

LIFE Living Rivers: Restoring rivers in Slovakia



Katarína Mravcová, Water Research Institute

katarina.mravcova@vuvh.sk

LIFE Platform meeting, Brussels, 14-15.10.2025



Co-funded by
the European Union

Project

Implementation of the river basin management plan in selected river- sub-basins in Slovakia



Call	LIFE Strategic Nature and Integrated Projects (SNaP/SIP)	Partneri projektu			
Acronym	LIFE21-IPE-SK-LIFE Living Rivers	 Výskumný ústav vodného hospodárstva		 ŠTÁTNÁ OCHRANA PRÍRODY SLOVENSKEJ REPUBLIKY	 MINISTERSTVO ŽIVOTNÉHO PROSTREDIA SLOVENSKEJ REPUBLIKY
Project code	101 069 837	 Fakulta rybníkářství a ochrany vod Faculty of Fisheries and Protection of Waters	 Jihočeská univerzita v Českých Budějovicích University of South Bohemia in České Budějovice	 SLOVENSÝ VODOHOSPODÁRSKY PODNIK, štátny podnik	
Duration	1.1.2023 - 31. 12. 2032	 Bratislavská regionálna ochranná zóna			
Budget	27 799 402,33 €				
EU contribution	16 677 073,39 €				

Main project goal

- Implementation of the 3rd RBMP of the Danube (2021-2027) - ecological targets of the WFD to achieve good GES/GEP of surface water bodies
- Active measures (in the field) on:

10

Water bodies

344

km



Key topics

**HYMO
measures**

management of
protected areas

sustainable forest
management



sustainable land
management

native fish species,
sturgeons

water quality
measures on
local scale

How?

Planning

Monitoring

Implementation

Stakeholders



Cooperation

Capacity building

Communication

Mobilisation

Replication

Indicators (KPI)

3 268 ha

habitats

13,6 km

side arms

15 bariér

Barriers removed/modified

69 km

Free flowing sections for fish

60.000

Trees planted

100 ha

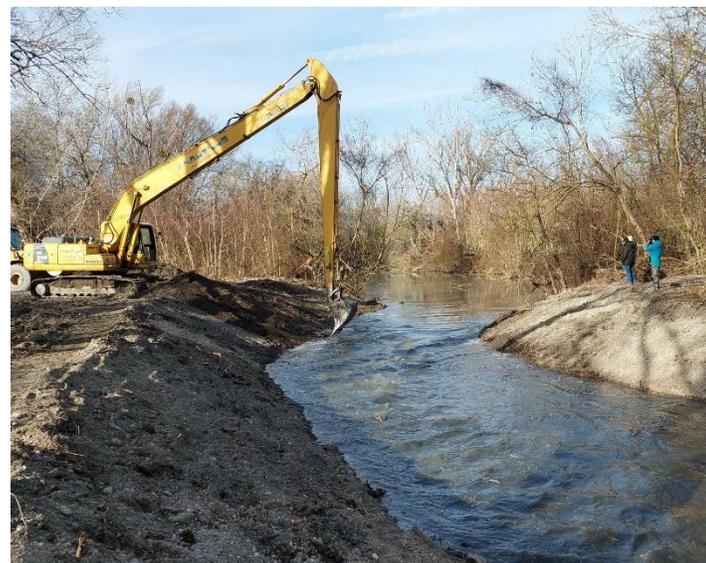
Forest habitats

38 ha

wetlands

**1124 ton
/ročne**

CO₂ sequestration



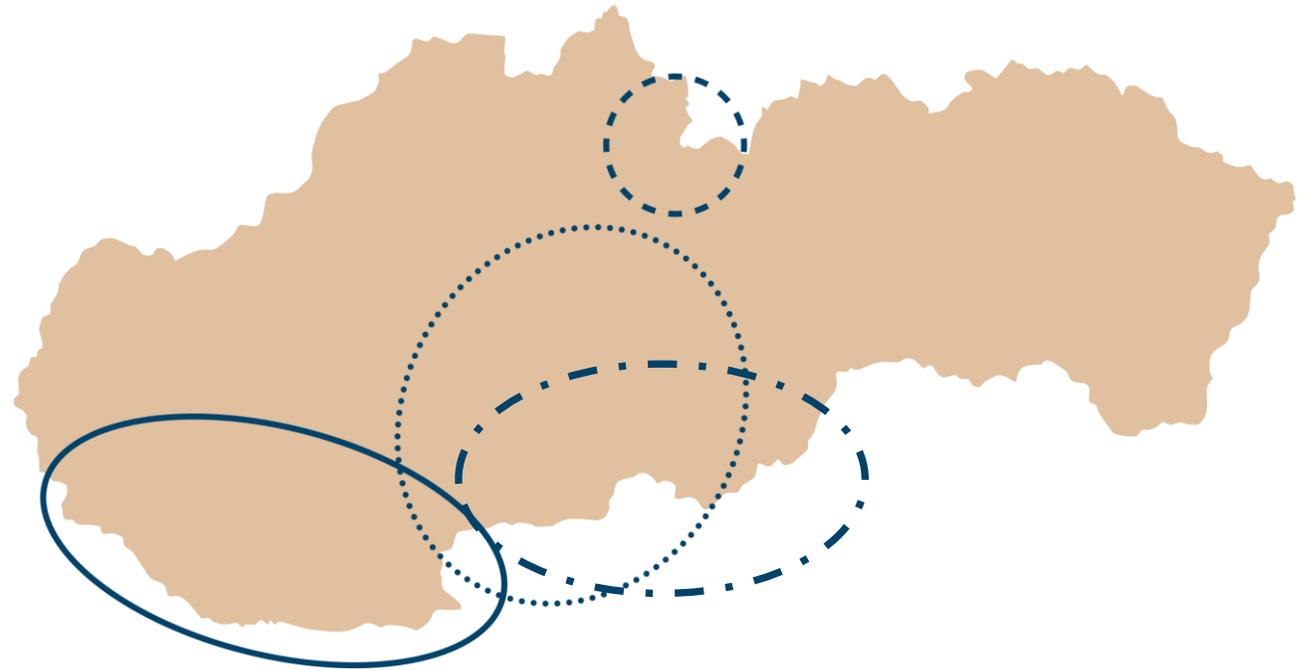
Project sub-basins

Danube

Hron

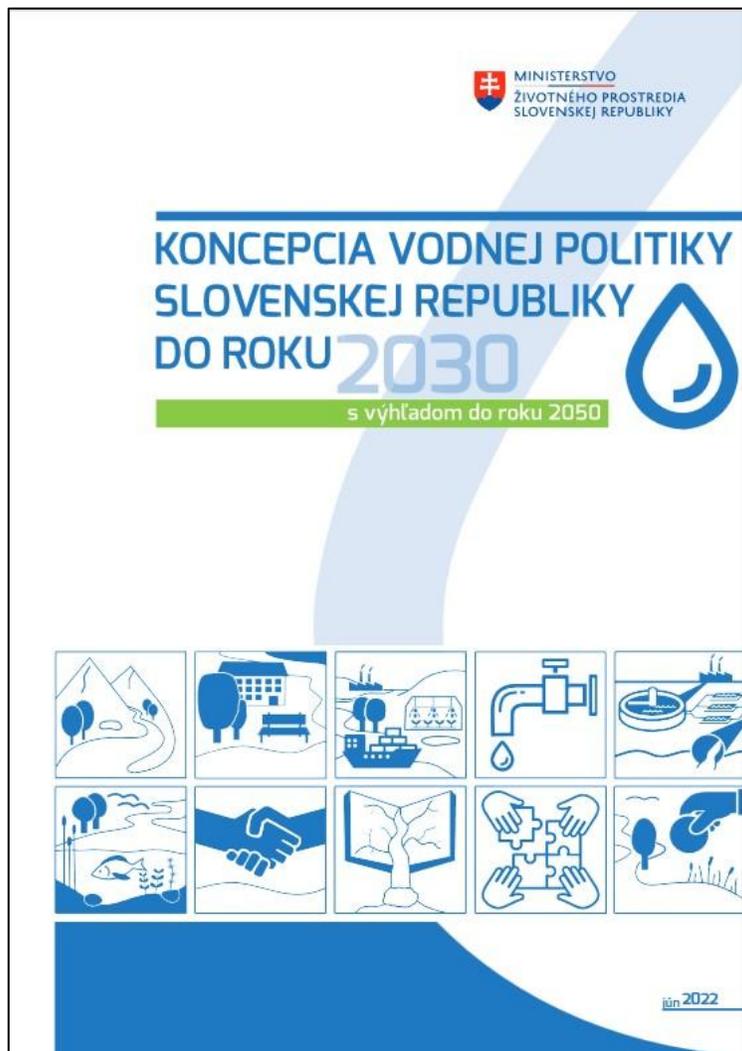
Ipel'

Belá



19 Natura 2000 sites

National policy



Water Policy Conception
(2021-2030 with prospects till
2050) – adopted by the
government 1.6.2022

The 3rd River Basin
Management Plan (2021-
2027) adopted by the
government 11.5.2022

Legislation: simplified
construction approval
process

River Restorations have
become a topic on
national level

Water Act 364/2004 Z.z.
upd. 2023

§2 par. 1a

River restoration is a **complex o nature based solutions** aiming to reduce or remove negative impact of river regulations

§ 46 River restoration

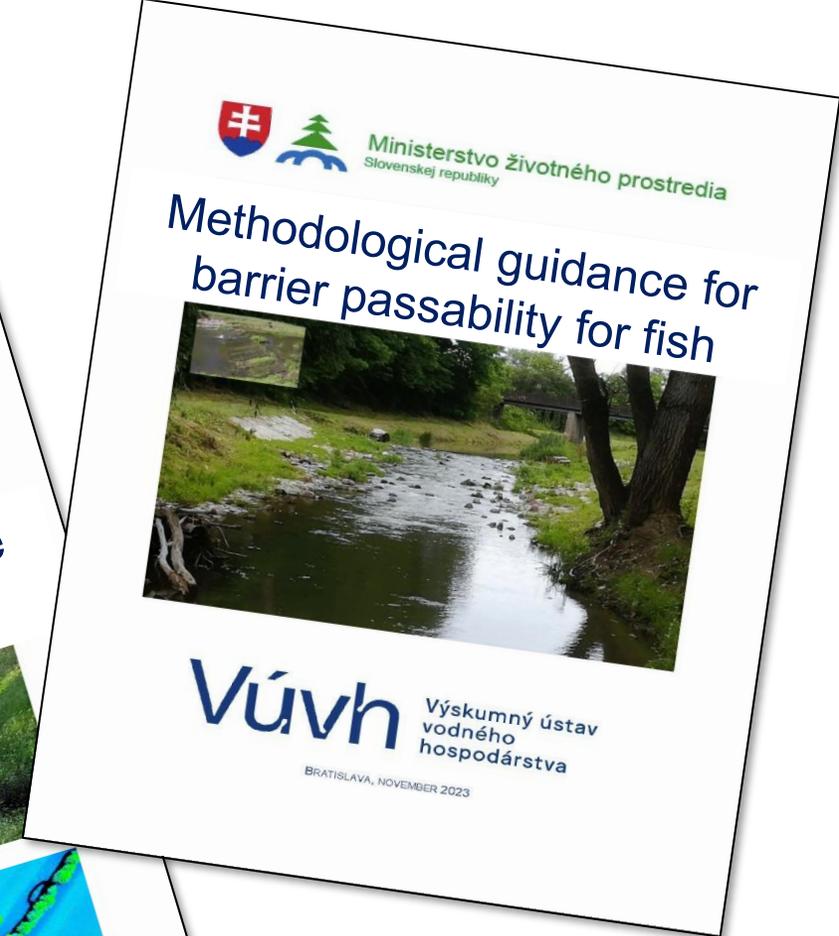
The goal is to **improve ecological status** of water bodies through supporting **natural river processes** which lead to restoration and preservation of biodiversity of river ecosystem or adaptation to climate change

Methodologies

- Morphological processes as a basis, role of sediments
- Types of restoration
- How to design river restoration
- Bio-engineering solutions, dead-wood
- Restorations in cities
- Practical examples
- Etc.

Barriers:

- The first solution to consider:
Complete removal of barrier
- Procedures, technical parameters for designers
- Hydraulic parameters for each fish zone defined in Slovakia

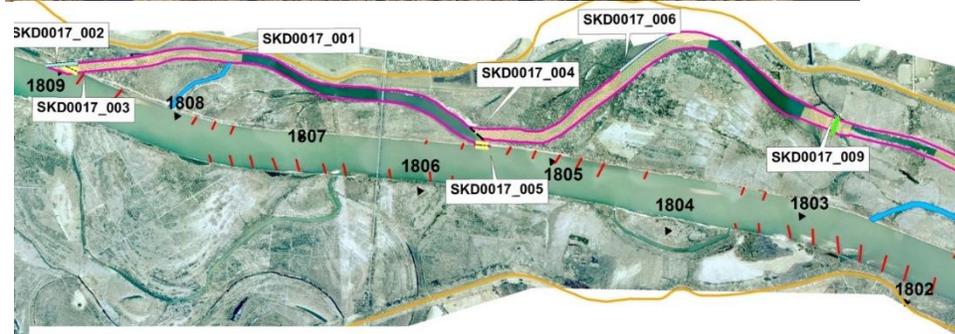
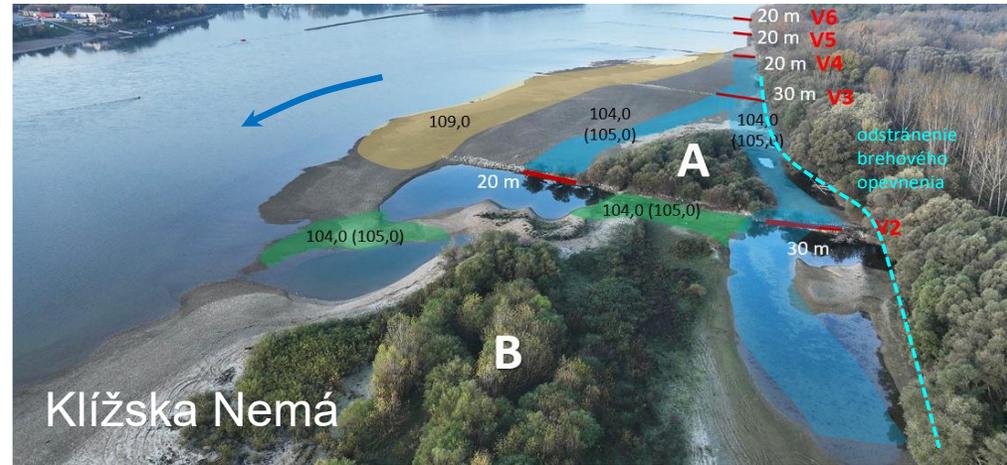


Since 2023

Main types of measures in SK

Side-arms reconnection, Groin reconstruction, Removal of bank protection, Barrier removals (complementary projects)

PLÁN [OBNOVY]



- Legenda**
- ▲ riečna kilometráž
 - navrhované opatrenia
 - hrádza
 - odstránenie smernej stavby
 - výhony
 - odstránenie výhonov
 - premostenie
 - smerná stavba
 - vtokový objekt
 - sprietočnenie RS - Plán Obnovy
 - už sprietočené vtoky (LIFE projekty)
 - odstránenie nánosov

Catchment to reach approach in pilot basins – scoping studies

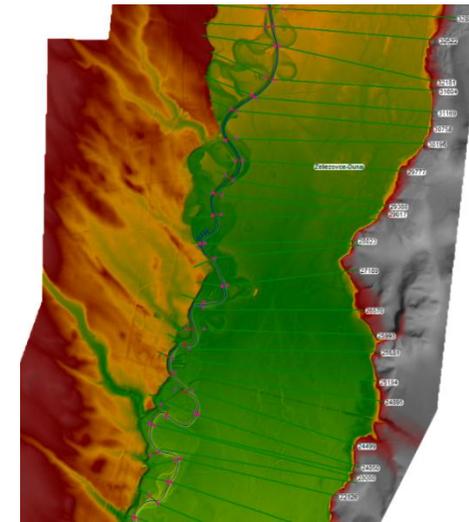
Restoration priority rivers from 3rd RBMP

Hymo assessment (homogenous reaches)

Field investigation, DTMs, historical maps: ca **40 side-arms**, **15 riparian vegetation reaches**, **1 HMWB reach** for mitigation measures

Monitoring – screening (MZB and fish) : **13 priorities**

Detailed measure proposals, **numerical modelling**

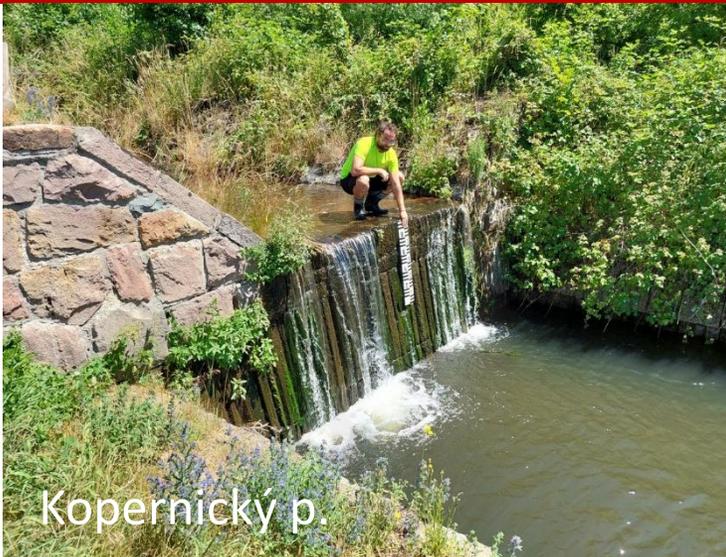
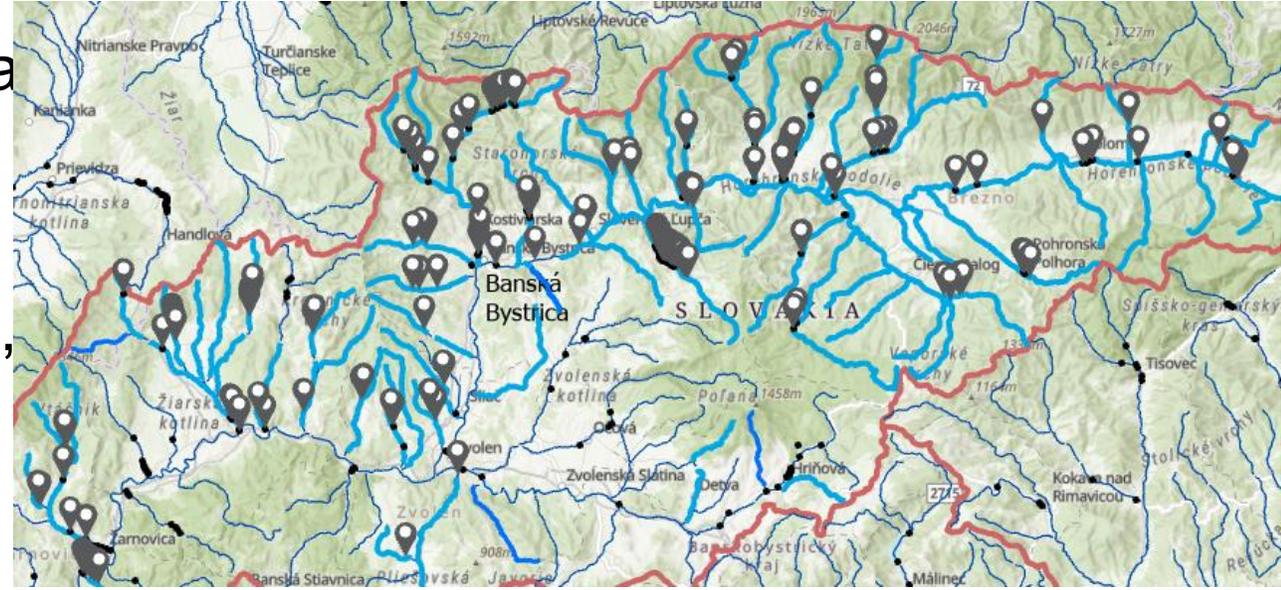


Mapping Barriers

- Ca 1500 barriers in Slovakia in national database – not complete!
- 84 water bodies and 260 barriers surveyed (GPS, photo) – SQL database, types specified

Hron and Belá basins

First results: Only ca 35% barriers recorded



Kopernický p.



Bukovec



Belá

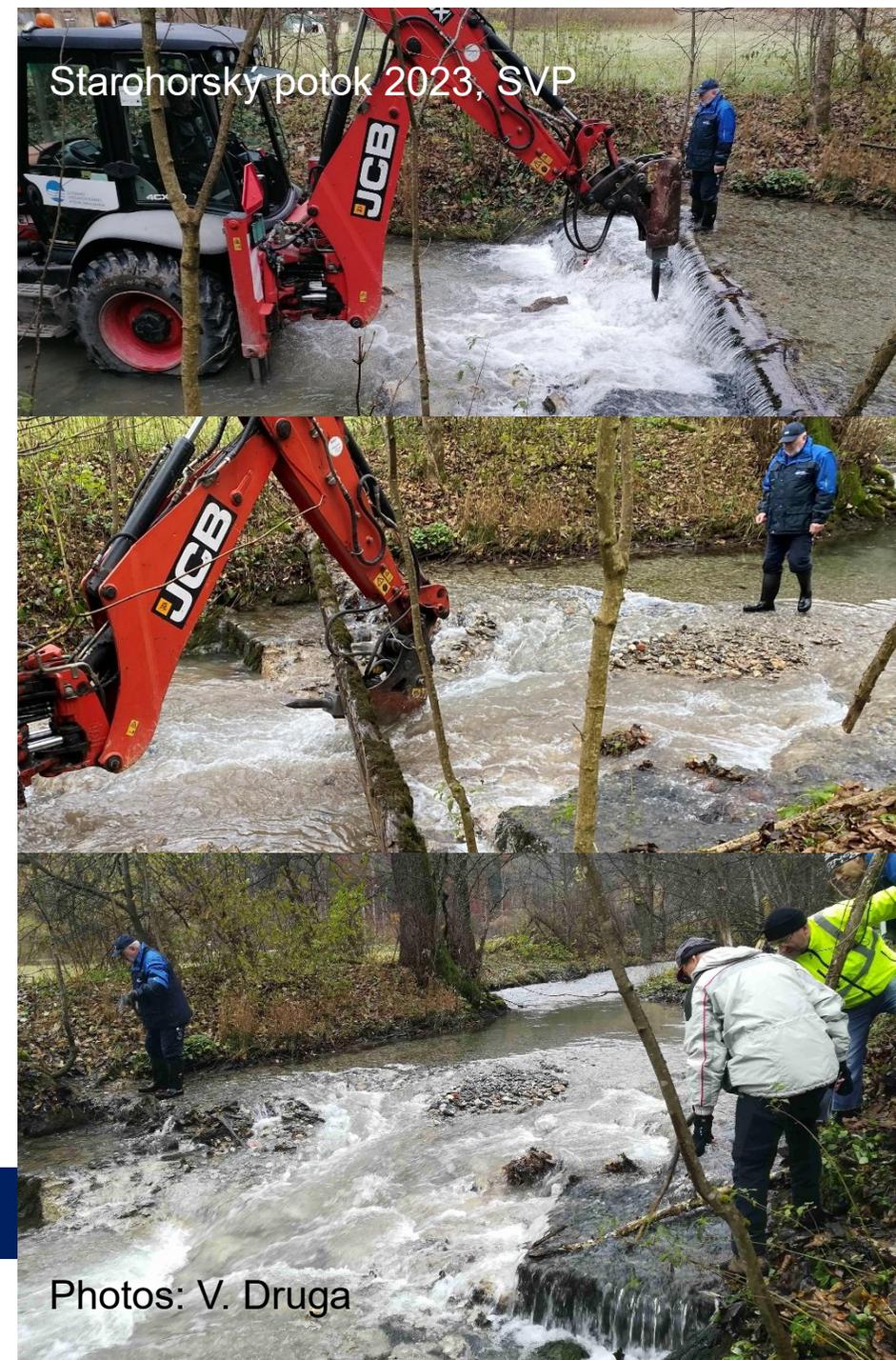
Obsolete Barriers

Only 2 complete barrier removals in Slovakia so far: Starohorsky potok and Hučava

Removal of obsolete barriers – easiest and cheapest solution, but often **feared by the river management**

Often not possible - **modifications**

Search for obsolete barriers ongoing



Solutions

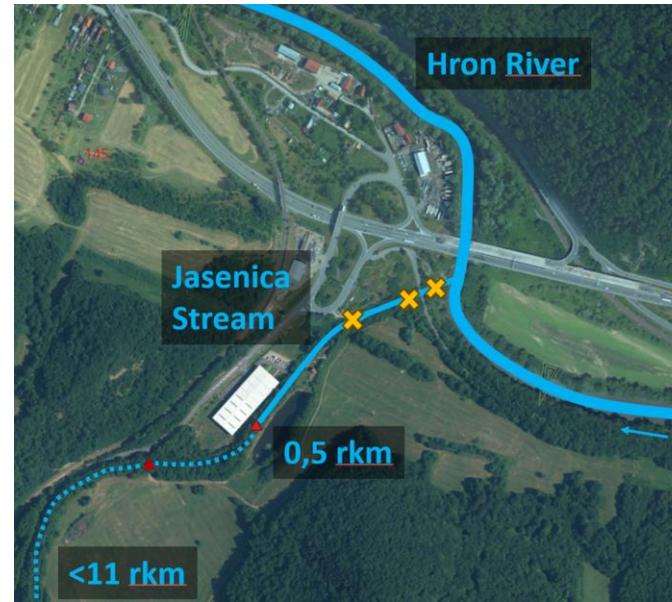


Priorities (confluences, existing documentation, important tributaries, obsolete)

Best practice examples for river managers

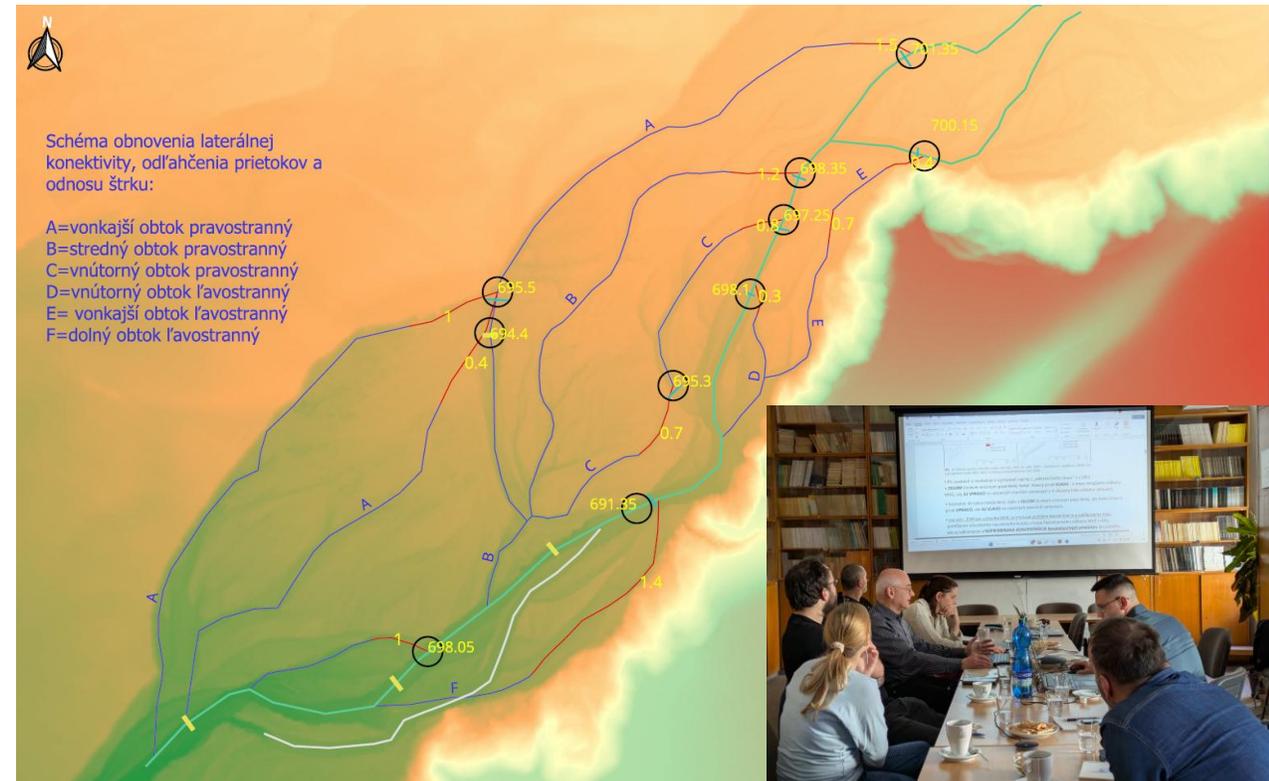
Stakeholder involvement

19 barriers for implementation: technical planning and engineering phase (removals and modifications) 114 km upstream connectivity gain



Belá river

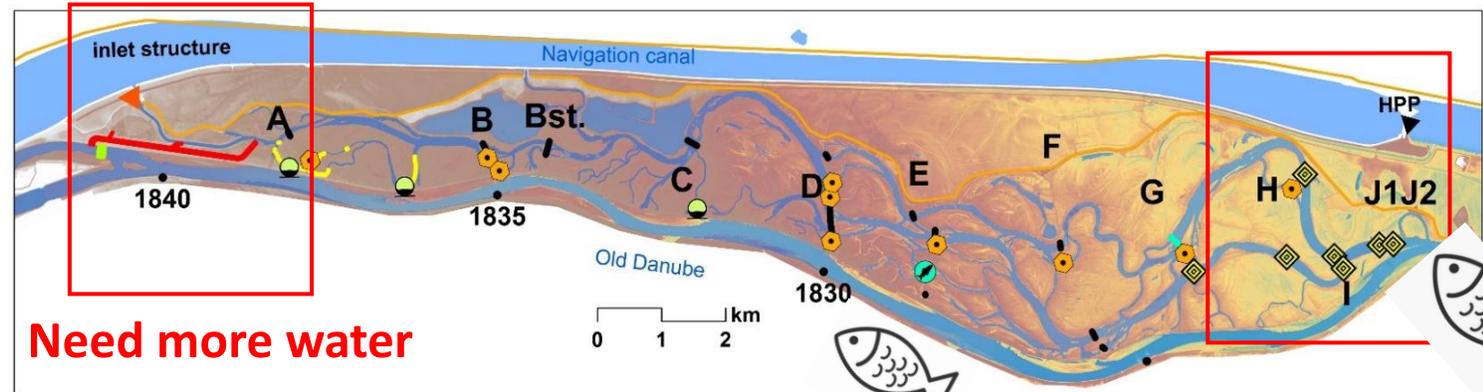
- Braided river in National park
- Riverbed erosion due to SHP, river straightening
- Engaging science, practice and stakeholders
- Restore lateral connectivity (floodplain and sidearms reconnection)
- Barrier removals, ichthyological monitoring



The Danube – Gabčíkovo dam area



Technical solutions – fishpass for sturgeon species Čunovo dam (incl. Huso huso)



Need more water

Need rheophilic fish

Legend

Proposal of restoration measures

- culvert construction (no longitudinal connection at present)
- culvert structure enlargement
- increase the number of existing culverts

- fishpass reconstruction
- inflow channel from the Danube
- sediment removal (side-arms reconnection)
- bottom sill to impound water in the Old Danube
- barrier altitude increase



Biocorridor through side arm system and old Danube river

Reconstructions of linear barriers and culverts, side-arm reconnections

Telemetry, ichthyological monitoring, sturgeon stocking (ca 30.000 juveniles released 2023-2025)



FROV JU

Communication



WWF Slovakia
 Aktivnosť podoprel: Michalke Comarová · 3. apríl ·
 Už ste sa s ňou stretli? Toto je KORUNKOVKA STRAKATÁ (Fritillaria meleagris): pôvabná rastlina, ktorá sa na Slovensku radí medzi tie ohrozené.
 Korunkovka patrí medzi druhy národného významu. Na prvý pohľad zaujme najmä atypickým kvetom so špecifickým kokotkovaným vzorom. Jediným zvláštnym prvkom tejto trvalky sa možno pokochať napríklad v ochránených lokalitách pri rieke Ipel. Prostredie, v ktorom práve teraz kvitne, sme navštívili spolu so štátnou ochrana prírody SR, ktorá zamestnaní pravidelne monitorujú početnosť vzácného druhu.
 Na to, aby sa tomuto jarnému kvietku darilo, je potrebné udržiavať úľky v blízkosti rieky kosením. V rámci projektu LIFE Living Rivers plánujeme zabezpečiť kosenie v ipeliskom aluviu, kde podporujeme aj vznik nového súkromného ochráneného územia. Zamerajte sa na nás tiež o to viac, šé ho inčujú mestský obyvatel.
 #LIFE_LivingRivers #bivienky



KEDY RYBY DOSTANÚ ZELENÚ?

Bariéry na vodných tokoch ohrozujú život a migráciu rýb a bránia užitočným ekologickým procesom.

Zistite viac.

Nahlaďte zbytočné prehradenia na akostioľvek vodnom toku v aplikácii AMBER.



OBNOVA MOKRADÍ A LUŽNÝCH LEŠOV

Jedným z najúčinnejších spôsobov, ako vrátiť krajine schopnosť zadržať vodu, je obnova mokradí a lužných lešov.

Čítať TU.

OBNOVA MEANDROV

Významná je aj obnova meandrov a prirodzených tokov riek, ktoré sme v minulosti "narovnali" a premenili na akékoľvek technické kanály.

Čítať TU.

ZALESŇOVANIE A VEGETAČNÉ PÁSY

Stromy, kríky, brehové porasty či vetrolamy výrazne prispievajú k zadržiavaniu vody. Dôležitú úlohu má aj ich koreňová sústava.

Čítať TU.



ZMENA HOSPODÁRENIA NA POLIACH

Polnohospodárstvo orientované na

OBNOVA ZÁPLAVOVÝCH ÚZEMÍ

Ak počas intenzívnych dažďov môžu

ZADRŽANIE VODY V PROSTORIE

Aj mestá zoh



Life of a LIFE



Co-funded by
the European Union



LR
Living
Rivers



Thank you for attention



www.livingrivers.sk