LJUBLJANICA CONNECTS

Restoration of the Ljubljanica River corridor and improvement of the river's flow regime

http://ksh.fgg.uni-lj.si/ljubljanicacconnects/

Alpine River Restoration Workshop
Zvolen, 4. 9. 2014
THE LJUBLJANICA RIVER

- Ljubljanica River is 42 km long, total basin area is 1884 km² of which 1100 km² is karstic.
- It is known also as River with seven names – because of mainly karstic basin river has a large number of streams with different names.
- It is the deepest Slovenian River with a section which is 8 m deep.
THE INITIAL SITUATION

The heavily degraded area of the Ljubljanica River corridor upstream and downstream of the Ljubljana urban area is an important habitat for the fragmented and heavily endangered fish population.

The water level upstream of the weir on the Ljubljanica River is too low, therefore during low flow conditions the main Ljubljanica River channel is not connected to its tributaries. This represents a great obstacle for the habitat connectivity along the river reaches which is worsened by the improperly working fish passes.

TARGETED SPECIES:

• Danube Salmon (*Hucho hucho*)
• Danube Roach (*Rutilus pigus*)
• Striped Chub (*Leuciscus souffia*)
• Restoration of biodiversity of Ljubljanica River corridor
• Improving the ecological functions of the area
• Promotion of relatively simple river restoration measures for improving the ecological status of the river
• Raising the awareness of general public to consider the Ljubljanica River a vital element of the environmental quality and not a threat
Concrete Restoration Actions

RECONSTRUCTION OF THE SILL

Before reconstruction

After reconstruction
Concrete Restoration Actions

RECONSTRUCTION OF THE FISH PASSES

Fish pass No.1 at the beginning of the project

Collapse of the fish pass No.1 in November 2013 due to high water discharge

Interior of the fish pass No.2

Inflow of the fish pass No.2
Concrete Restoration Actions

MODERNIZATION OF BARRIER'S LIFTING SYSTEM

System of two barriers on the Ljubljanica River

Sketches of the initial situation
Ecohydrological Monitoring

17 NEWLY CONSTRUCTED WATER STATIONS

Locations of measurement stations on 3 locations stations with online connection will be installed

Development of equipment for remote access to the data
Ecohydrological Monitoring

Data Analysis

Fluctuations in temperature and water level on measurement station near the barrier

Collecting the data
Ecohydrological Monitoring

HYDROLOGICAL MODEL OF LJUBLJANCA RIVER
Ecohydrological Monitoring

DISCHARGE MEASUREMENTS
Fish Monitoring

Result of habitat study: maps with spawning and nursery places of targeted species, their distribution by fishermen information and their potential locations.

STUDY OF THE HABITAT AND ESTIMATION OF FISH POPULATION

Catching the fish for population estimation
Fish Monitoring

MONITORING OF FISH MIGRATION

Catching the fish

Measuring the fish

Tagging of fish before releasing them into the water
LJUBLJANICA CONNECTS WORKSHOP

TO SEE ALL THREE RESTORATIONS FINISHED …

VISIT LJUBLJANA 😊

9. and 10. SEPTEMBER, LJUBLJANA, SLOVENIA