectonic detachment fragment of Ohrid Memlishti Cave	DCM no.676 dated 20.12.2002
<i>Hydro Monument</i>	
Driloni Springs	DCM no.676 dated 20.12.2002

Table 13. Monuments of Nature in the protected area and surrounding zone

The law on protected areas introduces the concept of a management plan of the PA. Under Article 15/1 of the law of the PA, the Ministry of Environment, other state agencies and local government authorities in collaboration with third parties, prepare the management plans for each protected area. Article 17/3 of the Law on PAs, states that implementation of management plans can engage public and private institutions, legal entities, domestic or foreign, environmental nongovernmental organizations (applying the rules and procedures of tendering competition). While Article 20 of the same law, provides that the Ministry of Environment prepares the monitoring objectives for protected areas, governing the organization and the

implementation of monitoring programs. The Ministry engages public or private institutions (in accordance with the rules of procedures of competing tenders). Therefore the law on PAs introduces the concept of the implementation of the management plans and monitoring programs also by private entities, not only from governmental institutions.

Lake Ohrid Watershed Committee

The Lake Ohrid Watershed Committee was established in November 2005 empowered with legal authority in Albania and FYR Macedonia, but much effort is still needed until actual cooperative management is reached.

In order to assure effectiveness in the achievement of the objectives and commitments specified following the agreement the parties were establishing Lake Ohrid Watershed Committee which serves as a bilateral body and it:

- Monitors the ongoing of the activities carried out for the protection of the lake and its watershed;
- Suggests to the Parties the necessary measures and activities for the implementation of the Agreement, invites them to cooperate, to coordinate and carry joint projects;
- Evidences actions and attitudes of the Parties in contradiction with this Agreement.

The Committee is composed of an equal number of members from each Party and include three titular of central governmental institutions appointed by the Respective Governments, three titular of local governments institutions and one representative of civil society. Depending on the meeting agenda, the Committee invites relevant experts at its meetings and it shall meet in ordinary meetings once every six months. An extraordinary Committee meeting shall be called at the request of a simple majority of its members. The meetings will be held once in Albania and once in FYR of Macedonia.

Further on the committee serves in the capacity of a intergovernmental body which will keep relations with donors in order to gain projects and donations, to be used for the implementation of this Agreement. According to the agreement the Committee shall prepare and publish the annual Report of the state of environment for the watershed's area, including in the Report one section where its work is described. So far this has not been done on regular bases.

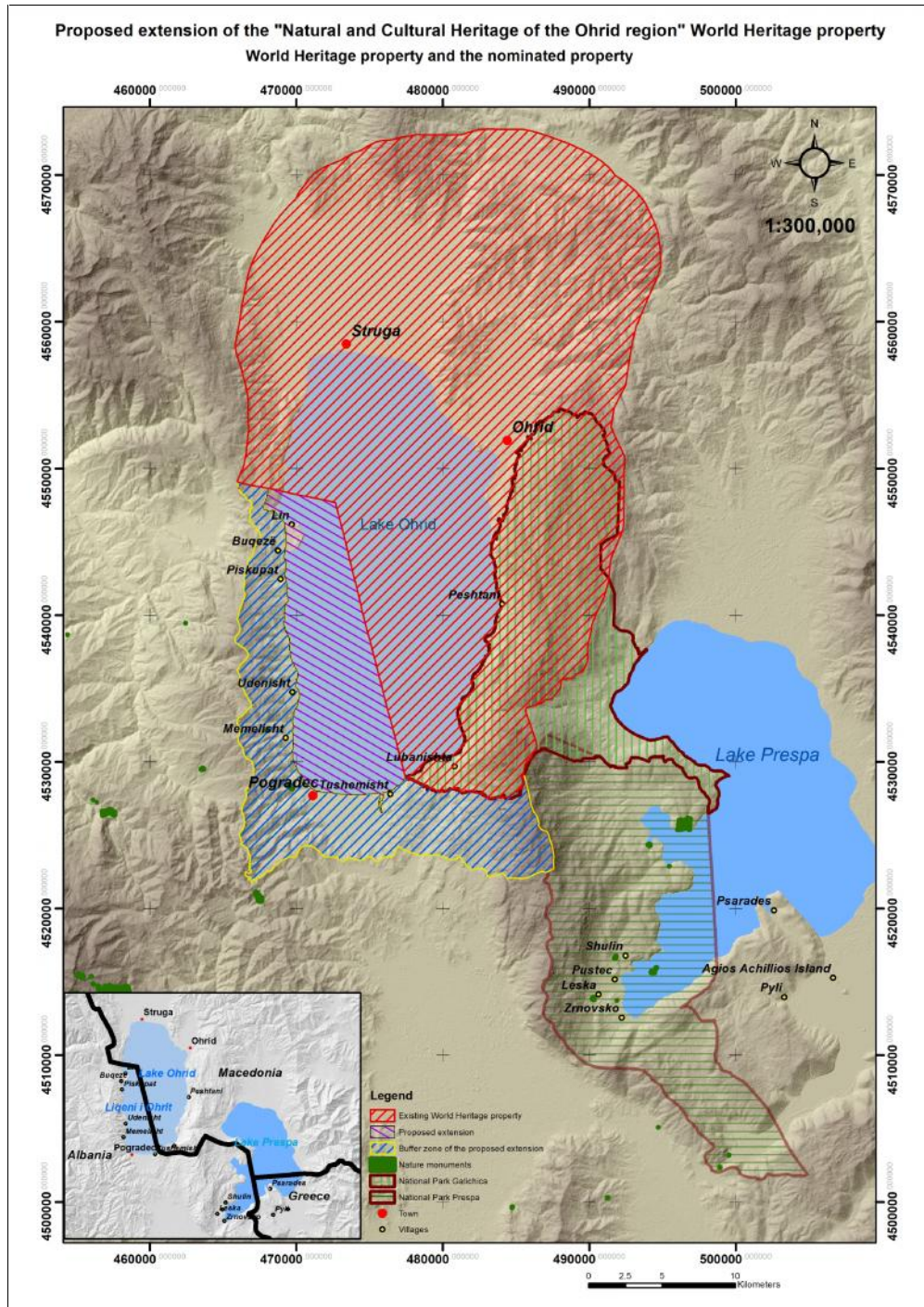


Figure 5.1: Protected areas and boundaries of inscribed and proposed site

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

Cultural Monuments

Table 14 lists the designated cultural monuments in the area. Further research is likely to reveal many more sites of historical and cultural importance, which may attract official designation.

Monument and Location	Legal basis
Within the World Heritage Property	
<p>The remains of the Early Christian church and mosaics at Lin</p>	<p><i>Decision no. 1886, date 10.06.1973 of the Ministry of Education and Culture</i></p> <p>1st Category Cultural Monument.</p> <p>The Early Christian church of Lin and its mosaics is situated at the top of the peninsula of Lin on the shores of Ohrid Lake. The basilica was first discovered in the autumn of 1968 at the top of Saint Thanasi's hill, by a researching expedition of the local museum of Pogradec. The dating of the monument in the 6th century AD is based on the technique of decoration and mosaics, archeological findings discovered jars, pithos, pieces of glass vessels, and 6 coins from the periods of the emperors Justin (518-527) and Justinian (527-565). However the peninsula of Lin has been inhabited since the first half of the first millenium AD (proto-Illyrian period), Early Iron Age. This has been proved by some archaeological findings from this period, such as clay gray vessels discovered in the site. The basilicas seems to have been in use until the Medieval period. On the stratigraphy of this period it is well evidences the presence of fire indicating that the basilica was burned by a fire probably during the Bulgarian invasion. The basilica has eight premises paved with mosaics where white, black and red are the main color used, but also brown, green yellow and orange. Similar in style to the early medieval mosaics in Macedonia (basilicas in Oktis, Radolisht and Studencisht) just across the lake, biblical scenes (Eucharistic), flowers, animals, svastica and many other things are depicted on the basilica floor, some in very good condition. No damages have been reported. New excavations were carried out in 2010 in the basilica of Lin, which discovered some new rooms outside of the walls. The Basilica of Lin was declared a cultural monument in 1973.</p>
<p>Remains of the Byzantine Church at Lin</p>	<p><i>Decision no. 1886, dated 10.06.1973, Ministry of Education and Culture.</i></p> <p>1st Category Cultural Monument.</p> <p>The remains of this monument are located on the shores of Lake Ohrid, near the border with Macedonia on the west side of the Lin peninsula. On the eastern side of these ruins there are traces of the walls of the church and apside. The ruins of the church are declared cultural monument of the first category in 1973.</p>

Prehistoric settlement of Zagradaia	<p><i>Decision 1886 (10.6.1973) of the Ministry of Education and Culture.</i></p> <p>1st Category Cultural Monument.</p> <p>The Zagradies prehistoric settlement is located at the bottom of the peninsula of Lin on the shore of Lake Ohrid. The place is known by the local community as “Zagraqe”. The few data related to this settlement were collected by a research expedition of the Local museum of Pogradec during 1960’s. The fragments of pottery found here suggest that the lower part of peninsula has been inhabited since the prehistoric period. The settlement, preserved intact, was declared cultural monument in 1973.</p>
Protected area of the remains of Paleochristian church and mosaics at Lin	<p><i>Order of the Minister of Culture no. 66, dated 17.03.2016</i></p>
Within the Buffer Zone	
Pogradec Castle	<p><i>Decision 1886 (10.6.1973) of the Ministry of Education and Culture.</i></p> <p>1st Category Cultural Monument.</p> <p>The Castle of Pogradec belongs to the group of the early Illyrian-Albanian settlements. The site itself has been used for a long period by the local population for more than 1000 years. The settlement has been first inhabited in the 6th century BC. During the mid 4th century BC this Illyrian settlement was fortified with defense walls. The fortified settlement was a small one with shelters inside the walls and has been used as a fortress of the surrounding area. From the archaeological findings it was concluded that the local community used to practice agriculture, fishing and various crafts and have had relations with the neighboring settlements. The local clay pottery produced here colour gray and red is represented almost by bowls and cups. In some cases the pottery holds small anepigraphic seals, unknown for the Illyrian settlements of the area. The archaeological excavation have brought to evidence that the shelters inside the fortress were burned. This evidence has to be associated with the wars of the second half of the second century BC in the Southern Illyria (between Illyrians, Macedonian and Romans). The castle of Pogradec continued to be inhabited also during the roman period, but without the protective walls and the intensity of life experienced before. By the end of the 4th century new defensive walls were erected and the fortress was used by the locals during the barbarian invasions. In the 6th century the walls were once again reconstructed. The fortress, with a strong strategic position was transformed again in an important residential centre and remained in this position until the invasions of the 9th century. Nowadays only the western part of the ancient walls are preserved while from the ancient fortress the rest is underground. The castle of Pogradec was declared a cultural monument of the first category in 1963.</p>

<p>Historic Centre of Pogradec</p>	<p><i>Decision of Council of Ministers no. 554, dated 18.06.2015 on the proclamation of the "Historic Centre" of Pogradec and approval of the regulation for the protection, conservation and integrated management of the Historic Centre, and the Buffer Zone of the city of Pogradec".</i></p>
<p>House of Kycyku Brotherhood (Pogradec).</p>	<p><i>Decision 6, date 18.12.1987 of the Committee of Culture and Arts.</i></p> <p>1st Category Cultural Monument.</p> <p>This is a two-storey building and two sides of it are linked with the road. The ground floor was used for merchandizing purposes, while some parts of it served as entrance doors for the buildings which are located in the same floor. The building is characterized by the decoration of the windows and frames, which are made of processed wood. The object was submitted to significant changes in its inner and outer parts during different periods of time. There is decomposition in the walls of the ground floor and in some of the windows. This two-storey building was constructed with stone walls in the ground floor and the concrete layer between the floors is made of wood. The first floor is characterized by the use of wood and decorative elements, the same as the ceiling of the first floor. The stairs of the house serve as a linking point for its floors and these stairs are made of wood. The house is plastered in the outer side, while a metallic stair has been constructed in one of the outer facades of the building during the recent years.</p>
<p>The house of Icka Brotherhood (Pogradec).</p>	<p><i>Decision 6 (18.12.1987) of the Committee of Culture and Arts.</i></p> <p>1st Category Cultural Monument.</p> <p>This is a two-storey building and two sides of the house are linked with the road. The ground floor was used for merchandizing purposes, while some parts of it served as entrance doors for the buildings which are located in the same floor. The ground floor was composed of big windows and shutters and the first floor had also numerous windows. The windows are vertical and have simple vertical and horizontal frames. The entire surface of the ground floor is plastered and has some characteristic coating. The ground floor is constructed by stones, which are placed irregularly, while the first floor is constructed by bricks. The building was object to significant changes during the recent years, which have changed its structure and its constructive and architectonic aspects. The inner stairs have changed, as well as the walls, doors and windows.</p>
<p>The house of the Poet Lasgush Poradeci (Pogradec).</p>	<p><i>Decision 5 (23.11.1988) of the Committee of Culture and Arts.</i></p> <p>1st Category Cultural Monument.</p>

	<p>This is a two and a half storey building. The part where the stairs have been constructed continues up the first floor, thus creating a space equal to the hall of the lower floors. The ground floor was used as a warehouse, while the first floor for living. The part obtained from the construction of the stairs has been used as a studying room and time after time as a bedroom. Fireplaces and closets could be noticed in this part of the house. The house has been constructed with supporting walls, but with the passing of time it has changed in the constructive aspect. The stone walls of the ground floor could easily be noticed nowadays, while the walls made of bricks could be noticed in the first floor and in the upper stairs. The back side of the house is characterized by some specific elements of the stairs and we also could notice that concrete beams have been used in these part. We also can notice in the inner part of the house that the object has submitted changes in its construction aspect later than the initial period of construction, deeply changing the identity of the building.</p>
<p>The house of Kristaq Puce (Pogradec).</p>	<p><i>Decision 8, (16.12.1987) of the Committee of Culture and Arts.</i></p> <p>1st Category Cultural Monument.</p> <p>This is a two-storey building and the living rooms, kitchen etc are located in the ground floor, while the bedrooms are situated in the first floor. The building has entrance doors from both sides (front and back) and more concretely from the northeastern road as well as from the side of the river. Some changes were made to the constructive aspect of the building, which resulted in the addition of the living spaces. It is supposed that these changes were made in the early 90's. The building is constructed with supportive walls and the constructions made in the early 90's are supported by some visible piers. These constructions affect only the first floor.</p>
<p>The house of Rinko Guxho (Pogradec).</p>	<p><i>Decision 8, (16.12.1987) of the Committee of Culture and Arts.</i></p> <p>1st Category Cultural Monument.</p> <p>This is a three-storey building and two sides of it are located in the road axis. One of these streets is wide, while the other street is narrow. The building has been always used as a house for living in all its three floors. The rooms in the ground floor have served as a warehouse, while the rooms of the first and second floor have been used as a living room, bedrooms, kitchen etc. The house is constructed with stones in the ground floor and the thickness of the walls is 60cm. Stones are also used for the construction of the first floor. The first floor is constructed with thin walls. There is an underground tunnel in the ground floor which has been used by the inhabitants of the building to leave the house unnoticed in case of danger.</p>

<p>The house of Sandri Qipro (Pogradec).</p>	<p>Decision 1886 (18.12.1987) of the Committee of Culture and Arts.</p> <p>1st Category Cultural Monument.</p> <p>This is a two-storey building which has been used for living. The ground floor of the building is composed of the kitchen, living rooms etc, while the first floor is composed of bedrooms. The building is well-known for its decorative elements, which have been used in the inner and outer sides of the building. The ceiling of the first floor is composed and supported on full wood beams. The ground floor of the building is constructed by using stones and the thickness of the walls is over 60 cm. The construction of thinner walls could be noticed in the first floor.</p>
--	---

Table 14. Designated cultural monuments within the proposed extension and its surrounding area

The Regional Directorate of National Culture (RDNC) Korça, a specialized state institution depending of the Ministry of Culture is responsible for the management, preservation, protection and promotion of the national cultural heritage in the territory of Korça Prefecture (covering the Municipalities of Korca, Pogradec, Maliq, Pustec, Kolonjë and Devoll). The Regional Directorate oversees and manages: 178 cultural monuments, 3 historic centres (including the Historic Centre of Pogradec) 1 archaeological area and 29 protected area of monuments. The Sector of Pogradec represents legally the RDNC and exercises the control over the territory according to the provisions of legislation in force for cultural heritage including communication and promotion of the cultural heritage values in the region and abroad. Five cultural sites under the RDNC's responsibility have some forms of visitor service: the historic centre of Pogradec, the historic centre of Voskopoja, Vithkuq village, Liqenas village and the Early Christian Church of Lin.

6.3. Means of implementing protective measures

The implementation and enforcement of the regulatory framework for the Protected Area is the sole responsibility of the Regional Administration for the Protected Areas (National Agency for the Protected Areas within Ministry of Tourism and Environment). It is based on site with own main office in Korca and responsible staff within the Pogradec Terrestrial and Aquatic Protected Landscape. The 5 person unit includes a fully equipped enforcement team (rangers) backed by legal enforcement status, both within the Protected Area and outside it in the buffer zone.

The Regional Administration for the Protected Areas is part of a larger team (National Agency for the Protected Areas within Ministry of Tourism and Environment) of specialized technicians and support staff, who are also backed with the similar legal powers to enforce regulation. The full team is guided by the Protected Area zoning plan and its associated list of detailed regulations and activity code.

The Protected Area team works closely with the local judicial system and transfers all violation reports directly to respective authorities.

The zoning scheme for the Protected Area of Pogradec Terrestrial and Aquatic Protected Landscape was developed through a participatory process in 2014 as part of the management plan. The management plan proposes a system of zones based on the provisions of the Law on Protected Areas. These zones are described in and shown in Table 15 and Figure 5.2.

Zone	Area (ha)	Description	Permitted activities
Core	1,211.47	Breeding areas for fish (2 small areas in La Ohridke); Terrestrial area of high mountains with mountainous and alpine vegetation Bio-corridor between Galicica National Park, Prespa National Park and Pogradec Protected Landscape	Scientific research is allowed
Sustainable use	20,763.33	The majority of Lake Ohrid. Forest and pastures: Oak forests with <i>Buxus</i> shrub land, degraded beech forest with juniper shrub land and Chestnut forests: and aquatic territories	Seasonal economic activities, grazing, medicinal plant collection, secondary forest production are permitted; activities that does not affect ecological integrity of ecosystem and can be applied only when environmental permit is issued
Traditional use	4,722.39	The traditional use zone includes agriculture, forestry land, territories close to the inhabited centres. It includes much of the shoreline area of Lake Ohrid.	Economic activities are permitted
Recreational	33.54	Recreational zone includes area of recreation possibilities mainly touristic activities along the lake	Recreation possibilities in open nature, in accordance to protected area functions, ecological, touristic and cultural values of natural landscape
Extra Zonal	592.43		The urban areas and the areas where intensive agricultural practices take place around the towns of Pogradec and Bucimas are proposed to be excluded by the zoning of the protected landscape
TOTAL	27,323.10		

Table 15. Current management zones of protected area

Other Legislative and Management Tools

There are several acts that guarantee protection of nature in the Republic of Albania, including Law "On protection of Biodiversity", No 9587, 20.07.2006, Official Gazette no. 84, date of publication 08.09.2006, pg. 2847, recently amended by law no. 68/2014, of 03.07.2014;

- Law "On protected areas", amended by law no. 9868, of 04.02.2008 "On some changes and amendments to law no. 8906, 06.06.2002 "On protected areas ", No. 8906, of 06.06.2002, Official Gazette no. 29, date of publication 26.06.2002, published in Official Gazette no. 18, 2008, pg. 640, date of publication 19.02.2008;
- Law "On protection of wild fauna", No. 10006, dated 23.10.2008, Official Gazette no. 168, date of publication 31.10.2008, pg. 8273, amended;
- Law "On rules and procedures for international trade of endangered species of flora and fauna", No. 9867, dated 31.1.2008, Official Gazette no. 18, publication date 19.02.2008, pg. 629, amended;
- Law no. 10.253 dated 11.03. 2010 "On hunting";
- Law "On some changes and additions to Law no 9587, dated 20.07.2006 "On protection of Biodiversity"", revised, for the full approximation of EC Directive 92/43 / EEC, May 22,1992 "On conservation of natural habitats of wild fauna and flora", adopted on July 2, 2014.
- Law No. 7/2014 "On prohibition of hunting in the Republic of Albania", adopted by the Assembly of the Republic of Albania, on 30.01.2014. In line with the provisions of this law, hunting activity in the country is frozen for a period of two years. The law is published in the Official Gazette of 28.02.2014 and became effective on March 16, 2014.

For the implementation in practice of Law no. 7/2014 "On prohibition of hunting in the Republic of Albania", the Minister of Environment, on July 2, 2014, drafted and adopted the action plan on the implementation of a moratorium on hunting.

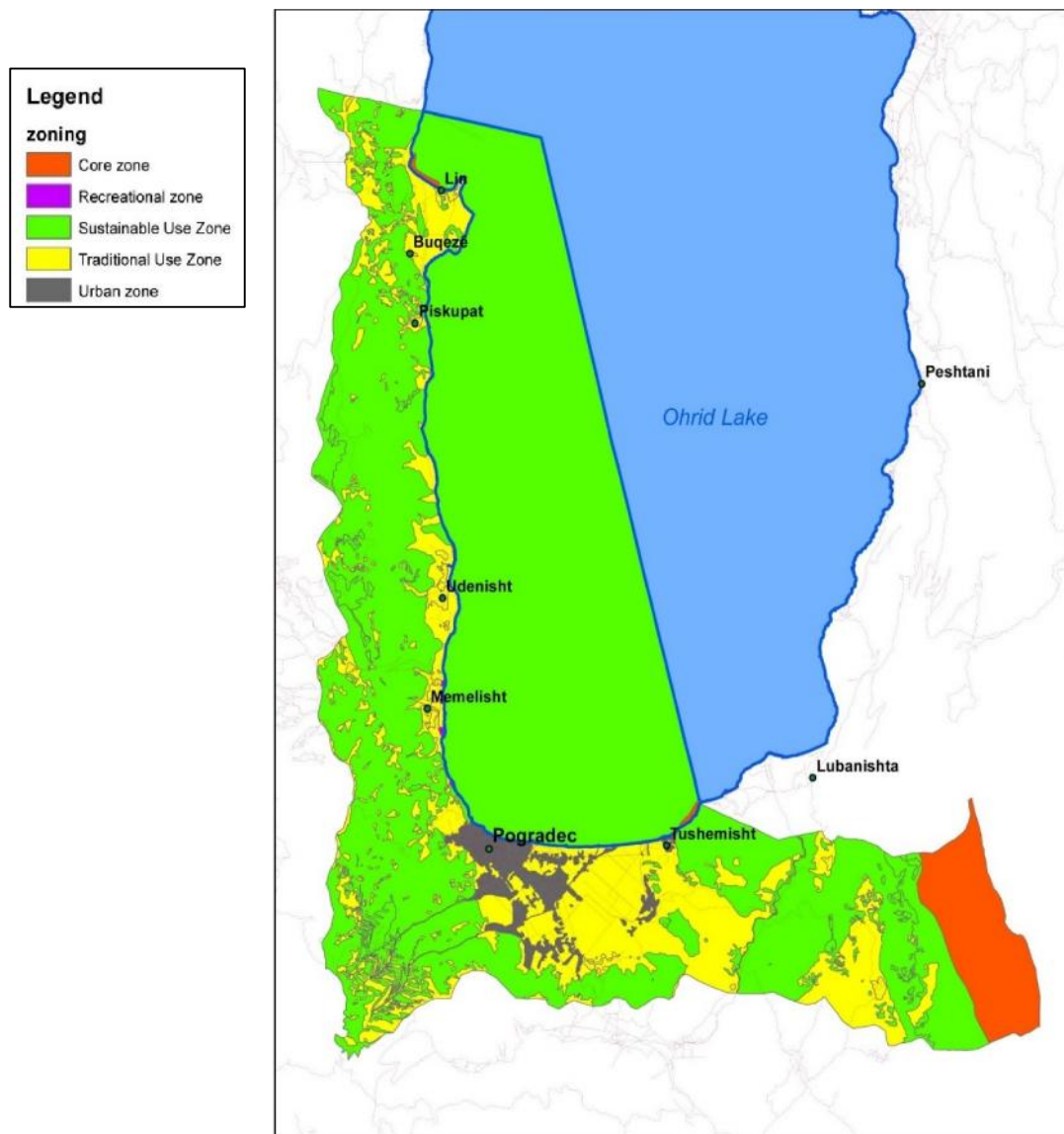


Figure 5.2: Boundaries and management zones of protected area

In order to ensure implementation of these pieces of legislation, a number of by-laws were issued for completing the legal base regarding specific elements of protection of nature, including the list of protected flora and fauna species, as published in the Red Book of the Albanian flora, and the Red Book of the Albanian Fauna.

Protection of species is in line with specific provisions of the Law on biodiversity and the law on protection of wild fauna. The law on biodiversity contains provisions on invasive species and the protection measures for the conservation of species. Protection of habitats is done through provisions of the law on protected areas, and the network for protected areas. The network serves to identify and create the ecological network NATURA 2000. The Law on protection of the wild fauna provides for the protection of important habitats for birds in general, and migratory birds in particular.

The Law No.9048, dated 7.4.2003 "On Cultural Heritage", as amended, regulates definition, inventorying, restoration, maintenance and preservation of tangible and intangible cultural heritage properties in Albania. It protects movable and immovable objects having historic, cultural, technological, ethnographic value. The Law also covers intangible cultural heritage. The main actors of the protection of cultural heritage are: the Ministry of Culture and its subordinate national institutions central and regional (19), the Centre for Albanian Studies, the General Directorate of State Archives, the Universities and the local governing bodies, in accordance to their respective roles and competencies. The law identifies four levels of protection for the immovable heritage: watching, preliminary protection, cultural monument of 2nd category, cultural monument of 1st category. The 'watching' status is permanent, while preliminary protection status acts as a form of temporary protection needed to prepare the documentation to achieve one of the other protection status. Monuments of 2nd category are protected mainly for their architectural values in the exterior, while monuments of 1st category are protected in their entire substance and appearance.

Protection tasks are a responsibility of the Ministry of Culture through its central and regional state institutions: Institute of Cultural Monuments, Archaeological Service Agency, six regional directorates of national culture and three Offices for Management and Coordination of the Archaeological Parks. However the law provides for cooperation with regional and local administrations, the forms this cooperation should assume is defined by the Ministry of Culture. Mechanisms are in place to provide funds for heritage conservation / restoration and percentages vary according to the grading of the protection and the type of works.

Article 17 of the Law provides for the establishment of a National Council for Restoration (NCR), chaired by the Minister of Culture which assumed the right to grant permission for any restoration of cultural heritage buildings or monuments. NCR is a collegial decision making body consisting of representatives from the specialized state institutions and personalities of the field. Restoration, conservation and rehabilitation works are carried out by entities licensed for this purpose, supervised and tested by state institutions, specialized and legally assigned for the protection and preservation of cultural heritage assets.

The National Council for Archaeology (NCA) is the second collegial decision-making body established in 2008 and chaired by the Minister of Culture. The NAC approves in principle the research criteria, documentation and archiving of data and archaeological materials, driven by developments, defines the criteria for the exercise of archaeologist profession, approves permits of private entities and individuals involved in archaeological excavations and archaeological activities in general, as well as the approval of all projects of intervention in archaeological areas, in accordance with article 30 of Law No.9048, dated 7.4.2003 "On Cultural Heritage", as amended.

According to article 47 and 48 of the Law: *"in cases of major constructions within the territories under state or private ownership, such as roads, highways, airports, ports, industrial works, new residential areas, investors are required to obtain the written consent of the National Restoration Council and the National Archaeological Council during the process of project*

design and implementation". The experts carry out the inspection of the area and prepare the respective documentation. When the area contains key archaeological, ethnographic values or traces of ancient or traditional architecture, changes may be required to the project design, (proposals for changes are made by the institutions which have carried out the inspection. Additionally, when works have commenced and traces or objects of archaeological-ethnological values are accidentally discovered, the works are immediately suspended. The administrators and investors in the works are required, within three days, to inform the local government bodies, the Institute of Archaeology and the Institute of Cultural Monuments, which carry out the respective inspection, report about the identified values and make respective proposals whether to continue works or not. If evidence of significant values is found, the commenced works have to be subject to changes or can be indefinitely suspended.

The new draft-Law "On Cultural Heritage and Museums", is a legislative initiative of the Ministry of Culture, that aims at the improvement of the cultural heritage management system as well as related legal procedures and authorities. It is planned to be approved during 2018.

6.4. Existing Plans Related to Region of Proposed Property

It is important to emphasize that the entire area of the inscribed and proposed extension is subject to a protection and management system resulting from designations as a protected area and national parks and, hence, affording it the highest protection status nationally and internationally, including European legislation. As a rule, therefore, regional and local planning, including spatial planning, is to provide priority to the protection status of the proposed extension in the sense of the inscription criteria. The planning system in place is therefore to be considered a supportive instrument to the current protection scheme.

Management Plan for the Pogradec Terrestrial/Aquatic Protected Landscape

- The first management plan, approved in 2014 (Order of Minister Nr. 2026, dated 31 December 2014), sets the following as the long-term management objectives for the protected landscape:
- Strengthen the protected area management system. Ensure that the protected area is managed in a correct way, involving the local stakeholders in a sustainable participatory process to contribute to the sustainable management of the area's resources maintaining a compatible equilibrium between nature conservation and human activities development.
- Increase habitats and biodiversity protection and conservation. Maintain the diverse habitats of the protected area, maintain the variety of fauna and the combination of aquatic and terrestrial ecosystems, ensure good water quality in the Pogradec Lake, clear water in rivers and streams and preserve the unique natural and biological processes and life support systems.

- Develop recreational and touristic uses. Provide for and manage recreational and cultural uses of the area, ensuring the coexistence of nature protection objectives and the development of various types of touristic activities.
- Develop sustainable agriculture and socio-economic activities. Ensure environmental health, economic profitability, and social and economic equity with the landscape area.
- Promote scientific research and education. Promote education, nature appreciation and scientific research on the biological, geophysical and cultural values of the protected areas.

Based on the vision and the long-term objectives, and taking into account the factors influencing the achievement of those objectives, the management efforts during period 2014- 2019 is to be focused on the following short-term objectives:

- Strengthen the protected area management system
- Enforce the provisions of any existing national regulation and law to visitors and users of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area.
- Increase the effectiveness of protected area management system by strengthening relevant institutions towards an effective law enforcement and prosecution service for violation of environmental requirements.
- Strengthen the co-operation among fishery, forestry, and other local stakeholders. The Management Committee should be the major forum for regular formal liaison between the relevant government and non-governmental agencies.
- Improve the existing legal framework.

Increase habitats and biodiversity protection and conservation

- Ensure that the diversity of species and the ecosystems processes in the protected area are not adversely affected by human activities.
- Promote the maintenance of high water quality to sustain the lake's habitat, prevent the degradation and deterioration of lake's shores and wetland ecosystems, terrestrial habitats, forests and grasslands.
- Foster broad community stewardship, and commitment to the conservation of species of specific level of protection.

Develop the recreational and touristic uses

- Provide for the operation of low impact tourism activities which add to the recreational and educational experience of protected area users.
- Ensure that tourist operations do not negatively impact on the ecological and cultural heritage values of the protected area.
- Ensure that tourism is carried out in an ecologically sustainable manner.

Develop sustainable agriculture and socio-economic activities

- Promote sustainable agriculture and farming.

- Promote ecologically and economically sound management of all grazing lands.
- Promote beekeeping, medical plant cultivation and sustainable livelihood.
- Support sustainable forestry.

Promote scientific research and education

- Encourage research that will provide knowledge of the values of the protected area and inform its management. Ensure that information from research is made available to managers of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area.
- Improve public awareness, understanding and appreciation of the environments of the protected area and the potential impacts of human activities on these environments.

The management plan also develops a proposal for the zoning of the Protected Landscape Area formulated in line with the Albanian legal framework requirements for protected areas zoning. The specific features of the protected area and socio economic activities of local protected area residents have been also taken into account in formulating the zoning proposal. Other important plans and projects relevant to the management of the World Heritage Extension Property and its buffer zone are shown in the following table. Management activities should take into consideration and wherever possible integrate these plans.

Name of strategy/plan/project	Legal basis (if any)	Responsible entity	Implementing partners	Key objectives/purpose
National Strategy on Development and Integration (2014).	Constitution of the Republic of Albania	Prime Minister's office. Line ministries.	All line ministries.	To ensure development of Albania as a country with the economy in transition and in line with the EU integration objectives.
National Plan of European Integration	Agreement with the EU of 28.4.2008	Ministry of European Integration. Line ministries.	All line ministries	Transposition of the EU environmental <i>acquis</i> into the national legal framework and practical implementation.
IPA CBC Cross Border Programme 2007-2013	Stabilisation and association agreement for both countries.	Government of Macedonia Government of Albania	National and Local governments	Environmental issues (with particular focus on the LOR).
Albania-Macedonia: Tourism marketing strategy (2014).	IPA CBC Project 'Virtual Action – Real Result'	Government of Albania; Government of	Local governments of both countries.	Marketing recommendations of for the development of

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

		Macedonia.		tourism.
Document on Strategic Policies on Biodiversity Protection	Law on Biodiversity Protection no. 9587/2006	MoE	MoE, NAPA NEA, NIEF Line ministries.	Conservation of biodiversity and its components. Development of Protected Areas network.
Management Plan for the Pogradec Terrestrial/Aquatic Protected Landscape (2014-2019).	Approved by the Order of Minister no. 2026 date 31.12.2014.	Ministry of Environment (MoE).	NAPA & RAPAs NIEF (National Inspectorate of Environment and Forestry).	Integrated management of Protected Areas and sustainable use of their natural resources, flora, fauna and habitats
Nomination file for the Ohrid –Prespa Watershed Biosphere Reserve (2014).	UNESCO	MoE. Ministry of Culture.	NAPA, RAPAs. ICM. Regional Directorate of Culture.	Preparation of a complete comprehensive file to be presented to UNESCO for the nomination of the area as a UNESCO site.
Strategy for the General Local Plan for the Municipality of Pogradec (2016).	Law on Urban Development.	Ministry of Urban Planning (MoUP).	Municipalities. National Agency of Territorial Planning.	
Solid Waste Management Plan for Pogradec Municipality (under development 2016).		Municipality of Pogradec		Prepared under the project ‘Towards Strengthened Governance of the Shared Trans-boundary Natural and Cultural Heritage of the Lake Ohrid Region’
Forestry Plans for Forestry Districts Cerava, Hudenisht, Bucimas and Dhardhas.	Law on Forestry Service.	Local governments.	Municipalities since April 2016.	Sustainable use of forestry resources and wise use for fuel wood harvesting.
Draft Management Plan for the Natural and Cultural Heritage of the Ohrid Region (Macedonia). (Under development).	Article 5 of the World Heritage Convention	Ohrid Municipality; Government of Macedonia.	National and local government.	Management of the property; preservation of the property; presentation.

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

Emergency intervention Project: Historic Centre of Pogradec	Cultural Heritage Law.	Ministry of Culture; Municipality of Pogradec.	Institute of Cultural Monuments; Regional Directorate of National Culture Korca	Emergency interventions for the temporary structural stability of monuments at risk.
Project: Conservation and sustainable use of biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar (2012-2017)	Various	Ministries responsible for nature conservation and environmental protection in Albania, Macedonia, Montenegro	GIZ	Includes a detailed report on the state of EU Water Framework Directive elements in Lake Ohrid.
Project: Enabling transboundary cooperation and integrated water resources management in the extended Drin River Basin	Various	Ministries environmental protection and water management in Albania, Macedonia and Montenegro	UNDP	Aims to foster joint management of shared water resources of the extended transboundary Drin River Basin, including coordination mechanisms among the various sub-basin commissions and committees (Lakes Prespa, Ohrid and Skadar).

Table 16. Plans and projects affecting the World heritage extension property

National Strategy for Development and Integration

This second National Strategy for Development and Integration (NSDI II) presents our national vision for the social and economic development of Albania over the period 2014 to 2020 and explains how we plan to achieve this vision through government policies and actions, aiming to bring Albania to the point of European Accession.

The NSDI II follows on from the inaugural NSDI I which covered the period 2007-2013. Both strategies are integral component of Albania's Integrated Planning System (IPS) which was established in 2006. The IPS combined policy, planning and budgeting processes in Albania and incorporated three principal components: *the national and sectoral strategies* process providing guidance to high level policy making; the *European Integration* process describing planning arrangements and resource requirements for achieving objectives under the European Integration

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

agenda; and *the medium-term budget process* detailing short and medium term planning and financing arrangements for the delivery of policies by each government ministry and agency¹. This NSDI II document is organized in two main parts. Part I presents **Government`s vision** for what we wish to achieve as a nation over the next six years and explains plans and assumptions for the fiscal framework that will provide financing for our policies over this period. The vision for NSDI II incorporates three main components:

- An Albania ready to become a full member of the European Union.
- Strong and sustained economic growth for Albania
- Transforming growth and enhanced wealth into improved well-being for all citizens in a fair and cohesive society.

The Document of Strategic Policies for Environmental Protection

Since the time of the Strategy and Action Plan on Biodiversity (SAPB) for Albania in 2000, the country has made progress in terms of biodiversity protection through the formulation of the institutional and legal framework, and their enforcement in practice. There have been serious efforts and developments in the environmental area in general, and biodiversity and nature in particular, during the last 15 years via the establishment of the Ministry of Environment and other relevant institutions in the country, through the formulation of environmental legislation and nature protection and raising public awareness. Another historical moment with an important contribution to nature and biodiversity coincides with the start of the process of European integration of Albania in 2006, following signature of the Stabilization-Association Agreement (SAA) with the European Union, and its effectiveness in 2008. The National Environmental Strategy adopted in 2007 places particular emphases to biodiversity, as one of the priority areas for the environment domain.

The Document of Strategic Policies for Environmental Protection (DSPEP) clearly identifies the main areas of work, in particular: increasing the surface of Protected Areas, formulation of Management Plans and their implementation; completing the legal framework, in line with the EU acquires on nature and environment; elimination of illegal logging and hunting, while enforcing the legislation, and activities for building capacities, and implementation of action plans for endangered species and habitats.

Updating the Document of Strategic Policies for the Protection of Biodiversity (DSPPB), which includes the Action Plan, as the key policy document on nature and biodiversity protection domain has taken into account these issues, as part of the National Strategy for Development and Integration (NSDI) for the period until 2020.

National Plan for European Integration 2016 – 2020

Albania's key to success in its endeavors toward EU accession is the swift implementation of reforms through planned activities as laid out in two fundamental documents of the Albanian Government:

- The Roadmap to addressing the five key priorities endorsed by the Decision of the Council of Ministers No 330 of 28.05.2014;
- National Plan for European Integration (NPEI).

Although synchronized, the purpose and scope of these two plans are different. The Roadmap is clearly designed to meet the five key priorities presented in the EC Enlargement Strategy 2013 with short term and tailored made implementing measures contained therein. The National Plan for European Integration includes medium and long term measures, extending to 2020, in order for Albania to reach full legal approximation of the national legislation with the EU acquis and align all its sectors with standards set by the acquis chapters.

The NPEI shall be revised annually and take stock of the progress achieved, not only in the approximation rate but also in the implementation of the approximated legislation. Approximation of national legislation with the EU acquis consists of these steps:

- Review of the EU legislation;
- Identification of gaps/acts in contradiction to the national legislation;
- Drawing of/ revision of the Albanian approximated legal acts;
- Monitoring the enforcement of approximated legislation.

NPEI aims to coordinate this approximation process by defining priorities for acts to be approximated, ministries tasked with drafting/revising the Albanian legal acts, degree of approximation, and dates of adoption and entry into force. Timely and qualitative elaboration and adoption of the National Plan will improve coordination and monitoring of this process. Failure to meet the deadlines will hamper inter-institutional coordination underpinning the EU integration process and the alignment of national legislation to EU acquis.

Preparation of the National Plan for European Integration 2016-2020 and its annual revisions are coordinated by the Ministry of European Integration in cooperation with IWGs. Pursuant to Decision of Council of Ministers No 946 of 9.10.2013 "On the scope of the Ministry of European Integration", MEI provides the methodology and guidelines on NPEI drafting and monitoring.

NPEI is drafted in full compliance with the Albanian Government's Legislative Programme. Such compliance is monitored by MEI during the preparation of both these documents. Furthermore, NPEI is in line with the budget for the upcoming year and the Mid-Term Budget Programme (MTBP). The responsibility for this compliance is shared between the Ministry of Finance and the Ministry of European Integration. In this context, MEI representatives participate and assist in the review of draft-budget programmes of line ministries.

Draft local action plan for integrated waste management for the area around Lake Ohrid the Municipality of Pogradec

The purpose of this Plan is to guide the local authorities in the District of Pogradec and its member local administrative in a joined up approach to waste management given the opportunity presented by the new Maliq landfill site. This plan will enable the regional stakeholders to reduce and manage the region's solid waste over the next 10 years.

The Pogradec District Solid Waste Management Plan covers the management of municipal solid waste as defined in the regulatory framework. The Plan defines municipal solid waste as "refuse that originates from residential, commercial, institutional, demolition, land clearing or construction sources." The target and strategies outlined in this Plan are aimed at reducing waste and increasing diversion of municipal solid waste. The Plan itself reflects the EU Waste Hierarchy System which originates from the EU Waste Framework Directive 2008/98/EC.

Draft Management plan for the Natural and Cultural Heritage of the Ohrid region

The basic aim of the Management Plan is to give value, protect and promote the universal natural and cultural values of the Ohrid region. To that aim, the Management Plan provides a vision for a long-term management of natural and cultural heritage of the Ohrid region, guidelines for its realization, reflected through the general goals and proposed programmes and activities, acknowledged mechanisms and people in charge of the activities, deadlines for their implementation, as well as mechanisms for monitoring. The Plan raises the awareness for the region, its interpretation and use as educational mean and foundation for the local community in its cultural, social and economic life. The objective of the Management Plan is to provide complete frame for implementation of decisions on conservation, management and exploitation of facilities for a period of ten years starting from the day of its adoption. Actually, the goal of the Plan is the following:

- To provide status and formal description of the significance of the values;
- To provide short summary of the present problems and challenges;
- To define the goals and direct the policies and activities during the implementation of the Plan for a period of ten years;

The integral protection of the Ohrid region as a world natural and cultural heritage can be achieved through the realization of the following general objectives:

- Provision of legal framework for preservation of natural and cultural heritage of the Ohrid region, as a world heritage. This includes protection of natural values and promotion of architectural and archeological values and their urban and landscaping connection;
- Promotion of sustainable management of the natural and cultural heritage of the Ohrid region;
- Strengthening of the legal and institutional structure;

- Provision of efficient application of the legal and methodological documentation, for the purpose of protection of natural and cultural heritage against excessive and uncontrolled process of urbanization;
- Integral protection of the natural and cultural heritage through ongoing control on the local urban development;
- Economic development of the Ohrid region through the use of the potentials of the sustainable development principles
- Strengthening of the institutional capacities at every level;
- Creating conditions for research, protection, conservation, popularization and promotion of the condition of the natural and cultural heritage in the region of Ohrid;
- Transferring the outstanding values of the natural and cultural heritage in the region of Ohrid as part of the general heritage of the entire mankind to the next generations;
- Implementing scientific researches and educational activities;
- Preventing activities that have negative impact on the outstanding values of the natural and cultural heritage in the region of Ohrid,
- Inclusion of the Republic of Macedonia and the municipalities of Ohrid, Struga and Debrca within the international system of cooperation and assistance aimed at international protection of the world natural and cultural heritage.
- Drafting and realization of programs and projects for the purpose of protection and promotion of the Ohrid region.
- Raising the public awareness for the protection and preservation of the natural and cultural values of the Ohrid region, by creating joint local, national and international partnership regarding the management of the World heritage.

Management committee for PPL

Through the Decision of Council of Ministers No 102Dt of 2 April 2015, the National Agency of Protected Areas and its regional agencies were created. NAPA aims to preserve and care for nature and biodiversity through management of protected areas network with national and international interest, collection and dissemination of information, environmental education and public awareness for protected areas and supporting the sustainable economic activities within these areas.

NAPA is a public legal body, under the Ministry of Environment. The operation of NAPA and the regional agencies of PAs will be implemented on the basis of internal regulations for the operation and organization of these institutions, approved by the Ministry of Environment, while their structure is approved by Order of the Prime Minister under the legislation in force. The agency has its own budget, which is approved by the MoE.

Also, this institution may generate and administer incomes as a result of the private and recreational activities on site, or as a result of foreign or domestic donation. NAPA's activity lie

on the entire territory of the Republic of Albania, according to the network of protected areas approved and those set to be adopted in the future. Its main tasks include:

- Management of the network of protected areas, natural habitats and species of semi-natural conservation interest under national laws and international conventions and agreements.
- Promote and support the collection and dissemination of information, environmental education and public awareness on protected areas.
- Support the development of sustainable economic activities within protected areas.

According to Decision no. 86, dated 11 May 2005 Management committees are organized at the local level and follow the implementation of management plans for areas that they cover. The management committee is composed of representatives of public and private institutions, where the protected areas is located, specifically by:

- representative of the Ministry of Environment;
- representative of the Ministry of Territory and Tourism;
- the representative of the municipality or municipalities in whose territory extends the protected areas;
- mayors in whose territory extends the protected areas;
- the representative of the district or districts, where lies the protected area;
- representative of the prefecture or the prefecture, which lies protected areas;
- the representative of the Regional Environmental Agency district, where lies the bulk of the area;
- Director of the Forest Service in the area;
- the representative of landowners when the territory of the protected area is private land;
- representatives of non-profit organizations, national or local level, active protection zone problems;
- members.

The Chairman of the management committee is representative of the Ministry of Environment. The administration of the PA plays the role of the technical secretariat of the management committee and is responsible for:

- preparation of the materials for the meeting of the management committee;
- notify the members for the next meeting;
- maintain the protocol of the meeting;
- prepare a report on the state of the protected area twice a year.

The Management Committee shall meet not less than twice a year, its meetings are open and they are valid when attended by no less than 2/3 of the members. The entire territory within the boundaries of the Lake Ohrid watershed in Albania is included in the Transboundary Biosphere Reserve Ohrid-Prespa Watershed

Cultural Heritage Designation

The legislation in force in the field of cultural heritage includes the following:

- Law No. 9048, dated 07.04.2003 (promulgated by Decree No.3804, dated 5.5.2003 of the President of the Republic of Albania), as amended and
- Law No. 9386, dated 4.5.2005 “On Museums”.

The cultural heritage protection system is defined and governed through regulations for the management of historical centres, archaeological areas and parks and cultural monument ensembles approved by Decision of the Council of Ministers. For the proposed extension, in 2016 the Decision of the Council of the Minister no. 554, dated 18.06.2015 proclaimed the "Historic Centre" of Pogradec by approving also the regulation for the protection, conservation and integrated management of the Historic Centre, and the Buffer Zone of the city of Pogradec". The regulation determines the obligations and ways of protection, integrated conservation and administration of historic and cultural values of the Historic Centre and the Buffer Zone of Pogradec. The regulation is subject to Law No. 9048 “On Cultural Heritage” issued on 07.04.2003 (as amended) and on the Decision of the Council of Ministers No.426, issued on 13.07.2007 “On approval of the Albanian Charter for Restoration”.

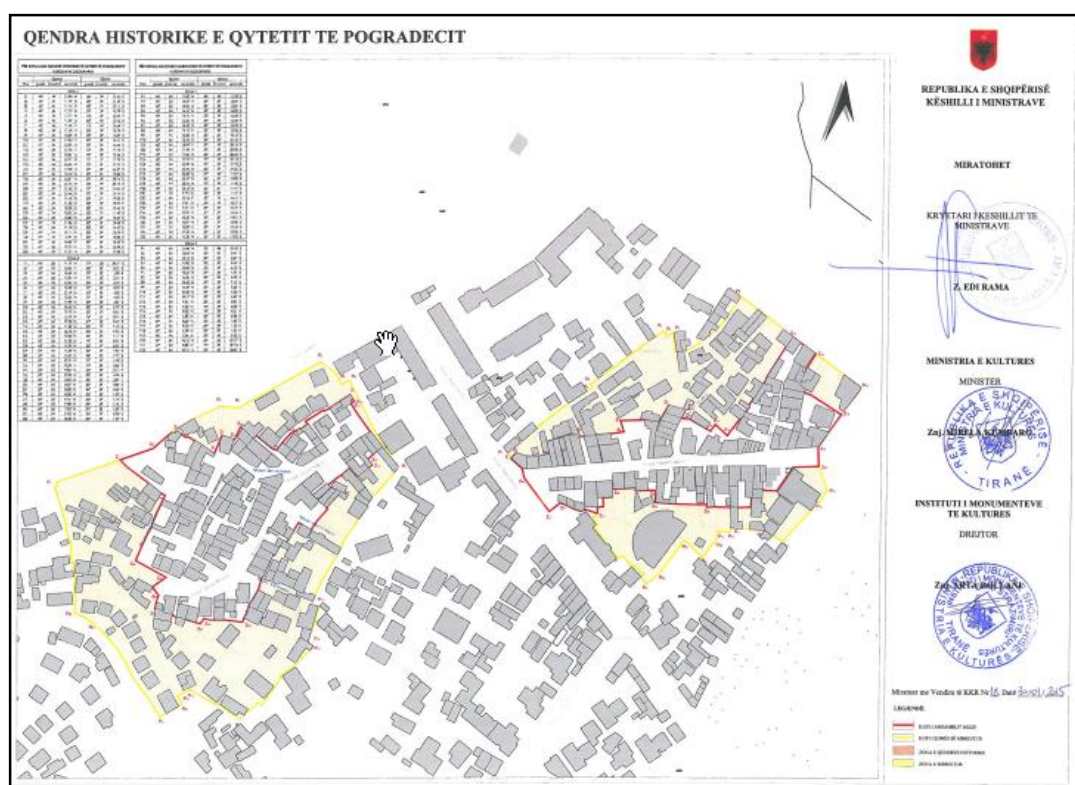


Figure 5.3: Zoning Map "Historic Centre of Pogradec and buffer zone"

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

The regulation determines the structure of the Historic Centre of the city of Pogradec, that includes three ensembles with different urban and architectural characteristics, according to the different historic periods they belong and their function, as living or trading zones. The ensembles of the Historic Centre are surrounded by a Buffer Zone that includes the area between the Historical Centre and the other part of the city, which is necessary for the protection and enhancement of the Historic Centre.

The criteria for intervention are determined according to the values and characteristics of each zone. Within the Historic Centre and the Buffer Zone of the city of Pogradec, that are monuments of culture divided into categories (first category and second category) according to the architectural values that their bear.

The regulation defines the way of collaboration between the different stakeholders such as the specialized institutions depending from the Ministry of Culture and the Municipality of Pogradec and also with organizations and other stakeholders for the protection and safeguarding of the cultural heritage of the city of Pogradec.

The National Restoration Council has acted promptly by approving the proposed boundaries of the moninated porperty (Decision no. 129, dated 25.05.2016) and by Order of the Minister of Culture no. 66, dated 17.03.2016 the protected area of the early Christian church on the Lin Peninsula was approved.

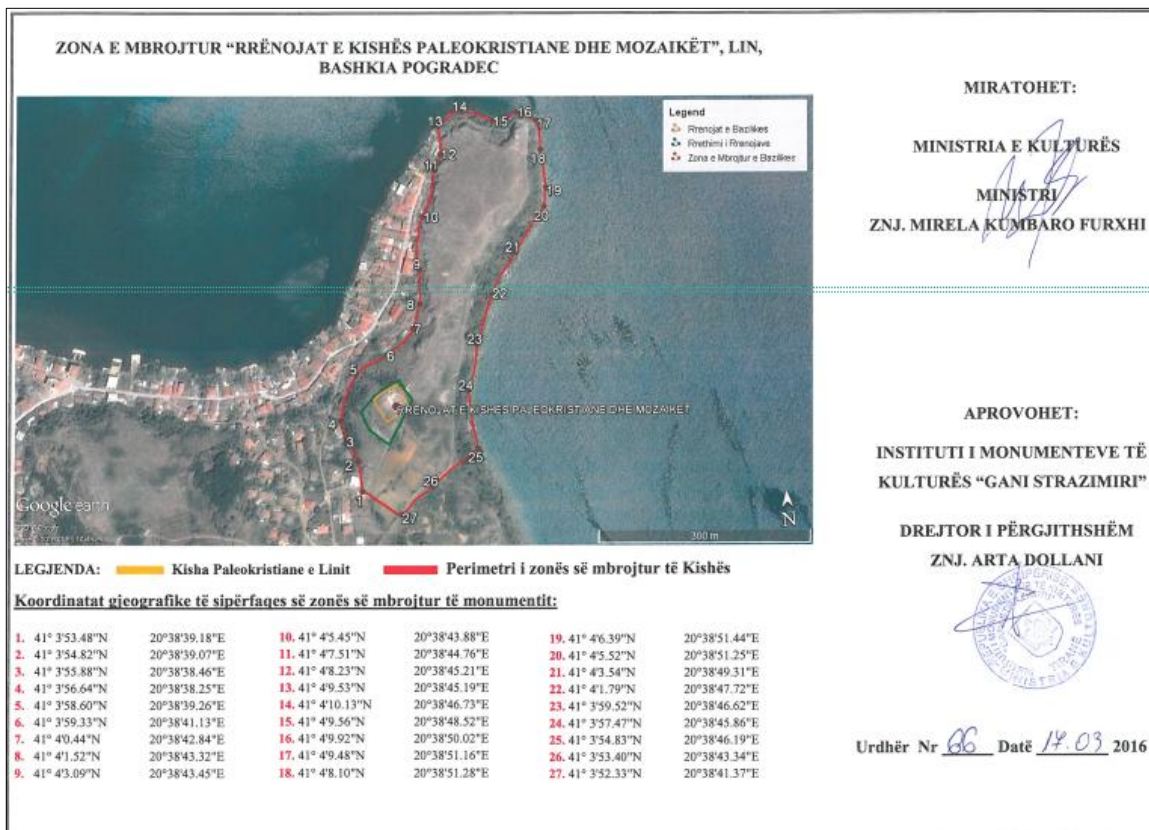


Figure 5.4: Protected zone of the early Christian church and mosaics in Lin

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

6.5. Property management plan or other management system

The Law on Protected Areas (2002) and its amendment in 2008 require all protected areas in Albania to have management plans. According to UNESCO guidance, establishment of a World Heritage Property requires a specific management plan or documented system of management. The strategic planning document aims to fulfil this obligation for the Lake Ohrid World Heritage extension property. It is formulated as a supplement to the official 2014-2019 Management Plan for the Pogradec Terrestrial/Aquatic Protected Landscape, which includes in its territory the entire area of the extended World Heritage Property. The supplement is intended to guide the management of the property in Albania, to reinforce the existing Pogradec Protected Landscape management plan, to address in more detail the needs of cultural heritage, to meet additional obligations created by World Heritage designation and to provide a basis for coordinated management between the main responsible entities and stakeholders in Albania and former Yugoslav Republic of Macedonia.

The Management Plan Supplement (MPS) is intended to work in the following ways:

- As a practical guide for all stakeholders engaged in the management and protection of the Outstanding Universal Values of the World Heritage Property.
- As an additional 'layer' to the management plan for the PPL, addressing elements not covered in detail in that plan (in particular, management of cultural heritage, management of urbanised areas, development of local infrastructure and economies).
- As a complement to the management plan for the part of the transboundary property that is in the FYROM.
- As a complement to the Local Plan of the Pogradec Municipality, ensuring that local urbanisation and development is compatible with the values of the World Heritage site.
- As the basis for collaborative management of the World Heritage Property, its buffer zone and the Ohrid Prespa Biosphere Reserve.
- To meet the additional obligations created by international recognition of proposed extension's heritage values.

Specific objectives to be achieved in the next 10 years

Development and construction zones, regulations and guidelines are adopted and enforced.

Targets

- All new developments occur within officially delimited zones, designed to minimise visual and environmental impact.
- No new illegal developments take place from 2017 onwards.
- All new and recent constructions abide by official development and construction guidelines by 2020.
- The natural lakeshore landscapes of the Lin Peninsula and the coast north to the Macedonian border remain intact.

Management policy

Measures should be taken to ensure that urban sprawl and linear development along roads are prevented, and that rural and natural areas are maintained between settlements. This requires the

Municipality to map precisely where construction will not be permitted, and where it may be permitted (subject to relevant building controls). The zoning regulations of the Pogradec Protected Landscape management plan may be used to inform and support this. Where appropriate forms of development are permitted, these should be situated.

- Not between the road and lakeshore, apart from on coastal land that has already been degraded or restored and specifically designated for development (for example around Memelisht).
- Inland (more than 200m from the coast).
- On lower slopes that have been specifically designated for development and not on hilltops or ridges.
- In locations that are naturally concealed or where visual impact can be minimised.
- In clusters, rather than linearly along roads. This would also provide economies of scale in terms of utilities and enable provision of common facilities for sewage and wastewater management and solid waste collection.

The Law on Protected Areas restricts most other forms of development (including road construction) within the boundary of the Pogradec Protected Landscape. Any proposed developments therefore should be discussed in advance with the Ministry of Environment, which should adopt a clear and consistent policy for awarding and rejecting development permits in the Pogradec Protected Landscape. Full and professional Strategic Environmental Assessments and Environmental Impact Assessment should be conducted for all relevant projects and developments, and should be scrutinised by the Management Committee for the Pogradec Protected Landscape and World Heritage Property.

As well as being appropriately located, new developments should have the minimal landscape and environmental impact, be attractive and well designed and harmonious with their natural and built surroundings. The quality of construction should also be ensured, so that buildings and structures are safe and adequate to resist possible disasters (for example earthquakes).

The main issues to be addressed include:

- The height and scale of buildings.
- Design, and the use of materials.
- Environmental considerations (energy and water use, sewage and wastewater disposal etc.).
- Hard landscaping, including earthworks, paths, path furniture, small structures.
- Soft landscaping, including plants and planting schemes (the Law on Protected Areas forbids the introduction of non-native plant species in Protected Landscapes).
- Proximity to designated cultural monuments or cultural heritage sites.

Pogradec Municipality should work with the Ministry of Environment to develop these guidelines with advice from the Ministry of Culture and the Territorial Planning Institute. They should then be adopted and observed by all relevant authorities and developers.

Illegal structures and buildings are removed

Targets

- All illegal buildings and structures outside permitted development zones removed by 2022.
- All illegal buildings and structures inside permitted zones either removed or subject to modifications by 2027.
- No new illegal buildings and structures from 2017.

Management policy

There have in the past been successful campaigns for removal of illegal fish farms, and buildings and structures along the coast of the lake, but the fish farms have subsequently been reconstructed and some renewed construction is taking place along the lakeshore.

Priority should be given to removing buildings and structures that exist outside urban areas and/or outside areas where development is permitted. Structures on the shoreline and at Drilon springs should be dealt with first.

Within urban areas and permitted development areas, illegal buildings and structures should be assessed and either removed or subjected to requirements for modification as a condition of retrospective approval.

Alongside these actions, regulations affecting construction and development should be widely publicised and made available to all official agencies and the general public.

Traffic, transportation and transport infrastructure are managed with an emphasis on environmental protection and safety

Targets

- Increases in car traffic do not result in increased traffic accidents.
- Public and non-motorised transport alternatives are available on all main routes and to popular visitor destinations.
- Main road and rail routes are diverted away from the coastal zone where possible.
- New developments include adequate plans for access and parking.

Management policy

The construction of the coast road and the anticipated growth of tourism will lead to significant increases in car traffic in the lake area (although the new route between Tirana and Korce may serve to reduce through traffic). Construction of tourist resorts and facilities along the coast road increases the potential of accidents affecting vehicles and pedestrians trying to reach the beach. Some crossings have been constructed but these may prove insufficient and introduction of speed restrictions and traffic calming measures may be necessary.

Railway construction may beneficially remove traffic from the roads, but the location and construction of any rail link to Macedonia should not compromise the integrity of the ecosystems and landscapes to the north of Lin village.

Ideally, residents and visitors to the area should be able to use public transport to travel between villages and reach popular tourist sites. As well as using the roads such transport could be waterborne or use restored stretches of the railway. The current cycle path could be extended into cycle routes network. There is also potential to upgrade the coastal railway for use as a tourist attraction.

6.6. Sources and levels of finance

Financial resources for the implementation of measures for conservation and advancement of protected area are planned through:

- Medium-term budget plan of the Ministry of Environment for 2016-2018 and long-term planning by 2020;
- Funds from projects in the area of nature protection currently under implementation or that will begin to be implemented until 2020, in the context of IPA projects;
- Applications in the context of calls for different projects that will be launched during the period of the implementation of the management plan;
- Different funds sources that may be generated and allocated for biodiversity purposes in Albania, in the context of Global Environmental Facility (GEF-6) funds: 2018-2022;

Protection and preservation of **cultural heritage** (conservation/restoration and rehabilitation works, maintenance, research, rescue archaeological excavation, promotion and education through culture (one of the main programs of the MoC)) are financed from the state budget through the budget of Ministry of Culture, (and also the Ministry of Education and Sports budget). Investments are planned over the mid-term budget preparation under the budget programme "Cultural Heritage and Museums." This programme aims at integrated preservation of the whole range of cultural heritage values as testimony of national identity, its protection and promotion, to make it available to the public and future generations. The selection of cultural monuments for funding is based on requirements of the monuments for intervention (risk, degree of degradation, urgency for intervention, measures for preliminary protection etc), needs being incorporated in concrete restoration, conservation and rehabilitation projects previously approved by the National Council of Restoration.

Other financial sources is the field of cultural heritage (conservation/rehabilitation project capacity building, awareness raising, etc. are secured through funds from international and national partners, EU (IPA), UNDP, UNESCO, AADF, World Bank, Albania Development Fund, TIKA, Regional Development Fund etc.

Generally speaking, the current financing levels are sufficient, however, more funding will be needed to adopt the optimal levels of management and intervention needed for the fulfillment of the requirements of the World Heritage enlistment of the proposed extension. To achieve an improved level of harmonized investment and allocation, stronger cooperation and coordination are needed among key national and international partners engaged in the area.

Projects under implementation for the protection of nature in Albania

- Project on Cross-border Biosphere Reserve of Prespa: “Support for the national park of Prespa -Albania”, funded by KfW, the second phase, worth 3.5 Mio Euro, to be implemented during 2017-2019.
- Natura 2000 project (IPA 2013) ”Strengthening national capacities for the protection of nature – preparation for Natura 2000 network”, worth 4,4 Mio Euro, to be implemented during March 2015-June 2018.

6.7. Sources of Expertise and Training in Conservation and Management Techniques

The Pogradec Terrestrial and Aquatic Landscape Protected Area received and has access to a wide array of training and capacity building programs in regard to conservation and management, tourism development, education and awareness raising, public participation, law enforcement and research and monitoring. These are available through the direct investments put in place on an annual basis by NAPA through the allocation of significant funds to training and capacity building, but also come from the Area's extended list of supporters, partners and donors. The Regional Centre for Conservation and Restoration of South-Eastern Europe, SEE (currently a department of the Institute of Cultural Monuments), was established in the framework of the agreement signed in June 2005 between the former Minister of Culture, Youth and Sports of the Republic of Albania and the UNESCO Director of Division of Cooperation. It has an important role for preparation of capacity building programs for both staff and young heritage professionals in Albania and SEE countries.

The Regional Centre prepares capacity building programs in the following 5 modules:

- Techniques and Methodology on Conservation and Restoration of Cultural Heritage
- Material Science in Conservation and Restoration of Cultural Heritage
- First aid and Emergency interventions in Cultural Heritage at risk
- World Heritage
- People Centered Approaches in the Conservation of Culture

6.8. Visitor facilities and infrastructure

Visitor management is a primary program for the implementation of the Protected Area management plan (Pogradec Terrestrial and Aquatic Landscape Protected Area) and World Heritage Supplement to the Management Plan for Pogradec Protected Landscape, 2017-2027.

The sensitive development of sustainable tourism in the Protected Area has been one of the main goals for effective management and long term development. One of the main plans prepared at the time of the development of the Protected Area management plan was the draft tourism development plan, which was by an important document produced for the site management in 2017. Today, summer use and visitation remains the primary land use activity in the Protected

Area reflecting in a clear way the status gained by Pogradec Terrestrial and Aquatic Landscape Protected Area a large spectrum of visitors (mainly national ones) from a disciplinary and geographic points of view, which makes the area national and international destination for nature and culture lovers and supporters.

Visitor Facilities:

The Visitor Centre is the main visitor office within Municipality of Pogradec and small center in vicinity of Driloni springs for visitor reception and distribution in the area. The centre is a modest, designed under a GIZ lake biodiversity conservation project, and was completed and officially opened in 2014. The Regional Directorate of National Culture in Korça provides services for visiting the early Christian church at Lin, while the Museum of Pogradec and Pogradec Art Gallery depend from the Municipality of Pogradec. Lin and Tushemisht villages already provide private owned visitor facilities and guest houses. Both villages are becoming visitor attraction areas. They have been the subject of several key development projects, targeting infrastructure and services.

6.9. Policies and programmes related to the presentation and promotion of the property

The principles of sustainable development have been integrated into a number of strategic and legal documents. Among the most important is the Cross-Sectorial Strategy on Environment which was adopted via DCM no. 847, of 29.11.2007 (Official Gazette 174/2007, pg. 5349, date of publication 22.12.2007), and the National Strategy for Development and Integration (NSDI), 2007-2013, adopted by DCM on March 2008.

The strategic goals of the Republic of Albania in the area of environment are established in the Cross-Sectorial Environmental Strategy (CSES), which is an integral part of NSDI, and it is available at: <http://www.environment.gov.al>. CSES is the main document that lays out the governmental policies in the area of environmental protection. Its final goal is to meet the constitutional obligations vis-a-vis Albanian citizens to secure a healthy and ecological environment; development of rational and sustainable use of natural resources; protection of environment from pollution and degradation; and promoting environmental values as important assets for the country's sustainable development. The review and update of the existing NSDI and CSES for the timeframe up to 2020 is done and is pending approval by the government in the course of 2016.

The main pillars for the protection of nature include:

- Full approximation of the 'acquis' for the protection of nature in the context of EU integration process, in particular after obtaining the EU candidate member county, which Albania got in 2013;
- Establishment of the SCI network in the context of the country's European Integration, NATURA 2000;

- Implementation in practice of management plans for the protected areas and of the action plans for endangered species and habitats; while ensuring the favourable status of conservation of endangered species and habitats;
- Restructuring and strengthening of the management structures for the protected areas;
- Promoting and implementation of economic incentives in the area of management of wild fauna through public and private investments;
- Promoting and applying economic incentives for the management of protected areas and their sustainable use;

Many of the policies and measures of this strategy are supported by programs and certain actions established in the inter-ministerial strategies. The inter-ministerial framework represents a contemporary and integrated base of the environmental factors related to transport, agriculture, property rights etc. This concept makes the local government institutions responsible for the protection and sustainable development of environment in the country. The environmental goals, objectives and issues are identified in the following documents:

- NSDI and CSES represent the key strategic documents;
- The government of Albania agenda for 2013-2017;
- National Plan for European Integration, 2014-2020, adopted by DCM no. 438, of 02.07.2014 “On adoption of the National Plan for European Integration, 2014-2020”. The Plan gets revised annually, in order to respond to the priorities of the EU membership process.
- Sectorial strategies: DSPEP

One of the strategic priorities of CSES is the rapid, balanced, and sustainable development in the economic, social and human domains, where transportation, energy, water supply, sewerage and environment play an important role. The cross-sector strategy for sustainable development includes:

- National Energy Strategy adopted by DCM no. 424, of 26.06. 2003 (26.06.2003, Official Gazette 54, 2196 p.);
- Cross-sectorial Strategy for rural and agricultural development, adopted by DCM no 709, of 29.10.2014 (Official Gazette 169/2014).
- Business and Investments Development Strategy, adopted by DCM no 795, of 11.07.2007 (Official Gazette 170, p 5109, 07.11.2007);
- Transport Sector Strategy, adopted by DCM no. 1214, of 03.09.2008 (Official Gazette 145, pg. 7183, 03.09.2008.);
- Tourism Sector Strategy, adopted by DCM no. 844, 06.11.2008 (Official Gazette 107, pg. 4732)
- Cross-sector Strategy for Rural Development, adopted by DCM no 924, 14.11.2007 (14.11.2007, Official Gazette 192, pg.6149);

- Cross-Sector Strategy for Regional Development, adopted by DCM no. 773, 14.11.2007 (14.11.2007, Official Gazette 161, pg. 4715).
- Law no. 10.431, 14.06.2011, "On environmental protection" establishes the main strategic elements for environmental protection;
- Prevention and reduction of water, atmosphere and soil pollution, as well as other types of pollution;
- Protection of biological diversity;
- Rational use of natural and mining resources, and avoiding their damage while their utilization;
- Rehabilitation of damaged areas and ecological polluted areas due to human activities and destructive natural phenomena;
- Maintaining ecological equilibrium and improving the quality of life.

6.10. Staffing levels and expertise (professional, technical, maintenance)

The organizational structure for Pogradec Terrestrial and Aquatic Landscape Protected Area is under the Regional Administration of Protected Areas with center in Korca and was established in 2014, while its Management Committee in 2015. The management plan document is an evolving one and is subject to annual review and development. Job description for staff members is provided within the Management plan, while the staffing of the Protected Area in terms of positions and numbers as of 2017 is:

Position	Number of staff
Management unite head	1
Monitoring unite head	1
Monitoring specialists	2
Rangers	2
Lake Ohrid Watershed Management Secretary	1
Total	7

The organizational structure for the cultural heritage management system is approved by decision of Council of Ministers in 2014. The proposed extension is under the direct administration of the Regional Directorate of National Culture (RDNC) in Korça, based in Korça with two dedicated departments respectively in Pogradec and Kolonjë-Bilisht. The RDNC has jurisdiction over 6 municipalities (Korça, Pogradec, Maliq, Pustec, Kolonja, Devoll)

covering 178 cultural monuments of 1st category, 3 historic centres, 1 archaeological area and 29 protected areas of monuments.

Position	Number of staff
Director	1
Architects	3
Art restorers	2
Legal expert	1
Archaeologist	1
Maintenance staff	7
Engineer	2
Intangible Heritage expert	1
Supporting staff	3
Total	21

7. MONITORING

7.1. Key Indicators for Measuring State of Conservation

The Protected Area Pogradec Terrestrial/Aquatic Protected Landscape monitoring program is based on the monitoring program devised in the management plan. The Ohrid Lake and its surrounding terrestrial ecosystems are part of the national monitoring program implemented by National Environmental Agency. The WFD has been transposed into Albanian Law by Law No 111/2012 on the integrated management of water resources. The National Integrated Environmental Monitoring Programme (which covers air, water, soil, forest and biodiversity) has been drafted following the EU legislations part of an EU funded project (StEMA 2006-2008). References to the monitoring programme covering the Prespa area are connected with: water biological quality, forest and biodiversity.

Based on the archival data of the Institute of Hydro-meteorology in Tirana (Currently Institute of Geoscience), lake water levels have been monitored since 1951. Certain physico-chemical parameters have been monitored by the institute in the past (one station at Great Prespa Lake) and up until 2008, however not on a regular basis. Investigations on biological elements (phytoplankton/chlorophyll-a, macrophytes, macroinvertebrates and fish) were undertaken within the period 2013-2016 under a long-term project funded by GIZ. No monitoring of specific pollutants is known to have been undertaken in the Albanian part of the basin. Finally, the Institute of Public Health (Korçë unit) has been monitoring coliform pollution on an independent basis, outside the frame of the environmental monitoring system.

The overall objective of the monitoring program is to conserve and where necessary restore the representative habitats of the protected area while closely monitoring the impacts of key land use activities.

The monitoring program includes four main expected outcomes:

- Completed baseline survey especially for the protected area integrity;
- Well-implemented monitoring programme;
- Research programme applied to key management issues;
- Hydro-metrological data collection on regular bases;

It is necessary to recall that conservation is:

- The preservation of a property from any alteration caused by humans (negligence, damage, looting, etc.) or nature (disaster, pollution, weathering ,etc.) activity.
- Applied to some portion of a property through legal or physical means, to secure its sustainability.

The key indicators for measuring state of conservation are listed in Table 17:

Indicator	Periodicity	Location of records
Lake water environment	Biannually	All records will be kept at the RAPA and NAPA office, municipality of Pogradec
Trout population stock	Annually	
Scientific and technical evaluation	5 years	
Statistical data on tourism (visitors numbers, seasonality)	Yearly	
Climate changes	1 year	
Number of illegal constructions	Yearly	Municipality of Pogradec, State Inspectorate Regional Directorate of National Culture, Korça
Number of monuments and sites subject to periodic maintenance	Yearly	Ministry of Culture, Institute of Culture Monuments Regional Directorate of National Culture, Korça
Statistical data on demographic changes	Every two years	Municipality of Pogradec
Coverage with infrastructure facilities	Every four years	Municipality of Pogradec
Number of events and/or programs organised to enhance understanding, appreciation and awareness on cultural heritage values and the importance of traditional craftsmanship connected to this heritage	Yearly	Municipality of Pogradec Ministry of Culture Institute of Culture Monument Regional Directorate of National Culture, Korça
Community participation rate – number of community events, training and awareness raising programs, number of NGOs and their membership	Yearly	Municipality of Pogradec Ministry of Culture Regional Directorate of National Culture, Korça
Level of the preservation of the typological characteristics so far maintained in each designated cultural heritage site – number in categories: complete /almost complete / satisfactory / partial/ fractional/ insufficient	Every two years	Institute of Culture Monuments Regional Directorate of National Culture, Korça

Table 17. Summary of monitoring indicators, periodicity and location of records

The monitoring program provides scientific advice on the overall conservation status of some of the key values included in this nomination file but requires restructuring considering the new adopted vision for the site under the World Heritage Program, particularly in regards to develop an advanced monitoring program for the status of the lake itself. Further, it is important to note that currently the protected area was following bird monitoring (winter bird census), cave monitoring and specific flora and vegetation elements.

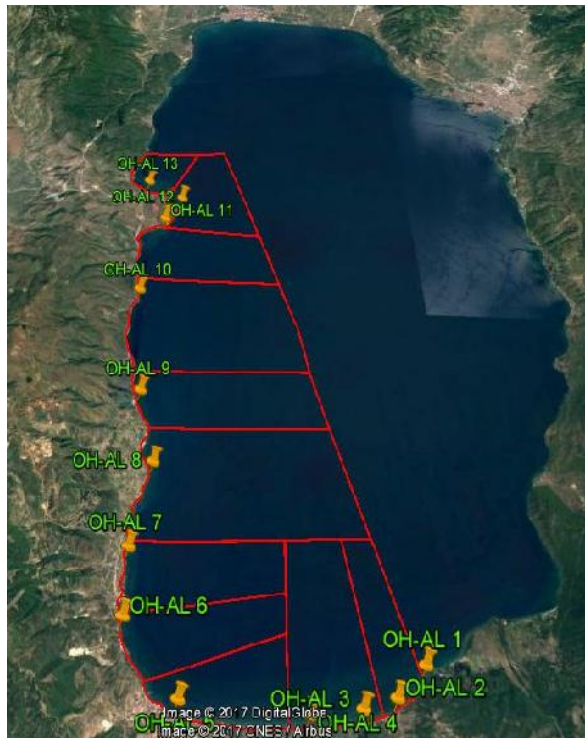
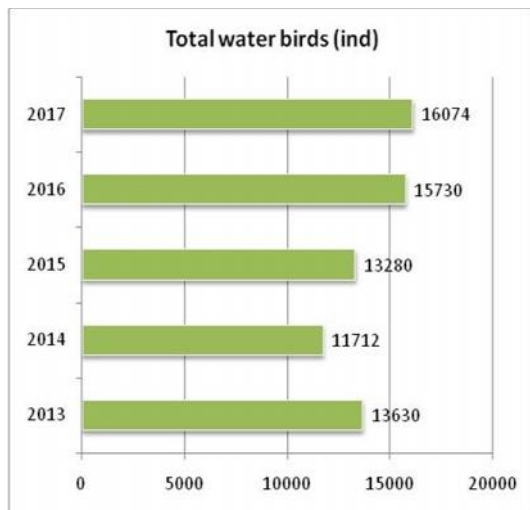


Figure 6.1: Data of the winter bird monitoring and counting polygons, Ohrid Lake in the period 2013-2017
(Source: Shumka&Fremuth)

Following the Initial Lake Characterization (GIZ, 2015), a joint and harmonized monitoring for the lake Ohrid is proposed. Lake Ohrid is a popular and densely populated tourist destination. The cities of Ohrid, Struga and Pogradec are the social and economic centres of the lake. Owing to its large surface and great depth, the lake has special physical and biological characteristics. The lake is stratified into two distinct layers, the hydrologically dynamic epilimnion (upper layer) and the more static, voluminous hypolimnion (lower layer). The latter forms a sink for mineral and organic matter originating from the catchment area. The surveillance monitoring scheme proposed for Lake Ohrid (Table 18) reflects results of the initial characterization, the above mentioned peculiarities as well as experiences from other deep lakes in Europe, e.g. Lakes Constance, Lemman or Lomond. It includes one site at the main tributary Sateska River and lake sites in the pelagic zone or the littoral near to the outflow.

Water samples should be monitored for organo chlorine pesticides. Initially it is proposed that all water bodies be sampled for OCPs rather than just the site where DDT levels exceeded the EU EQS because of the transient nature of aquatic pesticide concentrations.

Analysis of hydro-morphological features is an essential part of surveillance monitoring. Representative sections of the shoreline should be characterized to this end, based on recognized and proven typologies.

Additional investigations are necessary to assess the impact of waste water discharges at Pogradec, diffuse pollution resulting from human activities such as tourism, agriculture and – in Albania – mining. In Macedonia, the monitoring should also include the Sateska River, which was diverted to Lake Ohrid in the 1960s, thereby increasing the sediment load. The proposed operational monitoring scheme is summarized in Table 19. At the south-western part of the lake in Albania, sediment samples should be taken for analysis of specific pollutants from the mining industry.

Monitoring of water samples should also be undertaken for organochlorine pesticides.

Proposed sampling station		Quality element		
Station code	Station name, WB code and name	Biological	Physico-chemical	Chemical
Sat II	River Sateska, mid. course, RS2: Low. Riv. Sat.	x	x	x
MKI	Kalishta (littoral), WB OL1: MK part of LO	x	x	x
MKV	Centre (pelagic), WB OL1: MK part of LO	x	x	x
AL IV _{new}	Centre (pelagic), WB OL1: AL part of LO		x	x

Table 18. Proposed scheme for surveillance monitoring at Lake Ohrid

Proposed sampling station		Quality element		
Station code	Station name, WB code and name	Biological	Physico-chemical	Chemical
SAT III	River Sateska, low. course, WB RS1: Low. Riv. Sat.		x	x
MK II	Grashnica (littoral), WB OL1: MK part of LO	x	x	x
MK III	Veli Dab (littoral), WB OL1: MK part of LO	x	x	x
MKV	Centre (pelagic), WB OL1: MK part of LO	x	x	x
AL I	Lin (littoral), WB OL1: AL part of LO		x	x
AL II	Memlisht (littoral), WB OL1: AL part of LO		x	x
AL III	Pogradec (littoral), WB OL1: AL part of LO		x	x
AL V _{new}	Outlet Pogradec WWTP, WB OL1: AL part of LO		x	x

Table 19. Proposed scheme for operational monitoring at Lake Ohrid



Figure 6.2: Sampling stations for chemical and physico-chemical analyses at Lake Ohrid

7.2. Administrative arrangements for monitoring property

The National Environmental Agency (NEA), The National Agency for the Protected Areas (NAPA) and subcontracted institutions (as Institute of Geoscience, Institute of Geological Survey etc) undertake monitoring in the proposed extension. In addition to that the yearly water-bird counts (winter bird counts), and implemented camera trapping for mammals survey are undertaken by the NAPA authorities.

The Ministry of Culture through its subordinate central and regional institutions and agencies:

- Directorate for Cultural Development Programs (central)
- Institute of Cultural Monuments (central)
- Regional Directorate of National Culture in Korça (regional)
- Archaeological Service Agency (central)
- Institute of Archaeology under the Centre for Albanological studies

undertake on a periodic basis monitoring in the proposed extension. This process includes not only the monitoring of cultural heritage values, but also monitoring of the actions of individuals and implementations of plans and projects of different institutions, as well. The Regional

Directorate of National Culture in Korça is responsible for monitoring and preliminary assessment of different projects and initiatives undertaken or planned in the area.

Under the World Heritage Supplement to the Management Plan for Pogradec Protected Landscape 2017-2027, monitoring will take place on the basis of progress towards the specific targets established for achieving the objectives of the management plan supplement. See Annex 1.

7.3. Results of Previous Reporting Exercises

The main reporting systems at the proposed extension are:

- The State of Environmental Report issued on annual bases by NEA where the Lake Ohrid ecosystem and surrounding terrestrial ecosystems are part of the reporting's.
- Regular mid winter bird census covering all lake areas with standard monitoring protocols. The annual reports of RAPA include a specific section on the monitoring program.
- The management of effectiveness evaluation report for the protected area which by and large is a detailed one. It makes a detailed assessment at progress made in implementing the management plan as a whole, including the section on monitoring. It is of importance to mention that in general the protected area monitoring program requires full review and restructuring as it enters into the implementation of the new management plan and the world heritage program.

Reports produced by different projects

Between 1998 and 2004, the Hydrometeorological Institute carried out regular monitoring at three stations in the lake, in addition to tributaries that feed into the lake, with a frequency of six times per year. The scope was then reduced to four times per year at one station (in the pelagic zone) and in tributaries. In 2008, the monitoring programme was reduced further to cover only basic physical and chemical parameters (e.g., temperature, pH, conductivity, transparency, dissolved oxygen, ammonia, nitrites, nitrates, phosphates, total phosphorus). After 2008, selected parameters such as phosphorus were analysed along with certain biological elements in collaboration with the Norwegian Institute for Water Research (Schneider et al. 2014).

From 1998 to 2004, monitoring was undertaken of major Macedonian tributaries (Rivers Velgoshka, Koselska, Sateska and Cherava), and springs in St. Naum area. Further monitoring was undertaken in littoral and pelagic zones of the lake. Pelagic monitoring was undertaken at only one station, but down a vertical profile, at depths of 1–200 m. This monitoring was supported by a range of programmes between 2000 and 2012, concerned primarily with monitoring trophic status and wider anthropogenic influences, funded largely from ministerial sources. Further work on pollutant loads of lake tributaries was carried out between 2009 and 2011. These studies indicated substantial impacts of Rivers Velgoshka and Cherava on the wider littoral zones adjacent to the inflows. Earlier investigations showed reference values for nutrients of <10 µg TP.1-1 and <1 mg TN.1-1. Based on these results and more recent investigations of

chlorophyll-*a* and Secchi depth, and despite a more than threefold increase of phosphorus concentrations in lake sediments over the past century (Matzinger et al. 2007), Lake Ohrid is considered to be in a stable oligotrophic condition (Patceva et al. 2009, Novevska and Tasevska 2009).

The above-mentioned NIVA study comprised up to 30 monitoring stations in Macedonia and Albania for selected physico-chemical parameters, phytoplankton (benthic diatoms), macrophyte community composition and macroinvertebrates (Christiansen et al. 2013, Schneider et al. 2014). For physico-chemical parameters, samples were collected four times per year. Whilst these results generally concur with earlier findings (oligotrophic nature of the lake), some littoral areas (Grashnica, Daljan, inflow of Sateska River, Cherava) now show an increased anthropogenic influence. This is particularly the case at Grashnica, where the water is mesotrophic/eutrophic in character. The increased number of tourists in summer also contributes to seasonal eutrophication in some areas.

Intensive monitoring program was undertaken in the period of 2012-2015 (GIZ, 2015). Chlorophyll-*a* concentrations varied between 0.48 µg.l⁻¹ at Pogradec and 1.91 µg.l⁻¹ at Lin. Trophic state index (TSI) results for most sampling stations and seasons were 30, indicating oligotrophic conditions

Sampling station	Season	TSI	Trophic state
Lin	Summer	37	Oligotrophic
	Autumn	30	Oligotrophic
	Winter	25	Oligotrophic
Mëmëlisht	Summer	23	Oligotrophic
	Autumn	27	Oligotrophic
Pogradec	Winter	26	Oligotrophic
	Summer	23	Oligotrophic
	Autumn	26	Oligotrophic
	Winter	30	Oligotrophic

Table 20. Trophic state of Lake Ohrid (Albanian part) in summer (July), autumn (October) 2013 and in winter (February) 2014, according to the Trophic State Index (Carlson 1977)

Sampling site	Season	TSI	Trophic state
Pelagic (central part of the lake)	Spring	31	Oligotrophic
	Summer	26	Oligotrophic

Table 21. Mean TSI of the pelagic zone of Lake Ohrid (Macedonian part) in spring and summer 2013, according to the Trophic State Index (Carlson 1977)

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

Annual reports and documentation on the preservation status of the proposed extension are kept in the technical archive of the Institute of Cultural Monuments, Regional Directorate of National Culture in Korça, National Centre of Inventorying of Cultural Properties as well as in the archives of Institute of Archaeology (CAS), Archaeological Service Agency and the Directorate for Cultural Development Programs in the Ministry of Culture.

8. DOCUMENTATION

8.1. Photographs, slides, image inventory and authorization table and other audiovisual materials

For the cultural component see annex Annex 9 - Photographs, slides, videos, images and other audiovisual materials.

Id. No	Format (slide/print/video)	Caption	Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner (if different than photographer/director of video)	Contact details of copyright owner (Name, address, tel/fax, and e-mail)	Non exclusive cession of rights
1_9	Slide	Institute of Archaeology_Expedition	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
10_11	Video	Institute of Archaeology_Graphical Documentation	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
12_14	Slide	Institute of Archaeology_Hudenisht 1	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
15_16	Video	Institute of Archaeology_Lin 2	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
17_26	Slide	Institute of Archaeology_Lin	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes

27	Video	Institute of Archaeology_Lin	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
28	Slide	Institute of Archaeology_Pile dwelling_Lin	2016	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
29	Slide	Entrance of the Italian Army in Pogradec	1939	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
30	Slide	Ship "Petar" 2 Lake_Ohrid_Pogradec	1939	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
31	Slide	Carnival in Pogradec	1939	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
32	Slide	Traditional Costums	1939	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
33	Slide	Old Bazaar	1930	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
34	Slide	Independence Day_school_Pogradec	1930	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
35	Slide	Festivities_Pogradec	1950	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
36	Slide	Boat centre_Pogradec	1938	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
37	Slide	View of Pogradec from the castle	1930	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
38	Slide	Royal Hotel	1938	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
39	Slide	Lin	1940	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

40	Slide	40_Besa Theatre	1919	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
41	Slide	41_Pogradec	1960	Misto Cici	Fototeka Misto Cici	Fototeka Misto Cici, Pogradec amanda.cici@live.com	yes
42_44	Video	LIN-3_Pile Dwelling	2017	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
45_46	Video	LIN-3_Pile Dwelling	2017	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
47	Video	LIN-3	2017	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
48	Video	Hudenisht	2017	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
49_54	Slide	Lin	2017	Adrian Anastasi	Adrian Anastasi Author/ Institute of Archaeology	Academy for Albanological Studies Institute of Archaeology url: qsa.edu.al	yes
55_60	Slide_scan	Albanian Folk Costumes, Pogradec region	1999 2001 2004	Institute of Traditional Culture	Vol. I_1999, Vol. II_2001, Vol. III_2004	Academy for Albanological Studies Institute of Cultural Anthropology and Arts Studies url: qsa.edu.al	yes
61	Video	Rare video of the famous writer of Lake Ohrid, Albanian side, Lasgush Poradeci	1930	RTSH	https://www.facebook.com/LakeOhridHeritage/videos/1486961394732663/	RADIO TELEVISIONI SCAN	yes

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

8.2. Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property

- World Heritage Supplement to the Management Plan for Pogradec Protected Landscape 2017-2027 (*see Annex 1*)
- Management Plan for the Pogradec Aquatic and Terrestrial Landscape Protected Area (*see Annex 2*)
- Check list of the most important group species of flora and fauna (*see Annex 3*)
- Financial Plan of the WH Supplement for the Pogradec Protected Landscape (*see Annex 4*)
- A conceptual framework for integrating climate change and ecosystem-based disaster risk reduction considerations into the world heritage supplement to the management plan for Pogradec Protected landscape (*see Annex 5*)
- Establishing a Data Collection System to Monitor Tourism Impacts on the Outstanding Universal Value (OUV) of the Natural & Cultural Heritage of the Lake Ohrid World Heritage Property - Albania Proposed Extension (*see Annex 6*)
- Agreement between the council of ministers of the Republic of Albania and the government of the Republic of Macedonia for the protection and sustainable development of Lake Ohrid and its watershed (*see Annex 7*)
- Law No. 9103 on the protection of transboundary lake (*see Annex 8*)
- Law on Cultural Heritage no. 9048, issued on 7.04.2003, as amended (*see Annex 9*)
- Designation of the historic centre of Pogradec, Decision of the Council of Ministers no. 554, dated 18.06.2015 on the proclamation of the "Historic Centre" of Pogradec and approval of the regulation for the protection, conservation and integrated management of the Historic Centre, and the Buffer Zone of the city of Pogradec" (*see Annex 10*)
- Designation of:
 - the remains of the Early Christian church and mosaics at Lin.
 - the Remains of the Byzantine Church at Lin,
 - Prehistoric settlement of Zagrada;
 - By Decision no. 1886, date 10.06.1973 of the Ministry of Education and Culture (*see Annex 11*)
- Designation of the Protected area of the remains of early Christian church and mosaics at Lin, by Order of the Minister of Culture no. 66, issued on 17.03.2016 (*see Annex 12*)

8.3. Form and date of most recent records or inventory of property

- Biodiversity National Network of Albania (BioNNA: <http://bionna.al>)
- WebGIS of Cultural Monuments and Sites – available from 2015
- Digital Inventory of Designated Cultural Monuments and Sites
- Cultural Monument files and updated national List of Cultural Monuments – available from 2015-2016
- Paper based and scanned material available on the official webpage of MoC and Institute of Cultural Monuments

All records and inventories of the proposed extension are available, after registration, from the official web address of the MoTE, MoC

Additional data on national or regional level can be obtained via the regional responsible authorities (see Section 9.2)

8.4. Address where inventory, records and archives are held

National Agency of the Protected Areas
Ministry of Tourism and Environment
info@akzm.gov.al
www.akzm.gov.al

Regional Administration of Protected Areas Korça
National Agency of the Protected Areas
Email: Mihallaq.Qirjo@akzm.gov.al
www.akzm.gov.al

Albanian Academy of Sciences
info@akad.gov.al
www.akad.gov.al

National Centre of Inventorying of Cultural Properties
www.qkipk.gov.al/
E-mail: info@qkipk.gov.al
Address: Aleksander Moisiu Str. No. 76, Tirana Albania

Institute of Cultural Monuments
National Technical Archive
WebGIS Database available on this url: <http://imk.gov.al/Pages/Default.aspx>
E-mail: info@imk.gov.al
Address: Aleksander Moisiu Str. No. 76, Tirana Albania

Regional Directorate of National Culture, Korça
E-mail: kulturakorce(@)gmail.com; drkkkorce@ymail.com
www.drkkkorce.gov.al

Academy for Albanological Studies
Institute of Archaeology
url: qsa.edu.al

8.5. Bibliography

Amataj, S., Anovski, T., Benischke, R., Eftimi, R., Gourcy, L. L., Kola, L., Leontiadis, I., Micevski, E., Stamos, A., and Zoto, J., 2007: Tracer methods used to verify the hypothesis of Cvijic about the underground connection between Prespa and Ohrid Lake, *Environ. Geol.*, 51(5), 749–753.

AKBN, 2014: Mineral resources in Albania. Tirana, p. 13

Albrecht, C., Wilke, T., 2009: Ancient Lake Ohrid: biodiversity and evolution. *Hydrobiologia*-615:103–140

Anamali, S., 1969: Rezultatet e gërmimeve në kalanë e Pogradecit (Les resultats des fouilles dans la citadelle de Pogradec). *Buletin Arkeologjik* (1969), p. 89-101

Anamali, S., 1971: Rezultatet e gërmimeve në kalanë e Pogradecit (1970-1971) [Les resultats des fouilles dans la citadelle de Pogradec (1970-1971)]. *Buletin Arkeologjik* (1971), p. 120-132

Anamali, S., 1973: Rezultatet e gërmimeve të vitit 1973 në kalanë e Pogradecit (Fouilles archeologiques 1973-Pogradec). *Iliria* (1974), p. 469-474; *Buletin Arkeologjik* (1974), 4, p. 111-118; *Iliria* (1975), III, p. 481-486

Anamali, S., 1979: Kështjella e Pogradecit (La forteresse de Pogradec). *Iliria* (1970-1980), 9-10, p. 211-258

Anamali, S., 1992: Antroponimia ilire në mbishkrimet e lashta të krahinave të Tetovë-Gostivarit, Dibër-Kërçovës dhe Strugë-Ohrit (Illyrian Antroponymy in the ancient inscriptions of the provinces of Tetovo-Gostivar, Dibra-Kërçova and Struga-Ohrid). *Iliria* (1992), p. 59-72

Anamali, S., 1994: Mozaikët e bazilikës paleokristiane të Linit-Pogradec (Les mosaïques de la basilique paleochretienne de Lin-Pogradec), *Iliria* (1974), 3, p. 329-342, *Iliria* (1975), 3, p. 353-359

Anonymous, 1996: Physical geography of Albania (Vol. I and II). Publication of Albanian Academy of Science, Tirana

APA, 2015: Albania bans hunting to save endangered animals <http://phys.org/news/2014-02-albania-endangered-animals.html>

ARCOTRASS, 2006: Study on the State of Agriculture in Five Applicant Countries-Country Report Albania. European Commission, 66 pp

Aronson, J., Clewell, A. F., Blignault, J. N., & Milton, S. J., 2006: Ecological restoration: A new frontier for nature conservation and economics. *Journal for Nature Conservation* 14

Bani, A., Zoga, Piro, Kupe, L., Xhulaj, S., 2010: Mining residues around the Lake Ohrid. *Journal of Mining and Metallurgy*, 46 A (1) 23 - 31

Bego F, Griffiths H.I., 1994: Preliminary data on the bats (Mammalia, Chiroptera) of Albania. *Stud. Speleol.* 9: 21-25

Bego, F., 2011: Bat roosting sites in the territory of Prespa National Park, Albania. Mimeographed report - Society for the Protection of Prespa. Tirana, Albania

Bego, F., 2014: Checklist of amphibians, reptilians, birds and mammals of LPA Pogradec. - Contribution to the draft MP. (Not published, included in a discussion and tabular form in the entire MP).

Bino, T. & Jorgo, T., 1997: Preliminary considerations on avifauna of Ohrid and Prespa lakes. In: Gjicknuri, L., Miho, A., Shumka, S. (eds). *Proceedings of the International Symposium "Towards Integrated Conservation and Sustainable Development of Transboundary Macro and Micro Prespa Lakes"*, 24-26 October 1997, 165-171, Korcha, Albania.

Blazencic J., Stevanovic B. & Z. Blazencic (2006): Red Data List of Charophytes in the Balkans. - *Biodiversity and Conservation*, 15: 3445–3457

Bode, A., Peza. V., 2009: Post-transition environmental assessment in Albania. *Proceedings XIII Balkan Mineral Processing Congress, Volume II, Bucharest, Romania, p. 673.*

Bruno., S. 1989: Introduction to a study of the herpetofauna of Albania. *British Herpetological Society Bulletin* 29: 16–41

Buzo, K., 1991: *Bimesia e kullotave dhe livadheve te Shqiperise (Vegetation of pastures and meadows of Albania)*, Tirana, 176 p. Albanian

Buzo K., 2000: Data on the flora and vegetation of the subalpine and alpine pastures of Prespa region. *Proceedings of Korcha Symposium 'Towards integrated conservation and sustainable development of transboundary Macro and Micro Prespa Lakes'*, PPNEA ed. pp. 88-93

Calabresi., E., 1932: Anfibi e Rettili d'Albania. *Atti dell'Accademia Veneto-Trentina-Istriana* 23: 83–86.

Catsadorakis, G., Aleksi, P., Avramoski, O., Bino, T., Bojadgi, A., Brajanoski, Z., Fremuth, W., Kazagloulou, Y., Koutseri, I., Malokou, M., Nikolaou, L., Shumka, S., Uzunova, D., Veleviski, M., 2013: Waterbirds wintering at the Prespa lakes as revealed by simultaneous counts in the three adjoining littoral states. *Macedonian Journal of Ecology and Environment*. Vol. 15, 1: p. 23-32 Skopje (2013) ISSN 1857 - 8330

Ceka, N. & Baçe, A., 1972: Vrojtmet arkeologjike në rrethin e Pogradecit, luginën e Devollit dhe Shkumbinit. (Observations archeologiques faites dans la region de Pogradec et dans la vallees du Devoll et du Shkumbin), *Monumentet* (1972), 3, p. 205-214

Crivelli, A. J. & Lee, T., 2000: Observation on the age, growth and fecundity of *Cobitis meridionalis*, an endemic loach of Prespa Lake (Greece). *Folia Zoologica* **49**(Suppl. 1), 121–128.

Crivelli, A. J. & Maitland, P. S., 1995: Introduction. Biological Conservation special issue: Endemic freshwater fishes of the Northern Mediterranean region. *Biological Conservation* **72**, 121.

Çikopano, U., 2013: Mozaikët paleokristianë dhe Bazilika e Linit (Paleochristian Mosaics and Lin's Basilica), Tirana, Albanian

Davis, C.E.; Moss, D.; Hill, M., O., 2004: EUNIS Habitat classification, revised 2004, Report to EUROPEAN ENVIRONMENT AGENCY EUROPEAN TOPIC CENTRE ON NATURE PROTECTION AND BIODIVERSITY, PDF file:

http://eunis.eea.europa.eu/upload/EUNIS_2004_report.pdf

Dieterich, T., Shuka, L., Mersinllari, M., Matevski, V. & Renata, C. (2013): Grasslands and Flora of the Dry and Ivani Mountain in the Prespa National Park of Albania. Regional International Conference: -The System "Prespa Lakes-Ohrid Lakes" the Actual State, -Problems and perspective. Struga 27-29 October, p. 33.

Dumurdzanov, N., Serafimovski, T., Burchfiel, B.C., 2004: Evolution of the Neogene-Pleistocene Basins of Macedonia: Boulder, Colorado, Geological Society of America Digital Map and Chart Series 1 (accompanying notes), 20 p

Cohen, A., 1994: Extinction in ancient lakes: Biodiversity crisis and conservation after 40 years after J.L. Brooks. *Arch. Hydrobiol. Beih. Ergenbn. Limnol.* **44**, p. 451-479. Stuttgart

Cvijic, J., 1911: Fundamentals of geography and geology of Macedonia and Old Serbia. Book III, Serbian Academy of Sciences, Special Edition, Beograd.

De Fejérváry., G., 1923: Amphibians and reptiles. Pp.: 7–65. In: Teleki P. & Csiki E. (eds.): A Magyar Tudományos Akadémia Balkán-kutatásainak tudományos eredményei: Csiki Ern állattani kutatásai Albániában [The Hungarian Academy of Scientific Research Results of the Balkans: Csiki Ern Zoological Research in Albania]. MTA, Budapest, 65 pp

Dhora, Dh., 2010: Regjister i Specieve të Faunës së Shqipërisë. CP, Shkodë

Dhora, Dh., 2011: Mbi diversitetin e specieve të faunës së Shqipërisë. *Bul. Shk., Ser. Shk. Nat.*, 2011. Nr. 61: 61-74

Dhora, Dh., 2012: Marine and non-marine molluscs of Albania. *Bul. Shk., Ser. Shk. Nat.*, 2012. Nr. 62: 92-123

Dhora, Dh., 2014: Molluscs of Albania 2014: List of species and biogeographical data. *Bul. Shk., Ser. Shk. Nat.*, 2014. Nr. 64:149-18.

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

Dieterich, T., Shuka, L., Mersinllari, M., Matevski, V. & Renata, C., 2013: Grasslands and Flora of the Dry and Ivani Mountain in the Prespa National Park of Albania. Regional International Conference: -The System “Prespa Lakes-Ohrid Lakes” the Actual State, -Problems and perspective. Struga 27-29 October, p. 33.

Economidis, P. S. & Daoulas, C., 2003: *Barbus prespensis* Karaman, 1924. In *The Freshwater Fishes of Europe, Cyprinidae 5/II, Part II, Barbus* (Banareescu, P. M. & Bogutskaya, N. G., eds.), pp. 365–376. Wiebelsheim, Germany: Aula-Verlag.

Eftimi, R., Zoto, J., 1997: Isotope study of the connection of Ohrid and Prespa Lakes. International Symposium: Toward Integrated Conservation and Sustainable Development of Transboundary Macro and Micro Prespa Lakes. Proceedings, 24-26 October 1997. Korça, Albania.

Farkas B. & Buzás B., 1997: Herpetologische Beobachtungen in den Nordalbanischen Alpen. *Herpetofauna* 19: 10–18.

Fehér Z., Er ss Z., Kontschán J. & Murányi D., 2004: Collecting sites of the zoological expeditions of the Hungarian Natural History Museum to Albania (1992–2003). *Folia Historico-naturalia Musei Matraensis* 28: 67–82.

Filipovski, G., Rizovski, R., and Ristevski, P. (1996): The characteristics of the climate-vegetation-soil zones (regions) in the Republic of Macedonia, Macedonian Academy of Sciences and Arts, Skopje, 178 pp.,

Fremuth, W., Bino, T., Bego, F., 2000: Four years simultaneous wintering water bird census at the Ohrid and Prespa Lakes. In: Grupche, L. & Kungulovski, G. (eds). Proceedings of the International Symposium “Sustainable development of Prespa region”, 30-39. Oteshevo, 23-25/6/2000,

Freyhof, J. and Brooks, E., 2011: European Red List of Freshwater Fishes. Luxembourg: Publications Office of the European Union.

Gilbert, J., Hadzhisce, S., 1977: Life cycle of the freshwater sponge *Ochridospongia rotunda*. *Arch fur Hydrob.* 79: 285-318

Gilbert, J., Hadzhisce, S., 1984: Taxonomic notes of shallow water endemic sponges of Lake Ohrid Yugoslavia, with description of two new species and a redescription of *Spongilla stankovici*. *Arch fur Hydrob.* 99: 313-318

GDFF, 2005: Albania National Forest Inventory 2004

GIZ., 2015: Indicinal Lakes characterization report. Conservation and sustainable use of biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar (CSBL). Tirana

GSHAP, 2010: Global Seismic Hazard Assessment Program, www.seismo.ethz.ch/gshap, last access: 27 October 2010

Haxhiu., I. 1991: Données bioécologiques sur *Algyroides nigropunctatus* (Dumeril & Bibron, 1839) (Sauria, Lacertidae) en Albanie. *Bulletin de la Société Herpetologique de France* 60: 9–15.

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

Haxhiu., I., 1998: The reptiles of Albania: composition, distribution, habitats. *Bonner Zoologische Beiträge* 48: 35–57.

Hauffe, T., Albrecht, C., Schreiber, K., Trajanovski, S and Wilke, T., 2011: Spatially explicit analysis of gastropod biodiversity in ancient Lake Ohrid. *Biogeosciences*, 8, 175–188, 2011

Hoffmann, N., 2013: The active tectonic landscape of Lake Ohrid (FYR of Macedonia/Albania). *ANNALS OF GEOPHYSICS*, 56, 6; doi: 10.4401/ag-6254

Imeri, A., Mullaj, A., Gjeta, E., Kupe, L., Shehu, J., Dodona, E., 2012: Preliminary results from the study of flora and vegetation of Lake Ohrid. *Natura Montenegrina, Podgorica*, 9(3):253-264

INSTAT., 2015: Albania in Figures. Tirana

Ivan evi , B., 2012: Mycological Review of the Fungi in the National Park Prespa in Albania. Support to Prespa NP-KfW Project. 55 pp

Jablonski, D., 2011: Reptiles and amphibians of Albania with new records and notes on occurrence and distribution. *Acta Soc. Zool. Bohem.* 75: 223–238. ISSN 1211-376X

Jankovic, M., 2013: Report on terrestrial birds of Prespa and adjacent areas. Report 35 pp

Kapedani, E. & V. Gambetta, 1997: Ichthyofauna and fishery in Prespa lakes. In: Towards integrated conservation and sustainable development of transboundary Macro and Micro Prespa Lakes, Gjiknuri, L, Miho, A. & S. Shumka (Eds), pp 138-141. PPNEA Edition, Albania.

Karaman., S., 1939: Über die Verbreitung der Reptilien in Jugoslawien. *Annales Musei Serbiae Meridionalis, Skoplje* 1: 1–20.

Kashta, L., Percini, D., & Molla, O. (2013): Të dhëna mbi diversitetin dhe ekologjinë e algave Charophyta në Liqenin e Ohrit. *BSHN (UT)*, 15: 142-150.

Kostoski, G., Gusheska, D., Tasevska, O., 2005: Zooplankton research in Lake Ohrid pelagic region. *Limnological investigation of Lakes Ohrid and Prespa*. 3/4: 79-87

Kostoski, G., Albrecht, C., Trajanovski, S., and Wilke, T., 2012: A freshwater biodiversity hotspot under pressure – assessing threats and identifying conservation needs for ancient Lake Ohrid. *Biogeosciences*, 7, 3999–4015

Kottelat, M. & J. Freyhof, 2007: Handbook of European freshwater fishes. Publications Kottelat: Cornol, Switzerland.

Krsti , S., 2009: Environmental Changes in Lakes Catchments as a Trigger for Rapid Eutrophication – A Prespa Lake Case Study. *Studies on Environmental and Applied Geomorphology* (www.intechopen.com)

Lange-Bertalot H., 2001: Diatoms of Europe 2. A.R.G. Gantner Verlag K.G. pp. 526

Levkov, Z., Krstic, S., Metzeltin & Nakov, T., 2007: Diatoms of Lakes Prespa and Ohrid. About 500 taxa from ancient lake system. A.R.G. Gantner Verlag K.G. 597 pp.

- Levkov, Z., Williams, D., 2011: Fifteen new diatom (Bacillariophyta) species from Lake Ohrid, Macedonia. *Phytotaxa* 30: 1–41
- Levkov, Z., Williams, D., 2012: Checklist of diatoms (Bacillariophyta) from Lake Ohrid and Lake Prespa (Macedonia), and their watersheds. *Phytotaxa* 45: 1–76
- Lopatin, I., Matvejev, S., 1995: Kratka zoogeografija sa osnovama biogeografije i ekologije bioma Balkanskog poluostrva. Ljubljana.
- LOCP, 2002: Lake Ohrid monitoring Program, Lake Ohrid Conservation Project: Albanian Monitoring Task Force, Macedonian Monitoring Task Force.
- Lorenschat, J., Prez, L., Brenner, M., Baumann, U., Schwalb, A., 2013: Diversity and Spatial Distribution of Extant Freshwater Ostracodes (Crustacea) in Ancient Lake Ohrid (Macedonia/Albania). *Diversity* 2014, 6, 524-550; doi:10.3390/d6030524
- Lorenschat, J., Schwalb, A., 2013: Autecology of the extant ostracod fauna of Lake Ohrid and adjacent waters - a key to paleoenvironmental reconstruction Belg. J. Zool., 143(1) : 42-68
- Machlis, G. E. and Tichnell, D. L., 1985: The state of the world's parks: An international assessment for resource management, policy and research. Boulder, Colorado: Westview Press
- Manastirliu, V., 1971: Të dhëna të reja mbi qendrat arkeologjike në rrethin e Pogradecit, (Doonees nouvelles sur les centres archeologiques dans le dostrict de Pogradec), *Buletin Arkeologjik* (1971), p.196-204
- Manastirliu, V., 1968: Kontribut për hartën arkeologjike të rrethit të Pogradecit, (Contribution a la carte archeologique du district de Pogradec), *Materiale të Sesionit Arkeologjik*, Tiranë (1968), p.117-124
- Manastirliu, V., 1976: Varret monumentale të zonës së Mokrës (rrethi i Pogradecit), [Monumental Tombs of Mokër Area (Pogradec district)], *Monumentet* (1976), 12, p. 49
- Marková, S., Šanda, R., Crivelli, A., Shumka, S., Wilson, I. F., Vuki , J., Berrebi, P. & Kotlík, P., 2010: Nuclear and mitochondrial DNA sequence data reveal the evolutionary history of *Barbus* (Cyprinidae) in the ancient lake systems of the Balkans. *Molecular Phylogenetics and Evolution* **55**, 488–500. doi:10.1016/j.ympev.2010.01.030
- Matevski, V., Carni, A., Avramovski, O., Juvan, N., Kostadinovski, M., Košir, P., Marinšek, A., Paušic, A., and Šilc, U. (2011): Forest Vegetation of the Galicica Mountain Range in Macedonia, Založba ZRC, Ljubljana
- Matzinger, A., Jordanoski, M., Veljanoska-Sarafiloska, E., Sturm, Muller, I., Wuest, A., 2006: Is Lake Prespa jeopardizing the ecosystem of ancient Lake Ohrid? *Hydrobiologia* (2006) 553:89–109. Springer
- Matzinger, A., Spirkovski, Z., Patceva, S., and Wuest, A., 2006: Sensitivity of Ancient Lake Ohrid to Local Anthropogenic Impacts and Global Warming, *J. Great Lakes Res.*, 32, 158–179, 10.

Matzinger, A., Schmid, M., Veljanovska-Sarafilovska, E., Patcheva, S., Gusheska, D., 2007: Eutrophication of ancient Lake Ohrid: Global warming amplifies detrimental effects of increased nutrient inputs. *Limnol. Oceanogr.*, 52(1), 338–353.

Meksi A., *Arkitektura e kishave në Shqipëri*, Eugen, Tiranë 2004.

Meksi A., *Arkitektura paleokristiane në Shqipëri*, Monumentet, 2, 1985, f. 13-44.

Mersinllari, M., 1997: General data on vegetation of Ohrid and Prespa watershed area. *Proceedings of Int. Symposium, Korcha, Albania*, pp 147-155

Mersinllari M., 1998: General data on vegetation of Ohrid and Prespa watershed area. *Proceedings of Korcha Symposium 'Towards integrated conservation and sustainable development of transboundary Macro and Micro Prespa Lakes'*, PPNEA ed. pp. 147-155

Mersinllari, M & Xhulaj, M., 2000: Të dhëna të përgjithshme mbi bimësinë e Pellgjeve të Ohrit dhe të Prespës. Raport for PPNEA.

Miho A., Lange-Bertalot H., 2003: Considerations on biodiversity and trophic state of Lake Ohrid (Albanian part) from a microscopic algae point of view. *Journal of Environmental Protection and Ecology* 12/31-43

Miho, A., Tase, D., Lange-Bertalot, H., 2004: Overview on diatoms from Ohrid Lake. *Balwois* 25-29 May 2014

Millennium Ecosystem Assessment, 2003: *Ecosystems and Human Well-Being: A Framework for Assessment*. New York: Island Press.

Mining Processing Research Institute, 1999: Evaluation of mining activities on Ohrid Lake ecosystem and strategies for impact reducing - case of Guri i Kuq mining disposal, Mining and Processing Research Institute, Lem, France, p.36

MoE., 2015: National Biodiversity Strategy of Albania 2014-2020. Tirana, 155 pp

MoE., 2014: Pogradec Terrestrial/Aquatic Territory Protected Landscape Area Management Plan

MoE., 2013: Urdher Lista e Kuqe e flores dhe faunes – Red list of threatened plant animal species of Albania. Tirana

MoE&KfW., 2014: Nomination document for establishment Ohrid and Prespa Biosphere Reserve. Tirana, 415 pp

MoE, 2014: Revision and Update of the National Biodiversity Strategy and Action Plan Project-Fifth national Report to the United Nations Conventions on Biological diversity (CBD). Tirana 49 pp

Muka, G., 2003: Rëndësia e ndërhyrjes konservuese dhe valorizuese në trekonkun paleokristian të Linit, (The importance of conservation and valorization interventions of the paleochristian basilica of Lin), *Monumentet* (2003), p.27

- Mullaj, A., 2014: List of species, plant associations and habitats within LPA Pogradec. - Contribution to the draft MP. (Not published, included in a discussion and tabular form in the entire MP).
- Muço, B., 1988: Catalogue of ML 3,0 earthquakes in Albania from 1976 to 1995 and distribution of seismic energy released, *Tectono-physics*, 292, 311–319.
- Naka K, Hammett AL, Stuart W., 2000: Constraints and opportunities to forest policy implementation in Albania. *Forest Policy and Economics* 1 (2): 153–163
- NIVA, 2013: Developing Biological Tools for Monitoring of Lake Ohrid in accordance to European Water Framework Directive. Final report
- Palluqi, A., Kapedani, E., Spirkovski, Z., 2009: An overview of fishery management organization in the Albanian part of Lake Ohrid and some proposals for the future. I Conference on Conservation and Management of Balkan Freshwater Fishes, 20-24.05.2009, Ohrid, Macedonia
- Pano N. et al., 1984: Hydrogeology of Albania. Monograph, Albanian Academy of Sciences, Tirana.
- Pano N., Frasheri A., Beqiraj G., Frasheri N., 2000: Hydrologic regime of lakes in Albania and the necessity of evaluation of the impact from human activities. The 8-th Albanian Congress of Geosciences. Tirana 6-8 November 2000.
- Paskali, T., 1990: Qyteti i Ohrit dhe mbrojtja e tij, (Ohrid City and its protection), *Monumentet* (1990), 2, p.69
- Pavlov, A., Levkov, Z., 2013: Diversity and distribution of taxa in the genus *Eunotia* Ehrenberg (Bacillariophyta) in Macedonia. *Phytotaxa* 86 (1): 1–117
- Pavlov, A., Levkov, Z., Williams, D., Edlund, M., 2013: Observations on Hippodonta (Bacillariophyceae) in selected ancient lakes. *Phytotaxa* 90 (1): 1–53
- Perennou C, Gletsos M, Chauvelon P, Crivelli A, De Coursey M, Dokulil M, Grillas P, Grovel R, Sandoz A., 2009: Development of a Transboundary Monitoring System for the Prespa Park Area. Agios Germanos, pp 381
- Petkovski, T., Karanovic, T., 1997: Two new copepod species (Crustacea: Copepoda) from the Ohrid Lake
Annls Limnol. 33 (4) 1997: 245-253
- Poljakov, G. D., Filipi, N., Basho, K. & Hysenaj, A., 1958: *Pesquit e Shqiperise (Fishes of Albania)*. Tirana: Mihal Duri.
- Qosja, Xh. Papparisto, K., Vangejeli, J & Ruci, B., 1996: *Flora e Shqipërisë (Flora of Albania)*, Institute of Biological Research. Vol. 3., 330 pages, Tirana, Albanian
- Rakaj, M. Kashta, L., 2017: The diversity and protected status of aquatic tracheophytes in the transboundary Lakes of Shkodra, Ohrid and Prespa –Albania. *Bul. Shek. Ser. Shk. Nat.*, 2017. In press.

Rakaj, N., 1995: *Iktiofauna e Shqiperise (Ichthyofauna of Albania)*. Tirana: Shtëpia Botuese “Libri Universitar”.

REC, 2010: Illegal logging activities in Albania-(Governance, Implementation and Enforcement), Tirana, Report, 24 pp

RFD Korca., (2015): The dhena per pyjet Korce, Pogradec (Forestry statistical data)

ROoACP Korca., 2015: Vjetari statistikor Korce, Pogradec (Agriculture Statistical data)

Savic, I., 2008: Diversification of the Balkan fauna: Its origin, historical developments and present status. *Advances in Arachnology and Developmental Biology, Monographs*, 12, 57-78.

Scarry, D., 2015: Lake Ohrid and its limnology. *Silnews Vol 66/2015*

Šanda, R. & Kovač, M., 2009: Freshwater gobies in the Adriatic drainage of the Western Balkans. *Annales, Seria Historia Naturales* **19**, 1–10.

Šanda, R., Vukić, J., Choleva, L., Křížek, J., Šedivá, A., Shumka, S. & Wilson, I. F., 2008: Distribution of loach fishes (Cobitidae, Nemacheilidae) in Albania, with genetic analysis of populations of *Cobitis ohridana*. *Folia Zoologica* **57**(1–2), 42–50.

Šanda, R., 2007: Endemism of cypriniform species of Lakes Ohrid and Prespa. A review, 1st symposium for the Protection of Natural lakes in Republic of Macedonia. Ohrid, 40

Sapkarev, J., 1977. The Earthworms (Oligochaeta: Lumbricidae) of Ohrid-Struga Valley. *God. Zbor. Biol. Fak. Univ. Skopje*, 30: 27-45.

Sapkarev, J., 1978. Fauna na Makedonija - Dozdovni glisti Lumbricidae (Oligochaeta, Annelida). *Mac. Mus. Sci. Nat.*, Skopje. 4: 1-116.

Shabman, L.A., Batie, S., 1978: The economic value of coastal wetlands: A critique. *Coastal Zone Management Journal* 4: 231-237.

Shumka, S., 1999: Study of zooplankton feeding in natural conditions in Lake Ohrid. PhD Theses FNS Tirana University, 140 pp (in Albanian with English summary).

Shumka, S., 2001: Feeding relations of *Eudiaptomus gracilis* (SARS) and influence on some parameters of their life cycle in Lake Ohrid. – *Verh. Internat. Verein. Limnol.* 27: 3708-3711./Sydney Australia (ISSN: 0368-0770, ISBN: 3-510-54059).

Shumka, S., Papanicolaou, A., & S. Graždani, 2008: Identification of non-native freshwater fishes in Albania and assessment of their potential threats to the national biological freshwater diversity. BALWOIS Conference, 21-31 May 2008, Ohrid, Republic of Macedonia, 6 pp

Shumka, S., Petkovski, S., Gletsos, M., and Perrenou, C., 2008: A Catalogue of Existing Monitoring Programmes in the Prespa Watershed. PPNEA (Albania), BioEco (Former Yugoslav Republic of Macedonia), SPP (Greece) and Tour du Valat (France).

Shuka, L., Malo, S., 2010: The transboundary important plant areas as conservation units of European green belt (Eastern Albanian zone). *Journal of Environmental Protection and Ecology*. Vol.11, (3): 866–874, English

Shuka, L., Kit Tan., 2013: New records for Albania based on taxa from the Prespa National Park. *Biodiversity Data Journal* 1: e1014. doi: 10.3897/BDJ.1.e1014, 1-24. <http://bdj.pensoft.net/articles.php?id=1014>

Shuka, L., Dieterich, T., Mersinllari, M., Matevski, V., 2013: Flora and Vegetation of the Prespa National Park, a critical view after two-year intensive field investigation. Regional International Conference: -The System “Prespa Lakes-Ohrid Lakes” the Actual State, -Problems and perspective. Struga 27-29 October, p. 34

Snoj, A., Mari, S., Berrebi, P., Crivelli, A. J., Shumka, S. & Sušnik, S., 2009: Genetic architecture of trout from Albania as revealed by mtDNA control region variation. *Genetics Selection Evolution* 41, 22: 1–11. doi:10.1186/1297-9686-41-22

Spirkovski, Z., Ilik_Boeva, D., Kapidani, E., Palluqi., Flloko, A., Taleski, T., 2014: Fish Monitoring and Fisheries. GIZ Project “Conservation and Sustainable Use of Biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar (CSBL)” Lake Ohrid. Final Report

Stankovic, S., 1960: The Balkan Lake Ohrid and its living world. W Junk, Den Haag. Monogr. Boil. 9, pp. 357.

Szymanczak, R., Spirkovski, Z., and Sell, J., 2009: A note on *Salmo letnica*, the endemic Ohrid Trout, population structuring, Review 42, Special Issue SIAL 5, 127.

Talevski, T., Milosevic, D., Maric, D., Petrovic, D., Talevska, M., Talevska., A., 2009: Biodiversity of ichthyofauna from Lake Prespa, Lake Ohrid and Lake Scadar. BIOTECHNOL. & BIOTECHNOL. EQ. 23/2009/SE.

Temple, H.J. and Terry, A., 2007: The Status and Distribution of European Mammals. Luxembourg: Office for Official Publications of the European Communities. viii + 48pp, 210 x 297 mm.

USAID, 2010: Medicinal and aromatic plants value chain in Albania. 85 pp

Vangeli, J., Ruci, B., Mullaj, A., Papparisto, K., & Qosja, XH., 2000: *Flora of Albania*. Institute of Biological Research. Vol. 4: Tirana.

WB, 2007: Country review - Volume II of the Study: “Integrating Environment into Agriculture and Forestry: Progress and Prospects in Eastern Europe and Central Asia” 18 pp

Wagner, B., Lotter, E., Nowaczyk, N., Reed, J., Schwalb, A., Sulpizio, A., Valsecchi, V., Wessels, M., Zanchetta, G., 2009: A 40,000-year record of environmental change from ancient Lake Ohrid (Albania and Macedonia). *J Paleolimnol* 41:407–430

Wagner *et al.*, 2017: The environmental and evolutionary history of Lake Ohrid (FYROM/Albania): interim results from the SCOPSCO deep drilling project. *Biogeosciences*, 14, 2033–2054.

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

Wells, M. and Brandon, K., 1992: Parks and people: linking protected area management with local communities. Washington, D.C.: World Bank

Werner, F. 1920: Zur Kenntnis der Reptilien- und Amphibienfauna Albanien. *Zoologische Anzeiger* 51: 21–24.

Wessels, M., and Zanchetta, G. (2009): A 40,000-year record of environmental change from ancient Lake Ohrid (Albania and Macedonia), *J. Paleolimnol.*, 41, 407–430, doi:10.1007/s10933-008-9234-2.

Wilke, T. and Albrecht, C., 2007: How to stop the creeping biodiversity crisis in Lake Ohrid? Suggestions for sustainable conservation strategies of biodiversity hotspots, in: Proceedings of the I Symposium for protection of the natural lakes in Republic of Macedonia, Ohrid, Republic of Macedonia, 31 May–3 June 2007, 44–45.

Wilke, T., Vainola, R., Reidel, F., 2008: Patterns and Processes of speciation in Ancient Lakes. *Developments in Hydrobiology* 2005 - Springer

Wilke, T., Schultheiß, R., Albrecht, C., Bornmann, N., Trajanovski, S., and Kevrekidis, T., 2010: Native *Dreissena* freshwater mussels in the Balkans: in and out of ancient lakes, *Biogeosciences Discuss.*, 7, 4425–4461, doi:10.5194/bgd-7-4425-2010.

9. CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES

9.1. Preparer

Name: Spase Shumka

Title: Prof. Dr.

Address: Agricultural University of Tirana, Faculty of Biotechnology and Food

City, Province/State, Country: Tirana, Albania

Mob: +355 682351130

E-mail: sprespa@gmail.com

Name: Elvana Ramaj

Title: Dr.

Address: Ministry of Tourism and Environment

City, Province/State, Country: Tirana, Albania

Mob: +355 692121425

E-mail: Elvana.Ramaj@turizmi.gov.al

url: www.turizmi.gov.al

Name: Lulëzim Shuka

Title: Prof. Dr.

Address: University of Tirana, Faculty of Natural Sciences, Department of Biology

City, Province/State, Country: Tirana, Albania

Mob: +355 682036739

E-mail: lshuka@yahoo.com

Name: Lorenc Bejko

Title: Prof. Assoc. Dr.

Address: University of Tirana, Faculty of History and Philology, Department of Cultural Heritage and Archaeology

City, Province/State, Country: Tirana, Albania

Mob: +355 682036739

E-mail: bejkolorenc5@gmail.com

Ministry of Culture

Name: Sonila Kora

Title: Dr.

Tel: +355 42222508

Mob: +355 673219453

E-mail: sonilakora@kultura.gov.al

url: www.kultura.gov.al

Address: Aleksandër Moisiu Str. No. 76, Tirana Albania

Institute of Cultural Monuments

Name: Marsela Plyku Demaj

Title: Urban Planner, Msc.

Tel: +355 42455706

Mob: +355 672078965

E-mail: marselaplyku@gmail.com

url: www.imk.gov.al

Address: Aleksandër Moisiu Str. No. 76, Tirana Albania

Name: Joli Mitrojorgji

Title: Arch.

Tel: +355 42455706

Mob: +355 693296081

E-mail: jolimitrojorgji@gmail.com

url: www.imk.gov.al

Address: Aleksandër Moisiu Str. No. 76, Tirana Albania

Name: Endrita Mulleti

Title: Civil Engineer

Tel: +355 42455706

Mob: +355 692902207

E-mail: endritamulleti@gmail.com

url: www.imk.gov.al

Address: Aleksandër Moisiu Str. No. 76, Tirana Albania

9.2. Official local institution/agency

No.	Organization	Name	Address	Phone/Fax	E-mail
1.	Ministry of Tourism and Environment	Blendi Klosi	Adresa: Rruga e Durrësit, Nr. 27	Tel: +355 42 224 537	info@moe.gov.al
2.	Ministry of Culture	Mirela KumbaroFurxhi	Aleksander Moisiu Str. No. 76, Tirana Albania	Tel: +355 4 222508	info@kultura.gov.al
3.	Institute of Cultural Monuments "Gani	Arta Dollani	Address: Aleksander Moisiu Str. No. 76, Tirana Albania	Tel: +355 42455706 Fax: +355 42456169	info@imk.gov.al

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

	Strazimiri”				
4.	Regional Directorate of National Culture, Korça	Edvis Koki	Lagja 11, Lefter Selfimi Str. No. 7, Korça, Albania	Tel: +355 82243122 Mob. +355 72000039	kulturakorce()gmail.com
5.	Directorate of Environment Development Policy	Pellumb Abeshi	Adresa: Rruga e Durrësit, Nr. 27	Tel: +355 42 224 537	Pellumb.Abeshi@turizmi.gov.al
6.	National Agency of the Protected Areas	Zamir Dedej	Rruga Norbert Jokl, KP:1000, Tirana, Albania	Tel:+355 4 222 50 68	Zamir.Dedej@akzm.gov.al

Other local institutions

No	Organization	Name	Address	Phone/Fax	E-mail
1	Regional Administration of Protected Areas, Korça	Mihallaq Qirjo	Rruga 1 Maji	+355682603689	Mihallaq.Qirjo@akzm.gov.al
2	Regional Directorate of National Culture, Korça	Edvis Koki	Lagja 11, Lefter Selfimi Str. No. 7, Korça, Albania	Tel: +355 82243122 Mob. +355 72000039	kulturakorce()gmail.com drkkkorce@ymail.com
3	Municipality of Pogradec	Eduart Kapri	Bulevardi "Rreshit Collaku" Blv., Pogradec	Tel: +355 83-222222	bashkiapogradec@gmail.com
4	Museum of Pogradec	Froseda Angjellari	Reshit Çollaku, Pogradec Blv. Pogradec	+355 692623217	Froseda_angjellari@yahoo.com

Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property "Natural and Cultural Heritage of the Ohrid Region" (99ter)

9.3. Official Web addresses

www.turizmi.gov.al

www.akzm.gov.al

www.kultura.gov.al

www.imk.gov.al

www.drkkkorce.gov.al



REPUBLIKA E SHQIPËRISË

10. SIGNATURES ON BEHALF OF THE STATE PARTY



**MINISTRY OF TOURISM AND
ENVIRONMENT**

**MINISTER
BLENDI KLOSI**



MINISTRY OF CULTURE

**MINISTER
MIRELA KUMBARO FURXHI**

Tirana, on 30 January 2018



REPUBLIKA E SHQIPËRIË



Natural and Cultural Heritage of the Ohrid region

(Extension to the existing Mixed World Heritage Property “Natural and Cultural Heritage of the Ohrid Region” (99ter)

ANNEXES

January, 2018

LIST OF ANNEXES

ANNEX 1 - World Heritage Supplement to the Management Plan for Pogradec Protected Landscape 2017-2027

ANNEX 2 - Management Plan for the Pogradec Aquatic and Terrestrial Landscape Protected Area

ANNEX 3 - Check list of the most important group species of flora and fauna

ANNEX 4 - Financial Plan of the WH Supplement for the Pogradec Protected Landscape

ANNEX 5 - A conceptual framework for integrating climate change and ecosystem-based disaster risk reduction considerations into the world heritage supplement to the management plan for Pogradec Protected landscape

ANNEX 6 - Establishing a Data Collection System to Monitor Tourism Impacts on the Outstanding Universal Value (OUV) of the Natural & Cultural Heritage of the Lake Ohrid World Heritage Property - Albania Proposed Extension

ANNEX 7 - Agreement between the council of ministers of the Republic of Albania and the government of the Republic of Macedonia for the protection and sustainable development of Lake Ohrid and its watershed

ANNEX 8 - Law No. 9103 on the protection of transboundary lake

ANNEX 9 - Law on Cultural Heritage no. 9048, issued on 7.04.2003, as amended

ANNEX 10 - Designation of the historic centre of Pogradec, Decision of the Council of Ministers no. 554, dated 18.06.2015 on the proclamation of the "Historic Centre" of Pogradec and approval of the regulation for the protection, conservation and integrated management of the Historic Centre, and the Buffer Zone of the city of Pogradec

ANNEX 11 - Designation of:

1. the remains of the Early Christian church and mosaics at Lin.
2. the Remains of the Byzantine Church at Lin,
3. Prehistoric settlement of Zagradia;

By Decision no. 1886, date 10.06.1973 of the Ministry of Education and Culture

ANNEX 12 - Designation of the Protected area of the remains of early Christian church and mosaics at Lin, by Order of the Minister of Culture no. 66, issued on 17.03.2016