

# SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

## Introduction to the Study Visit

Sasko Lake, Ulcinj Salina, Ada Bojana, Velika plaza (Great Beach)

Presented by:

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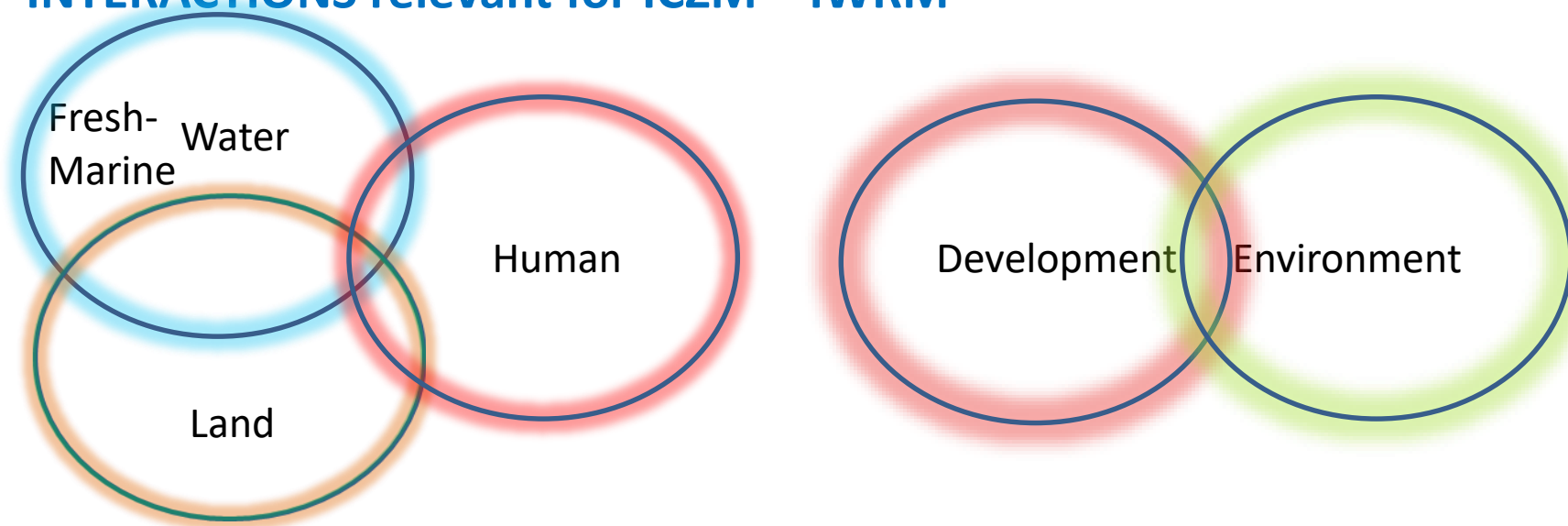
- Visit to a site where combined ICZM – IWRM (incl. groundwater) is applied: Buna-Bojana, Montenegro
- 16<sup>th</sup> July, Ulcinj, Montenegro

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# Study visit - rationale

## INTERACTIONS relevant for ICZM – IWRM



## Provide information on the sites important for Bojana / Buna Delta

Nature of Bojana / Buna Delta: Riverine Delta – Estuary – Marine Coastal Waters

# Sites to be visited

## Inland

- Sasko Lake

Freshwater - Natural

- Ulcinj Salina

Industrial – Productive

## Coastal

- Ada Bojana

Marine with  
potential for development

- Velika Plaza



# Geographic position of the Sites



# Schedule of the Visits – 17 July 2018

## **9.10 – 11 hours:**

Travel from the Hotel to Svac and guided site visit of Sasko Lake.

## **11.10 – 12.30 hours:**

Travel from Svac to Ulcinj field (Zoganj) and guided site visit of Ulcinj Salina and kneta (swamps)

## **12.30 – 14.30 hours:**

Travel from Ulcinj Salina to Bojana / Buna river (Ada Bridge) and Lunch (Restaurant Ponte), provide info on Bojana River

## **14.30 – 15.15 hours:**

Short travel from Restaurant to Ada Bojana / Buna and guided site visit of Ada Bojana / Buna

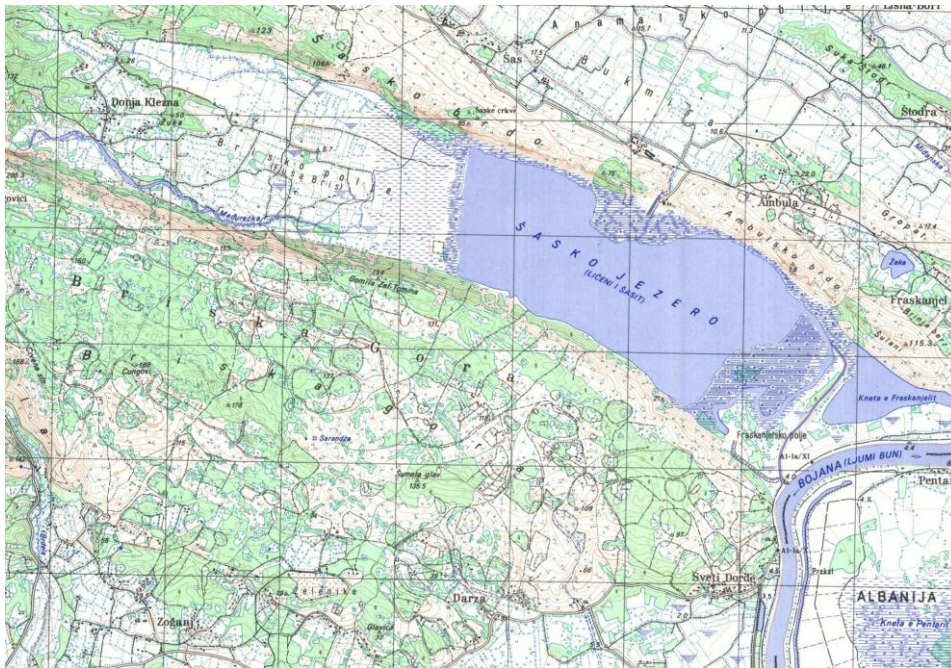
## **15.15 – 16.15 hours:**

Short travel Ada Bojana / Buna to Velika Plaza and guided site visit of Velika Plaza



# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

Area: 315 hectares (water surface 227ha). Maximum depth - 9 meters



# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

## Hydrology

Shape of the Lake: 9 kilometres length and 2,5 kilometres width.

It is situated in a karstic depression (hollow) between Briska gora Šasko brdo, as an extension of Brisko field.

Receives waters from River Međurječka and many small springs (Begovo oko etc).

The water level oscillates ~ 2 m. Water level also regulate a channel between river Bojana / Buna and the Lake.

During the high-water level of the Bojana-Buna (flooding season in winter), the Lake is connected with the river and receiving additional water. In that time, flooding area is expanding to the fields Brisko and Klezansko, as well as to the bank of the river.

Temperature is ranging between 7.0 and 23.9°C.

In summer season water is slightly salted.

A belt of reed (*Phragmites communis*) is surrounding the lake.

Towards Klezansko / Brisko Polje, the lake joins the complex of developed floodplain forests (52 ha), while in the east it merges with the Kmeta Fraskanjel (47 ha) which is overgrown with *Carex* and *Juncus* sp. Lake

# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

## Ecology (1)

Natural origin of the Lake, with no significant natural impacts.

It inhabit 20 (twenty) fish species, including eel *Anquilla anquilla*, European seabass *Dicentrarchus labrax*, and two mullet species *Mugilus cephalus* and *Liza ramada*.

The lake is an important fish spawning area but also feeding site for aquatic birds.

Nesting birds: *Egretta garzetta*, *Nycticorax nycticorax*, *Platalea leucorodia*, *Plegadis falcinellus*, *Phalacrocorax pygmeus* etc.

Water / wet vegetation: *Najas marina* L., *Najas minor* All., *Nuphar luteum* (L.) Sm., *Nymphaea alba* L., *Nymphoides peltata* (S.G. Gmel) O. Ktze., *Potamogeton* several species, *Polygonum amphibium – erectum* L., *Myriophyllum spicatum* L., *Myriophyllum verticillatum* L., *Mentha aquatica* L., *Valisneria spiralis* L., *Ludwigia palustris* (L.) Ell., *Ceratophyllum submersum* L., *Ceratophyllum demersum* L., *Cyperus longus* L., *Butomus umbellatus* L., ssp. *scutarensis* Lak., *Trapa natans* L. etc



# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

## Ecology (2)

Wet – Marsh zones are at eastern and northern lakeshore and seasonally flooded. In the marsh vegetation are present *Phragmites communis* Trin, *Typha angustifolia* L., *Scirpus lacustris*, *Scirpus maritimus*, *Butomus umbelatus*, *Eleocharis palustris* but also rare species *Hydrocotyle vulgaris* L.

Vegetation of floodplain forests : *Populus alba* L., *Populus nigra* L., *Quercus robur* ssp. *scutariensis*, *Alnus glutinosa* (L.) Gärttn., *Fraxinus angustifolia*, *Fraxinus oxycarpa*, shrubs: *Salix alba* L., *Salix purpurea* L., *Cornus sanguinea* L., *Ligustrum vulgare* L., *Crataegus monogyna* Jacq., *Amorpha fruticosa*, *Punica granatum* L. and herbs: *Teucrium polium* L., *Hypericum perforatum* L., *Euphorbia amygdaloides* L., *Aristolochia rotunda* L., *Helichrysum italicum*.

There is also present plant community of *Tamarix africana* with *Juncus acutus*.

Hilly areas in the surroundings of the lake overgrown different degradation stages of mediterranean forests: macquis and scrub / shrubs, as well.

# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

## Ecology



# Site visit 1 - LAKE ŠASKO [EN] - ŠASKO JEZERO [MN] - LIQENI I SHASIT [AL]

## Culture – Human Interaction

Remains of old town Svač (X century).

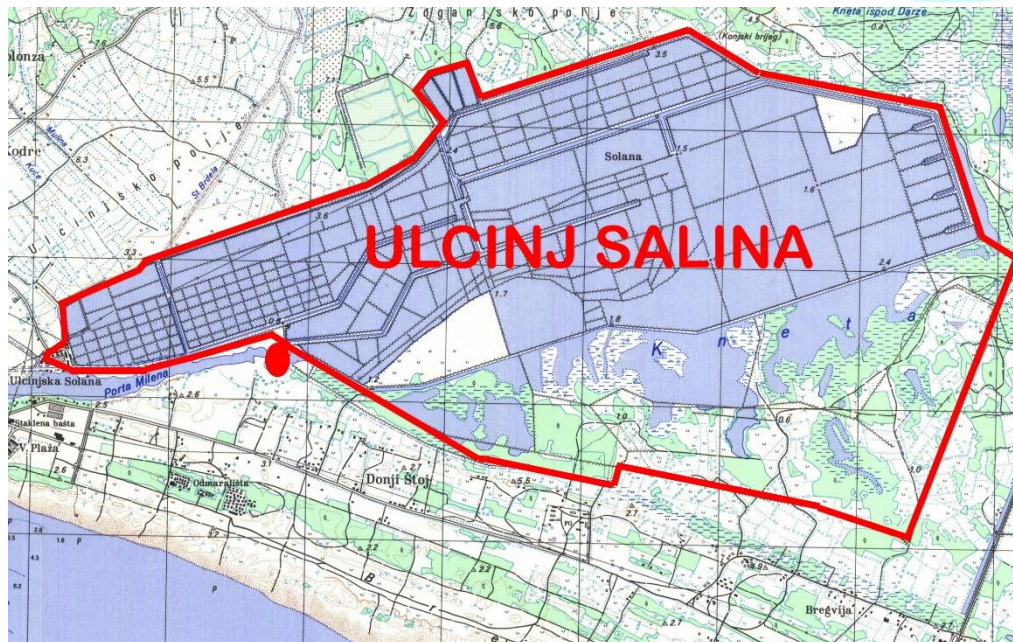
In the remains are located ruins of the church St Jovan Vladimir (XIII century) devoted to Vladimir King of Zeta, but also St Maria Church.

Cult of St. Jovan Vladimir – Today: Ceremony of the Three Saints Day that include procession of bearing St. Vladimir's cross at the top of Rumija Mountain.





# Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]



## Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]

### Ecology (1)

*Ulcinj Salina* is the key site for breeding and roosting waterbirds in Bojana Delta. Most remarkable birds at the site are: Pelicans, Cormorants, Flamingos and Ducks. It has global importance for the Dalmatian Pelican *Pelecanus crispus* and supports numerous waterbirds reaching threshold of 1% required by the Ramsar Convention, especially for: *Phalacrocorax pygmeus*, *Charadrius alexandrinus*, *Pelecanus crispus*, *Pluvialis squatarola*, *Egretta garzetta*, *Calidris alpina*, *Ardea alba*, *Limosa limosa*, *Platalea leucorodia*, *Numenius tenuirostris*, *Tadorna tadorna*, *Tringa erythropus*, *Himantopus himantopus*, *Tringa stagnatilis*, *Glareola pratincola*.

Vegetation is accommodated in variable salinity condition – Halophytes (euhalophytes): dominate *Salicornia herbacea* but here are also present *Suaeda maritima*, *Limonium angustifolium*, *Atriplex portulacoides*, *Atriplex prostrata*, *Salsola soda*, *Limonium angustifolium* (in autumn), *Spergularia salina*, *Plantago coronopus* etc

Here are also present meadows and ruderal vegetation, as well as Reed zones (*Phragmites communis*), marsh vegetation with *Juncus*, *Carex* and shrubs / trees of *Tamarix africana*.

At the embankments are present orchids *Ophrys bertolloni* and *Orchis laxiflora*, but also a rare plant *Beta vulgaris* spp. *maritima*

## Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]

### Ecology (2)

»Kneta« [AL] marshes – *swamps* are the remains of former lagoon of Lake Zoganjsko – in a transition from brackish towards freshwater wetlands. The smaller parts are permanently under water, while the larger part is intermittently inundated.

There are three »kneta« marshes: Mala Kneta (127 ha) and the connected complex of 2: Curke and Darze »knetas« (234 ha).

At Mala Kneta is present association of *Carex sp.* and *Juncus sp.* (grazed) but also surrounded by *Tamarix* formations.

The northern and western edges of Kneta Darze and Curke now form an extensive grazing area.

Specialised bird species can be found here:

- at Mala Kneta: Glossy Ibis *Plegadis falcinellus* (feeding) and Baillon's Crake (breeding).
- at Curke and Darza knetas: Great Bittern *Botaurus stellaris* (nesting) Spotted Eagle *Aquila clanga* (wintering).

Also important is the exceptional density of the European Pond Terrapin *Emys orbicularis*.



## Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]



## Site visit 2 – Kneta marshes



## Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]

### Human Interactions – Industrial Facility Salt works – Salt Production:

Today the Ulcinj Salina takes up a large part of former Lake Zoganjsko (“Bird Lake”), a famous place where even pelicans bred some 100 years ago. This large Salina has developed in two phases. The old Salina was built some 85 years ago, while its large basins added in the 1970s to improve the crystallization process.

### Legal / Protection Status:

Procedure for establishing this Protected Area started in 2015 but did not end up, so far. Study of the Protection prepared in October 2015 (EPA) but missed to be adopted since its components regarding consequences on development and ownership were not elaborated to a sufficient level, including assessment of ecosystem services.

### Management:

Due to bankruptcy and previous change in the distribution of ownership shares, Public Enterprise for National Parks has been appointed by central Government to undertake Management over this site. Since there are no industrial operations (salt production) at Salina, direct management operations are missing.



## Site visit 2 - ULCINJ SALINA [EN] – ULCINJSKA SOLANA [MN] – KRIPORJA E ULQINIT [AL]





# Site visit 3 - : ADA BOJANA [EN] – ADA BOJANA [MN] – ADA I BUNES [AL]



## Site visit 3 - : ADA BOJANA [EN] – ADA BOJANA [MN] – ADA I BUNES [AL]

### Ecology

Ada island (494 ha) comprise a mosaic of plant associations from submerged vegetation to old alluvial forest stands (*Salix sp*, *Fraxinus angustifolia*, *Fraxinus excelsior*, *Alnus glutinosa*, *Populus alba* and *Carpinus orientalis*, *Quercus robur*, *Ulmus laevis*, *Ulmus minor*). The habitats originated by dynamic sedimentation processes and typical forms of all kinds of coastal habitats. In the vegetation are present also natural halophytic and wet / marsh vegetation that is similar and complementary to the vegetation in eastern part of Velika Plaza.

Among animals, egg-laying Loggerhead *Caretta caretta* has been observed on Ada island in 2002 while Golden Jackal *Canis aureus* live in the island.

Nesting birds at Ada Bojana: *Phalacrocorax pygmeus*, *Platalea leucorodia*, *Egretta gazetta*, *Ardea cinerea*, *Nycticorax nycticorax*, *Ardeola ralloides*, *Phalacrocorax carbo*, *Botaurus stellaris*, *Burchinus oediconemus*, *Caprimulgus europaeus*, several species of Marsh Hen, then *Glaerola pratincola*, *Haematopus ostralegus*. Many birds provide food in the zone of Ada Bojana and mouth of Bojana River such as *Sterna sp.*, *Gavia sp.*, *Larus sp.*, *Mergus sp.*, *Melanita sp.* Pelicans visiting Ada. Ada is fulfilling standards for its inclusion on Ramsar list.

### Bojana / Buna River

Presence of three species of sturgeon *Acipenser sp.* indicate the high value of this river while among mammal is registered Bottlenose Dolphin *Tursiops truncatus*, which enters the river from the sea



## Site visit 3 - : ADA BOJANA [EN] – ADA BOJANA [MN] – ADA I BUNES [AL]

### Potentials for Development

Nude Tourist Resort (600 beds, 180 A rooms, 46 B rooms and 70 L rooms) in Ada Bojana function since 1973.

Development of a Tourist zone at Ada is proposed in many official documents, including Spatial Plan of Special Purposes for Coastal Area (in the process of adoption in the Parliament). On the other side, Western Brach of Bojana River is under increasing pressure of newly constructed second houses, vilas and restaurants (see picture bellow), at the riverbank of both, Ada Bojana and Great Beach – Velika plaza





# Site visit 3 - : ADA BOJANA [EN] – ADA BOJANA [MN] – ADA I BUNES [AL]





# Site visit 4 - GREAT BEACH [EN] – VELIKA PLAZA [MN] - PLAZH I MADH [AL]





## Site visit 4 - GREAT BEACH [EN] – VELIKA PLAZA [MN] - PLAZH I MADH [AL]

### Ecology

Beach is 12 kilometres long, while its width is varying from 200 m (near to Port Milena) up to 1 kilometre (eastern part called Špatula).

The site is well known by high biodiversity, and presence of rare, endangered and protected species such as Sand Lily *Pancratium maritimum* and other (14) protected plant species

In the hinterland near to the Beach are natural mixed forests composed by White Poplar, Ash and very rare, scarce and protected Skadar oak (*Quercus robur scutariensis*).

Birds are important component of the biodiversity of the site, as well as herpetofauna (in ponds, swamps and marshes in the hinterland), insects (also in hinterland) etc.

This single site already hosts 1 % of the population of the Baillon's Crake *Porzana pusilla*, a rare waterbird in Europe. 16 species of birds that are on the European list of conservation concern (SPEC). Cultural, semi-natural landscape of pastures and lowland forests is characterised by species such as Nightjar *Caprimulgus europaeus*, Roller *Coracias garrulus*, Bee-eater *Merops apiaster*, Woodchat Shrike *Lanius senator* and Corn Bunting *Miliaria calandra*.

Endangered water birds like Pygmy Cormorant, Night Heron *Nycticorax nycticorax*, Squacco Heron *Ardeola ralloides* and Purple Heron *Ardea purpurea*, as well as birds of prey such as Shorttoed Eagle *Circaetus gallicus* and Bonelli's Eagle *Hieraetus fasciatus*, need intact, large-scale landscapes with a variety of feeding sites in order to survive.

## Site visit 4 - GREAT BEACH [EN] – VELIKA PLAZA [MN] - PLAZH I MADH [AL]





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**Thank you for your attention.**

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