LJUBLJANICA POVEZUJE

Mednarodna delavnica projekta LIFE10NAT/SI/142: Obnovitev koridorja Ljubljanice in izboljšanje rečnega vodnega režima

ELEKTRONSKA KNJIGA POVZETKOV

LJUBLJANICA CONNECTS

International project workshop LIFE10NAT/SI/142: Restoration of the Ljubljanica River corridor and improvement of the river's flow regime

ELECTRONIC BOOK OF ABSTRACTS

MEDNARODNA DELAVNICA, 18. 6. 2013

V okviru projekta Life LJUBLJANICA POVEZUJE je 18. 6. 2013 na Oddelku za okoljsko gradbeništvo Fakultete za gradbeništvo in geodezijo Univerze v Ljubljani potekala mednarodna delavnica. Tema delavnice se je nanašala na sulca *Hucho hucho* in njegov status v različnih državah.

Udeleženci delavnice so bili prof. dr. Mitja Brilly, mag. Andrej Vidmar, mag. Zoran Stojič, Tomi Leon, dr. Metka Povž, dr. Milorad Markovčić, dr. Marko Ćaleta, dr. Avdul Adrović, dr. Predrag Simonović, Aljoša Duplić, Miha Ivanc, dr. Lidija Globevnik in Jernej Šegatin.

INTERNATIONAL WORKSHOP, 18. 6. 2013

In the context of the Life project LJUBLJANICA CONNECTS was on the 18th June 2013 an international workshop carried out . It took place at the department of Environmental Civil Engineering Faculty of Civil and Geodetic Engineering University of Ljubljana. The workshop theme was the Danube Salmon *Hucho hucho* and its status in different countries.

The participants were Mitja Brilly PhD, Andrej Vidmar MSc, Zoran Stojič MSc, Tomi Leon, Metka Povž PhD, Milorad Markovčić PhD, Marko Ćaleta PhD, Avdul Adrović PhD, Predrag Simonović PhD, Aljoša Duplić, Miha Ivanc, Lidija Globevnik PhD in Jernej Šegatin.

Mitja Brilly (UL FGG, KSH):

MEDNARODNA DELAVNICA - LJUBLJANICA POVEZUJE

Namen uvodnega predavanja je pozdrav vseh udeležencev delavnice in predstavitev projekta Life Ljubljanica povezuje. Predstavljene so naloge, zastavljene v okviru projekta in cilji, ki naj bi bili z njimi doseženi.

Na podlagi tega bi v letu 2015 želeli organizirati tudi konferenco. Trajala naj bi dva dni, v katerih naj bi se zvrstilo več predstavitev na temo ribjih stez in sulca (*Hucho hucho*), zaključila pa naj bi se s strokovno ekskurzijo, povezano z obravnavanima temama.

Mitja Brilly (UL FGG, KSH):

INTERNATIONAL WORKSHOP - LJUBLJANICA CONNECTS

The purpose of the introductory lecture was greeting all participants of the workshop and presentation of Life Ljubljanica Connects project. The tasks set in the framework of the project were described and the objectives that are to be achieved with those tasks were outlined.

In the context of the project there will be an conference organized in a year 2015. It will be two days long in which several presentations on the topic of fish passes and Danube salmon (*Hucho hucho*) will be presented. It would be concluded with a technical excursion associated with the topics discussed.

Zoran Stojič (Geateh d.o.o.):

PREGLED BIOLOŠKEGA VIDIKA PROJEKTA

Predstavljen je biološki vidik projekta, izpostavljene so posebnosti reke Ljubljanice, ki vplivajo na življenje živali v njej (kot na primer raznolika hidrologija in vpliv regulacij, ki so se na tem območju izvajale že od antike naprej), podan pa je tudi opis trenutnega stanje populacije sulca v Ljubljanici. Na koncu so obrazloženi še cilji projekta (izboljšanje ekologije voda, ki je specifična za migracijo rib in posledično za povečanje populacije sulca).

Zoran Stojič (Geateh d.o.o.):

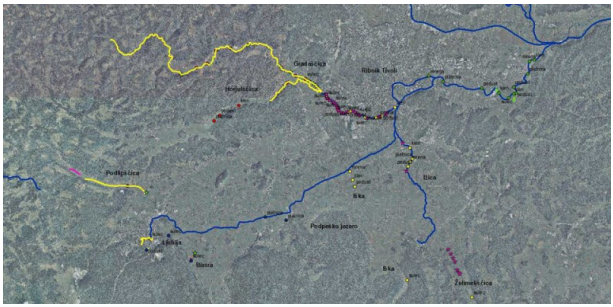
OUTLINE OF BIOLOGY COMPONENT

The biological aspect of the project is presented and there are some particularities that affect the lives of animals in the Ljubljanica River (such as diverse hydrology and the impact of regulations that have been implemented in this area since ancient times) described. There is also a description of the current status of the population of Danube salmon in Ljubljanica river delivered. In the end there are some further objectives of the project explained (to improve the ecology of the water, which is specific to fish migration and, consequently, to increase the population of the Danube salmon).

Tomi Leon (Geateh d.o.o.):

IZVEDBA MONITORINGA RIB

V okviru projekta se bo izvajal tudi monitoring rib. Do sedaj so bila pregledana in zabeležena drstišča, pripravljena pa je bila tudi predhodna študija ciljnih vrst na podlagi vseh razpoložljivih informacij, pri čemer se je izkazalo, da so podatki pomanjkljivi. V nadaljevanju je načrtovana izbira vzorčnih mest, terensko delo z elektroribolovom, označevanjem in meritvami rib ter analiza pridobljenih podatkov (naseljenost in starostna struktura sulca, platnice in blistavca).



Tomi Leon (Geateh d.o.o.):

IMPLEMENTATION OF FISH MONITORING

In the project will be also monitoring of fish implemented. So far there have been examined and recorded spawning and nursery places and also a preliminary study of target species on the basis of all available information was prepared, but it has shown that the available information is insufficient. In the future there are a few actions planned: a selection of sampling points , field work with electrofishing, labelling and measurements of fish, and analysis of the acquired data (density and age structure of the Danube salmon, Danube roach and striped chub).

Andrej Vidmar (UL FGG, KSH):

AKCIJE NA PROJEKTU—RIBJE STEZE IN ZAPORNICA NA AMBROŽEVEM TRGU

Na Ljubljanici se nahaja tudi nekaj grajenih objektov, na katere se osredotočamo tudi v sklopu projekta. Vsi so pomemben del tehnične dediščine mesta Ljubljane. To so zapornice na Ambroževem trgu ter jezova na Fužinah in v Vevčah. V sklopu prispevka je predstavljena trenutna situacija na vseh treh objektih ter načrtovani ukrepi v okviru projekta, ki bodo zagotovili neoviran prehod rib preko teh objektov.

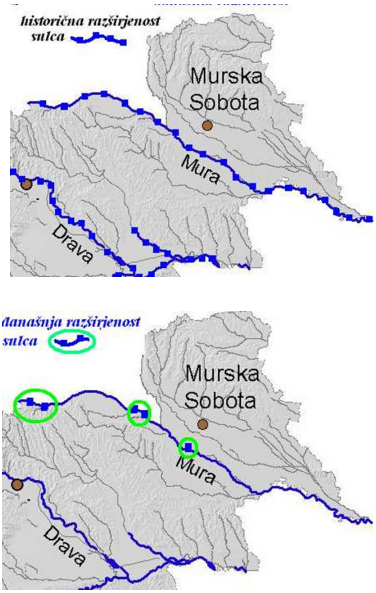
Andrej Vidmar (UL FGG, KSH):

ACTIONS OF THE PROJECT – FISH PASSES AND THE AMBROŽEV TRG GATE

On the Ljubljanica River there are a few buildings on which we focus in the project. All of them are an important part of the technical heritage of the city of Ljubljana. These are the barrier on the Ambrožev trg, Fužine weir and Vevče weir. In the context of this paper there is the current situation in all three buildings presented and the actions planned in the context of the project are described. This which will ensure a smooth migration of fish through these obstacles.

Metka Povž (Zavod Umbra):

SULEC *Hucho hucho* V SLOVENIJI NEKOČ IN DANES



Sulec *Hucho hucho* je v Slovenskem prostoru prisoten že dolgo, vendar se razmere, v katerih živi, spreminjajo, kar povzroča tudi spreminjanje njegove populacije, ki pa je kljub vsemu verjetno še vedno med najkvalitetnejšimi v Evropi. Predstavljeno je upadanje populacije Sulca v Slovenskih rekah ter razlogi za to. Področja, kjer živi, so se v zadnjih 100 letih namreč zmanjšala za več kot 80 %. Med razlogi za to velja izpostaviti gradnjo hidroelektrarn, v sklopu katerih se načrtuje tudi ribje steze, ki bi ta problem lahko omilile.

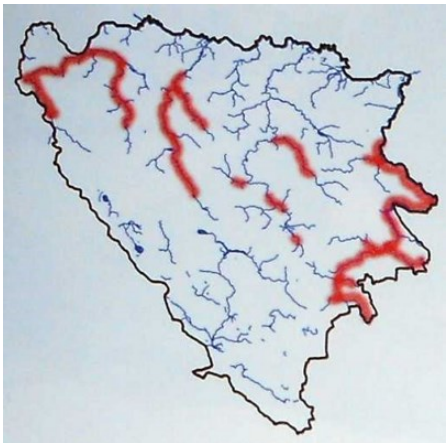
Metka Povž (Zavod Umbra):

DANUBE SALMON *Hucho hucho* IN SLOVENIA IN THE PAST AND PRESENT

Danube salmon *Hucho hucho* is present in Slovenia for a long time but the situations in which it lives are changing. This causes a change of its population but it is still likely to remain among the best quality fish populations in Europe. The decline in the population of Danube salmon in Slovenian rivers and the reasons for it are presented. Areas where lives have been in the last 100 years reduced for more than 80 %. Among the reasons for this is worth mentioning the construction of hydroelectric power plants, under which there are fish passes also planned to solve the problem of fish migration.

Avdul Adrović (PMF Tuzla):

STATUS SULCA *Hucho hucho* V BOSNI IN HERCEGOVINI



Tudi v Bosni in Hercegovini spada Sulec *Hucho hucho* med ogrožene živalske vrste. Glede na to zanj veljajo različni predpisi in zakoni, ki si prizadevajo za njegovo ohranitev, njihov pregled pa je predstavljen v prispevku. Podan je tudi pregled rek, v katerih so v različnih obdobjih opazili sulca ter predpisi glede izlova te vrste ribe, ki veljajo v Bosni in Hercegovini. Predstavljeni pa so še rezultati študije, v kateri so ugotavljali povezavo med velikostjo in starostjo te ribe.

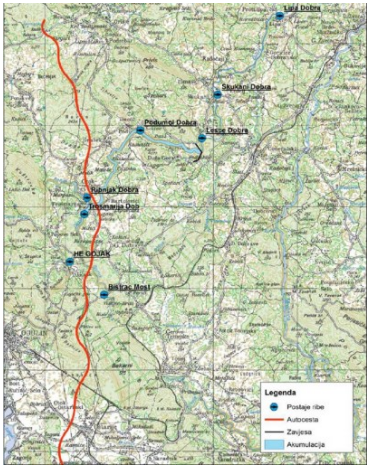
Avdul Adrović (PMF Tuzla):

STATUS OF DANUBE SALMON *Hucho hucho* IN BOSNIA AND HERZEGOVINA

In Bosnia and Herzegovina the Danube salmon *Hucho hucho is* endangered species too. Given that it is subject of various laws and regulations in order to preserve. The review of those documents is presented in this paper. It also gives an overview of the rivers in which they have at different times recorded the presence of the Danube salmon and regulations regarding harvest of this species of fish in Bosnia and Herzegovina. There are results of the study presented which treat the link between size and age of the fish.

Milorad Mrakovčić (PMF Zagreb), Tomislav Treer (Agronomski fakultet Zagreb), (Učiteljski fakultet Zagreb):

Hucho hucho NA HRVAŠKEM NEKOČ IN DANES



Sulec *Hucho hucho* velja za ogroženo vrsto ribe tudi na Hrvaškem. V prispevku je nekaj primerov, ko so sulca v zadnjem obdobju opazili v različnih Hrvaških rekah, vendar je takih priložnosti čedalje manj. Tudi v tem primeru je eden izmed glavnih problemov gradnja hidroelektrarn ter akumulacij na rekah, kar poleg oviranja prehoda rib vpliva tudi na spremembe pogojev življenjskega prostora (npr. dvig temperature vode v akumulacijah). Kot rezultat vseh teh sprememb je bilo v zadnjih letih opaziti tudi upočasnjeno rast sulca.

Milorad Mrakovčić (PMF Zagreb), Tomislav Treer (Agronomski fakultet Zagreb), (Učiteljski fakultet Zagreb):

Hucho hucho IN CROATIA - PAST AND PRESENT

Danube salmon *Hucho hucho* is considered as an endangered species in Croatia. In this paper a few cases are presented in which the Danube salmon was observed in the last period in various Croatian rivers but in last time there are fewer and fewer chances like that. In this case one of the main problems is in the construction of hydroelectric power plants and reservoirs on rivers which in addition to obstructing migration of fish also affects changes in habitat conditions (e.g. temperature rise of water in reservoirs). As a result of all these changes that has been made in recent years there is a slowdown in the growth of the Danube salmon observed.

Predrag Simonović, Ana Tošić, Dubravka Škraba, Vera Nikolić (Univerziteta u Beogradu, Biološki fakultet):

GENETSKA ANALIZA SULCA … V SRBIJI

Med leti 2002 in 2007 je bilo z eleketroribolovom v Srbiji izlovljenih 14 primerkov sulca. Odrezki njihovih plavuti so bili shranjeni v 96 % etanolu, dva izmed mtDNA genov pa sta bila ojačena z uporabo verižne reakcije s polimerazo. Zaporedje dveh mtDNK genov je pokazalo enake haplotipe v vseh preiskanih vzorcih, kar pomeni popolno pomanjkanje genetske variabilnosti. Za ta rezultat so bili poiskani različni možni vzroki, izvedena pa je bila tudi nadaljnja analiza na večjem območju, ki je nakazala, da je potrebno zaustaviti naseljevanje te vrste v sosednjih rekah porečja reke Donave.

Predrag Simonović, Ana Tošić, Dubravka Škraba, Vera Nikolić (Univerziteta u Beogradu, Biološki fakultet):

Between years 2002 and 2007 there were 14 specimens of Danube salmon caught with electrofishing in Serbia. Fin clips were taken and stored in 96% ethanol and two mtDNA genes were amplified in 14 individuals using polymerase chain reactions. An example of two mtDNA genes showed the same haplotypes in all investigated samples, which means a complete lack of genetic variation. For this result there were various possible causes searched and a further analysis in a larger area was made. It has indicated that it is necessary to stop the introduction of this species in Danube River Basin.

S prispevkom LIFE, finančnega instrumenta Evropske unije

With the contribution of the LIFE, financial instrument of the European Union

Gradivo zbrali in uredili / *Material collected and edited:* Katarina Kavčič, Andrej Vidmar, Mitja Brilly