

LAKE OHRID

Case study 3: Assessment of the impact of alien species on the biodiversity and endemism of ancient Balkan lakes (Lake Ohrid case study)

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INVASIVE SPECIES

The current case study will continue the undertaken IAS study and its main goal will be to assess the impact of alien species on the biodiversity and endemism in the Lake Ohrid catchment.

The study will cover the following groups:

- Diatom algae
- Benthic macroinvertebrate fauna
- Macrophyte vegetation and
- Fish communities.

Study of Lake Ohrid (2010)

Macrozoobenthos

10 sites from 5 depths at each site

Study of Lake Ohrid tributaries (2013)

Macrophytes, Macrozoobenthos, Fish



METHODS AND DYNAMICS:

Dynamic: once per year: Spring (benthos and fish); Summer (macrophytes)

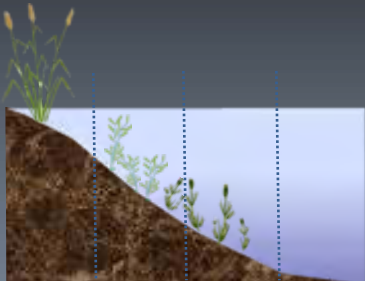
Standard limnological methods:

* for benthos:ISO EN27828

1. 0.5m- D-shape net



2. van Veen grab (soft bottom)



* for macrophytes:ISO EN14148



* for fish: electrofishing



METHODS AND DYNAMICS: Sampling Localities

Lake Ohrid watershed – 7 rivers, 17 sites

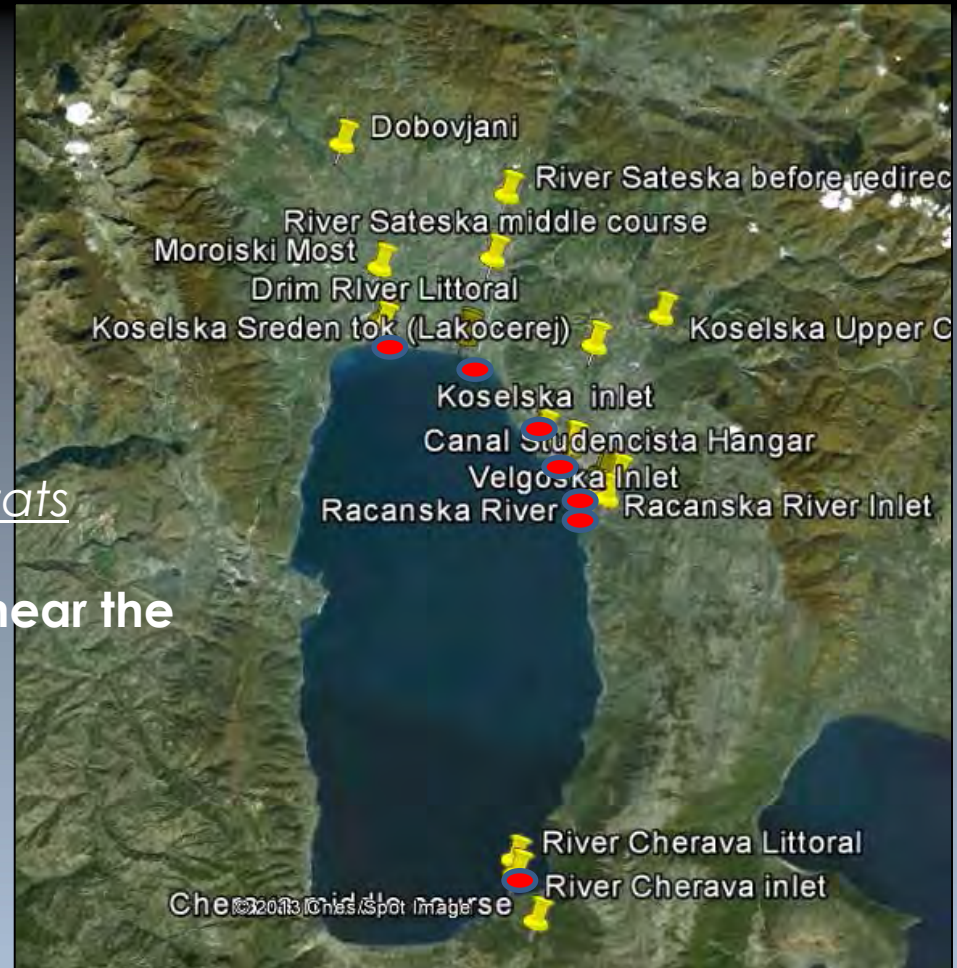
River Crn Drim: 3 sites;
River Sateska: 3 sites;
River Koselska: 3 sites;
River Grashnica: 2 sites;
Canal Studencista: 2 sites;
River Racanska: 2 sites;
River Cerava: 2 sites.

-samples taken from 3 different habitats

Sampling sites in Lake Ohrid (littoral near the inflows/outflow):

Struga Outflow littoral
River Sateska Littoral
River Koselska Littoral
River Grashnica Littoral
Canal Studencista Littoral
River Racanska Littoral
River Cerava Littoral

-samples taken from 0,5-2m



PRELIMINARY RESULTS:

River Crn Drim:

Ecological status based on IBI

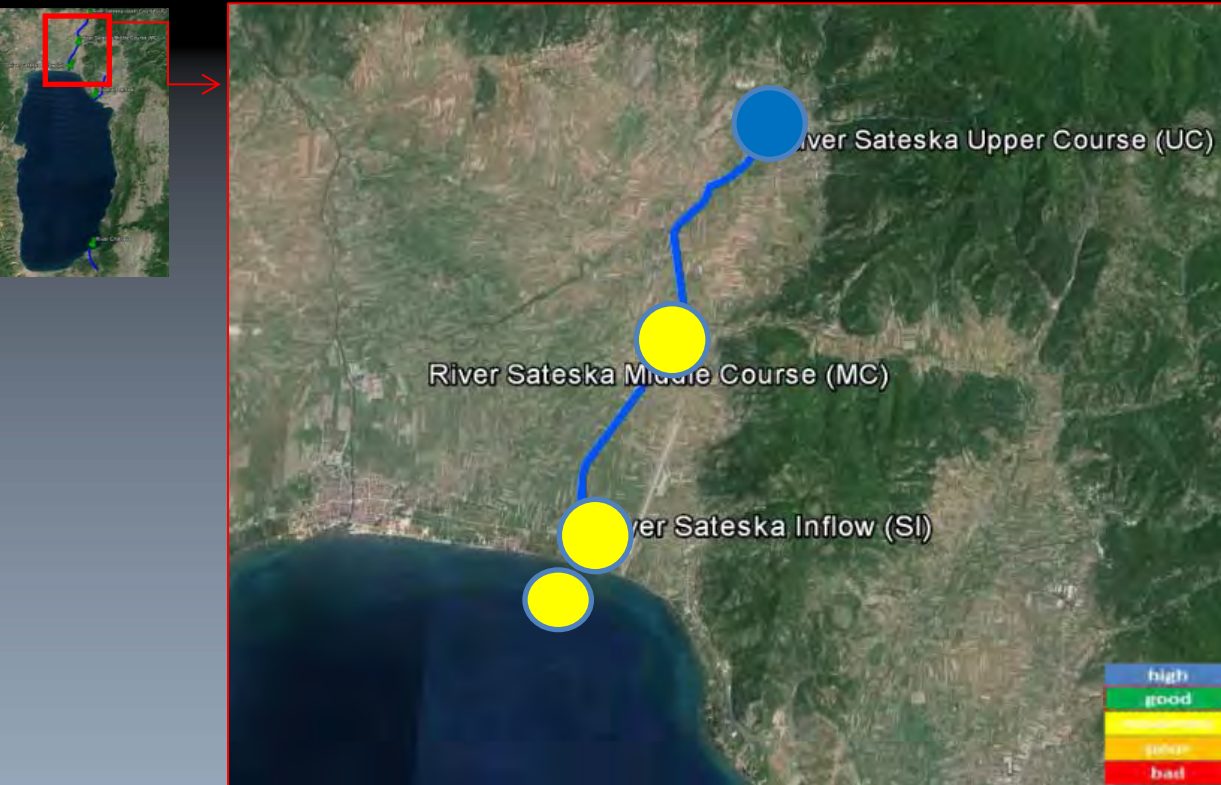


Macrophytes: *Elodea canadensis* (Moroiski most)

Macrozoobenthos:

Fish: *Pseudorasbora parva* (In all three sampling sites along the river and Littoral of the Lake)

River Sateska:



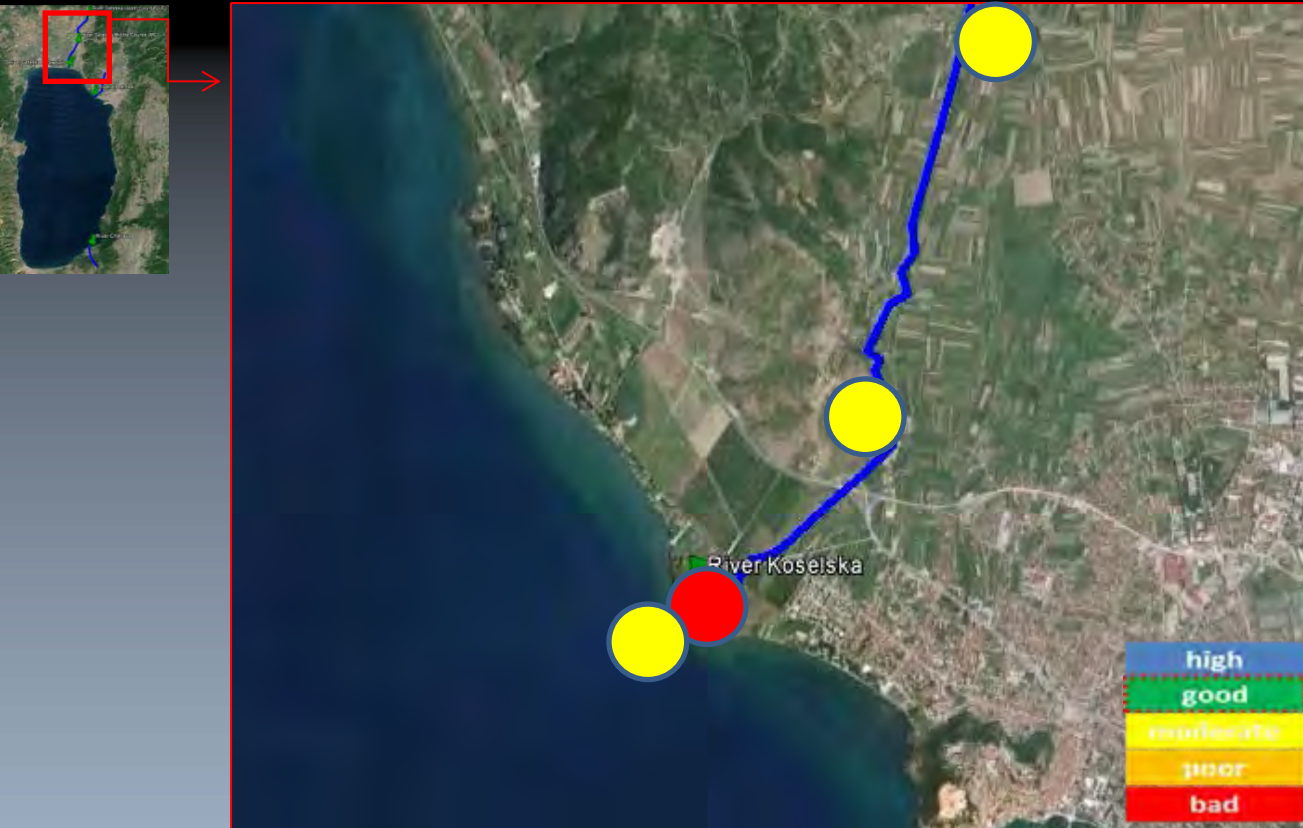
Macrophytes: *Elodea canadensis* (Sateska Middle and Littoral of the Lake)

Macrozoobenthos: 

Fish: *Carassius gibelio* (Sateska upper and Littoral of the Lake)

River Koselska: NO INVASIVE ALIEN SPECIES REGISTERED

Ecological status based on IBI

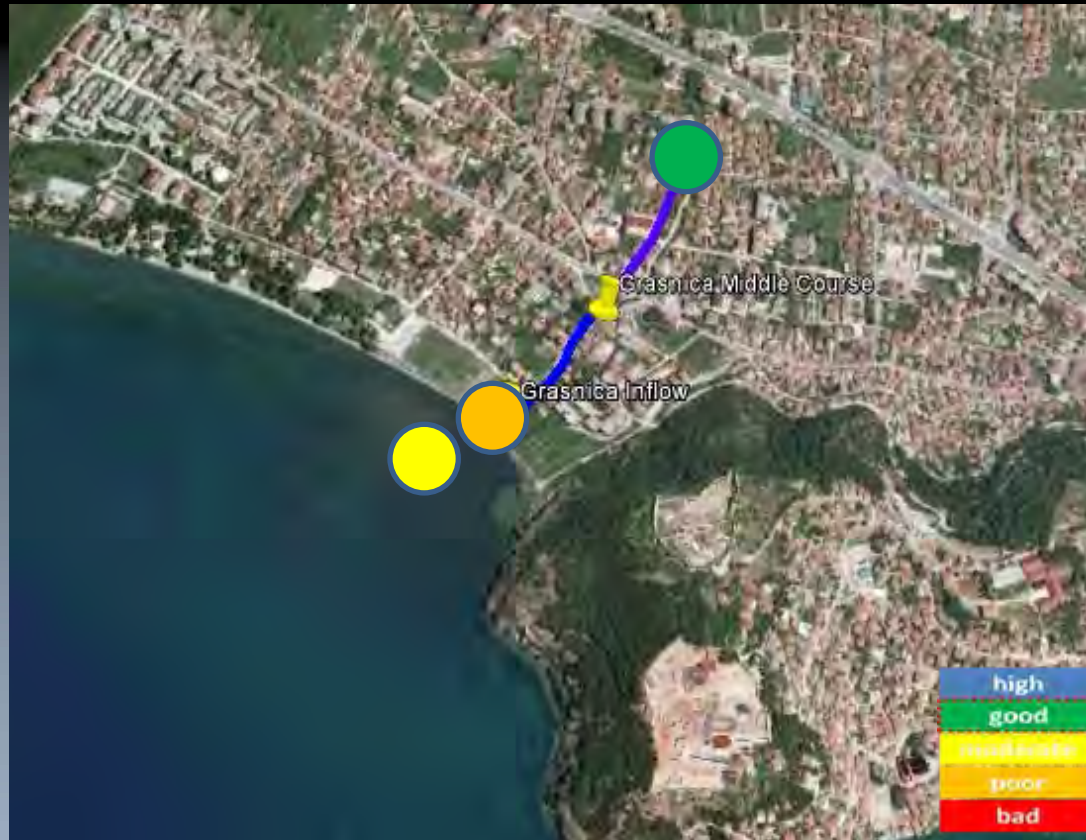


Macrophytes:

Macrozoobenthos:

Fish:

River Grashnica:

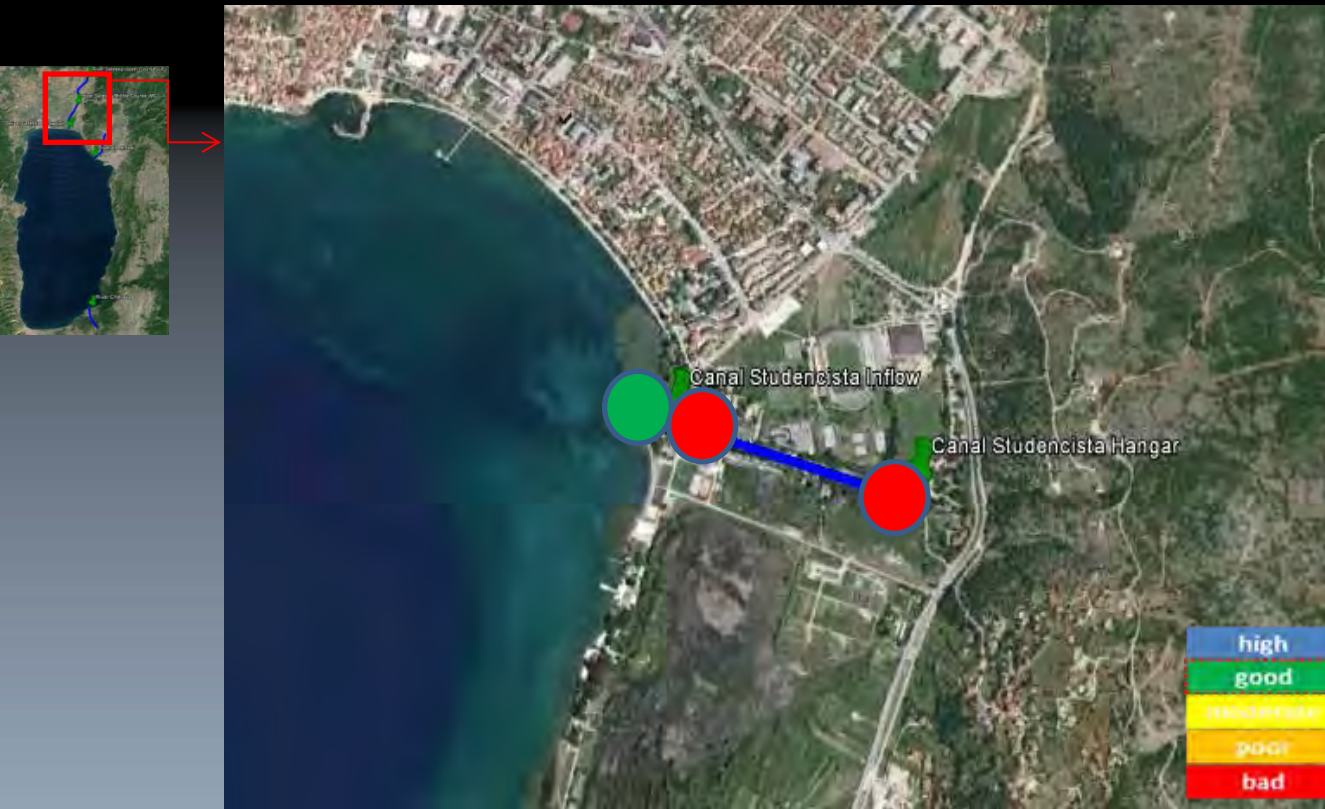


Macrophytes: 

Macrozoobenthos: 

Fish: *Pseudorasbora parva* (Grashnica inflow and Littoral of the Lake)

Canal Studencista:



Macrophytes: *Elodea canadensis* (Upper and Littoral of the Lake)

Macrozoobenthos: 

Fish: *Pseudorasbora parva* (Canal inflow, Littoral of the Lake)

River Racanska:

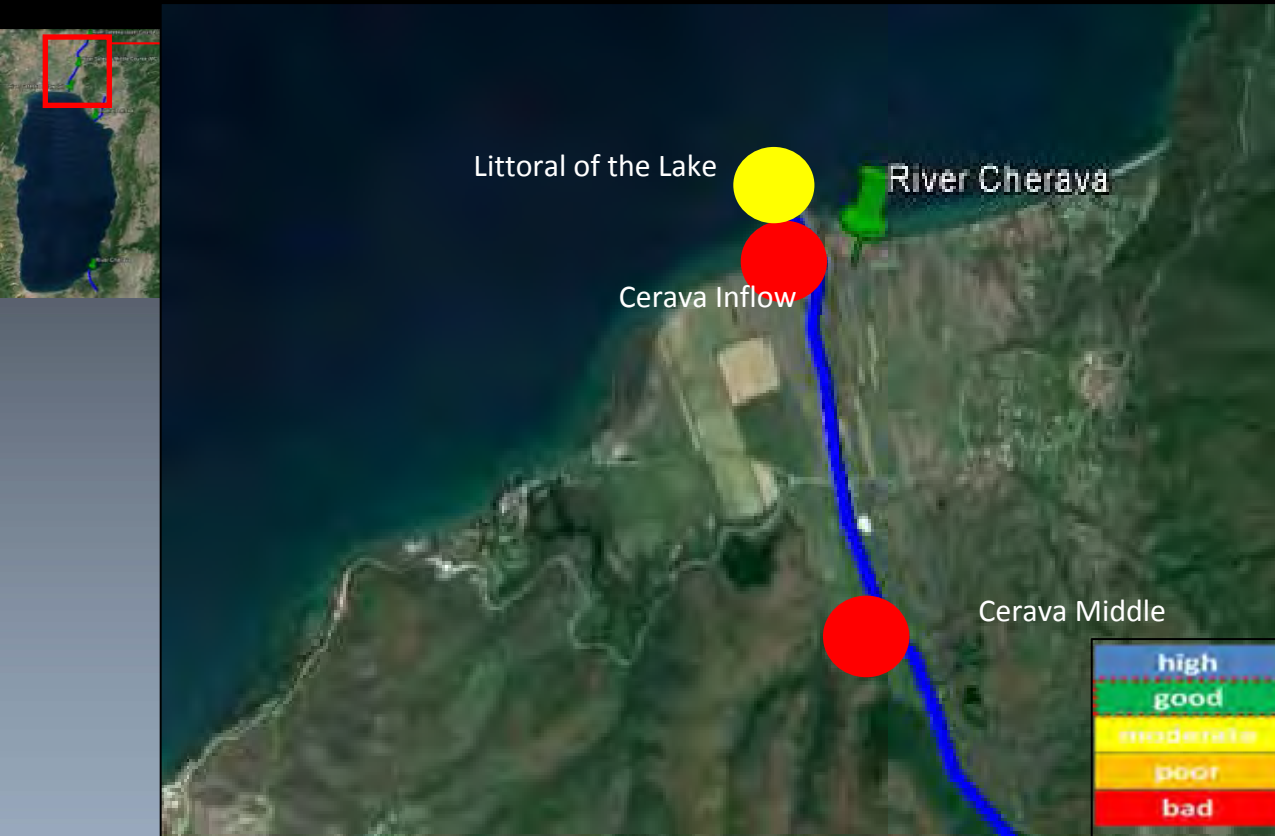


Macrophytes: *Elodea canadensis* (Racanska Littoral of the Lake)

Macrozoobenthos: ❌

Fish: ❌

River Cerava:



Macrophytes: 

Macrozoobenthos: 

Fish: *Pseudorasbora parva* (Cerava Middle, Cerava Inflow)

Carassius gibelio (Cerava Middle, Cerava littoral of the Lake)

Lake Ohrid and its catchment area

Fish species – based on published and sampling data

- 19 Endemic
- 2 Native
- 8 Alien



Study 2015:

More sampling sites with increased sampling frequency will be included in the Lake Ohrid tributaries, where alien species were recorded.

e.g.:

Sateska River will be further studied since it is the largest tributary of the lake and its upper course interconnects Lake Ohrid watershed with the water streams that geographically originate outside the lake`s watershed.

The studies in the **Crn Drim River** (flowing from Lake Ohrid) should also be enhanced and continued, since this river is a water system which links the Lake Ohrid and Lake Skadar. More sampling points along the lower course of the river (up to the Globocica Reservoir), as well as a few sampling points downstream of the reservoir will be included in the study.