



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

101069837 — LIFE21-IPE-SK-Living Rivers

**Call: LIFE-2021-STRAT-two-stage**

(Strategic Nature and Integrated Projects (SNAP/SIP))

**Topic: LIFE-2021-STRAT-ENV-SIP-two-stage**

# Funding



## Program

**Programme for Environment and Climate Action (LIFE)**

**Call:** Strategic Nature and Integrated Projects (SNAP/SIP)

**Topic ID: LIFE-2021-STRAT-ENV-SIP-two-stage**

**Objective:** Support the full implementation of the following plans and strategies:

- Water: River basin management plans pursuant to Annex VII to the Water Framework Directive, Flood Risk Management Plans pursuant to the Floods Directive or Marine Strategies pursuant to the Marine Strategy Framework Directive.

# Project partners

## Coordinator:

### 1. Water research institute (VUVH- Vyskumny ustav vodneho hospodarstva)

## Project partners:

2. Ministry of Environment of the Slovak Republic (MoE SR)
3. Slovak Water Management Enterprise (SWME)
4. State Nature Conservancy of the Slovak Republic (SNC SR)
5. Regional association for nature conservation and sustainable Development, NGO (BROZ)
6. World Wildlife Fund Slovakia, NGO (WWF Slovensko)
7. Catch Me If You Can, NGO (CM)
8. University of South Bohemia in České Budějovice, Czech republic (JU)
9. Administration of the Tatra National Park (TANAP)
10. Water Management Construction, state enterprise (VVB)

6 state institutions, 3 NGOs, 1 University



MINISTERSTVO  
ŽIVOTNÉHO PROSTREDIA  
SLOVENSKEJ REPUBLIKY



SLOVENSKÝ  
VODOHOSPODÁRSKY  
PODNIK, štátny podnik



Jihočeská univerzita  
v Českých Budějovicích  
University of South Bohemia  
in České Budějovice



TATRANSKÝ  
NÁRODNÝ  
PARK



Vodohospodárska  
výstavba

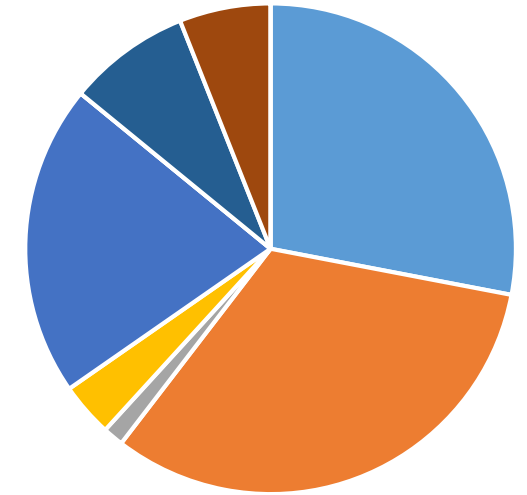
# Project budget

Total project budget: **27 799 402,33 EUR**

EU financial contribution: **16 679 641,39(60 %)**

National contribution/own sources: **11 119 760,94 (40%)**

Budget categories (final)



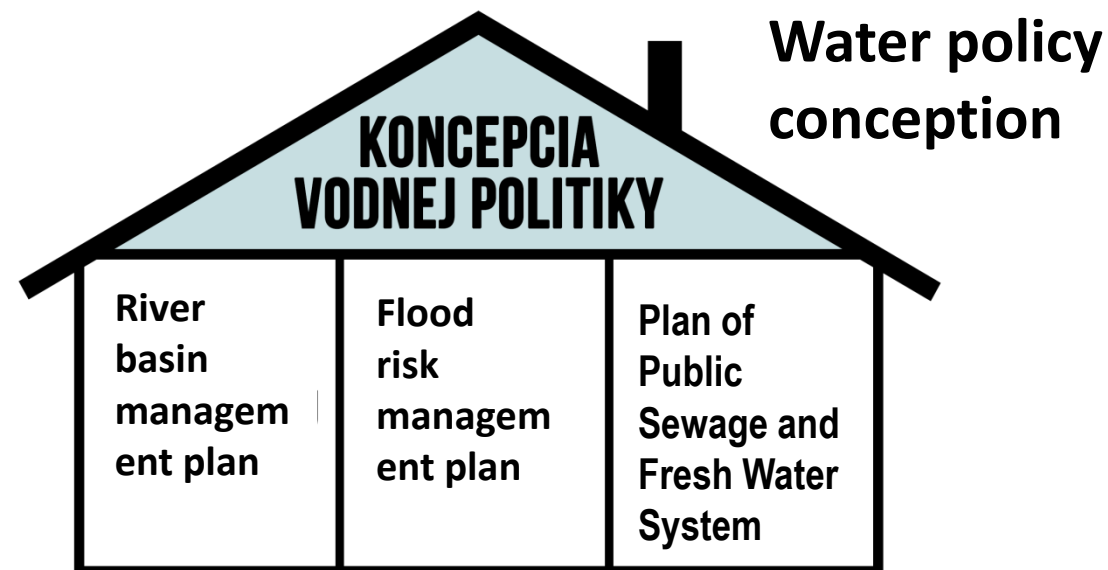
- A. Personnel costs - without volunteers /€
- B. Subcontracting costs/€
- C. Purchase costs - Travel and subsistence/€
- Purchase costs - Equipment /€
- C. Purchase costs - Other goods, works and services/€
- D.1 Financial support to third parties/€
- Land Purchase/€
- Indirect costs/€

# Project duration:

**1.1.2023-31.12.2032**

# Water Policy in Slovakia

- **The 3rd River Basin Management Plan (2021-2027)** - adopted by the government on 11 May 2022 <https://www.minzp.sk/voda/vodny-plan-slovenska/>
- **Water Policy Conception (2021-2030 with prospects till 2050)** – adopted by the government on 1 June 2022 <https://www.minzp.sk/voda/koncepcne-dokumenty/koncepcia-vodnej-politiky-roky-2021-2030-vyhľadom-do-roku-2050.html>



# Water Policy in Slovakia

- **Key problems in Slovakia** identified by expert groups:
- lack of integrated approach in river basins (in protection, planning and management)
- legislation not supporting new challenges in water protection and use
- non existing IT system and access to information about water
- lack of methodologies and standards, lack of state capacities, education and publicity
- inappropriate investment policy and financing of water management

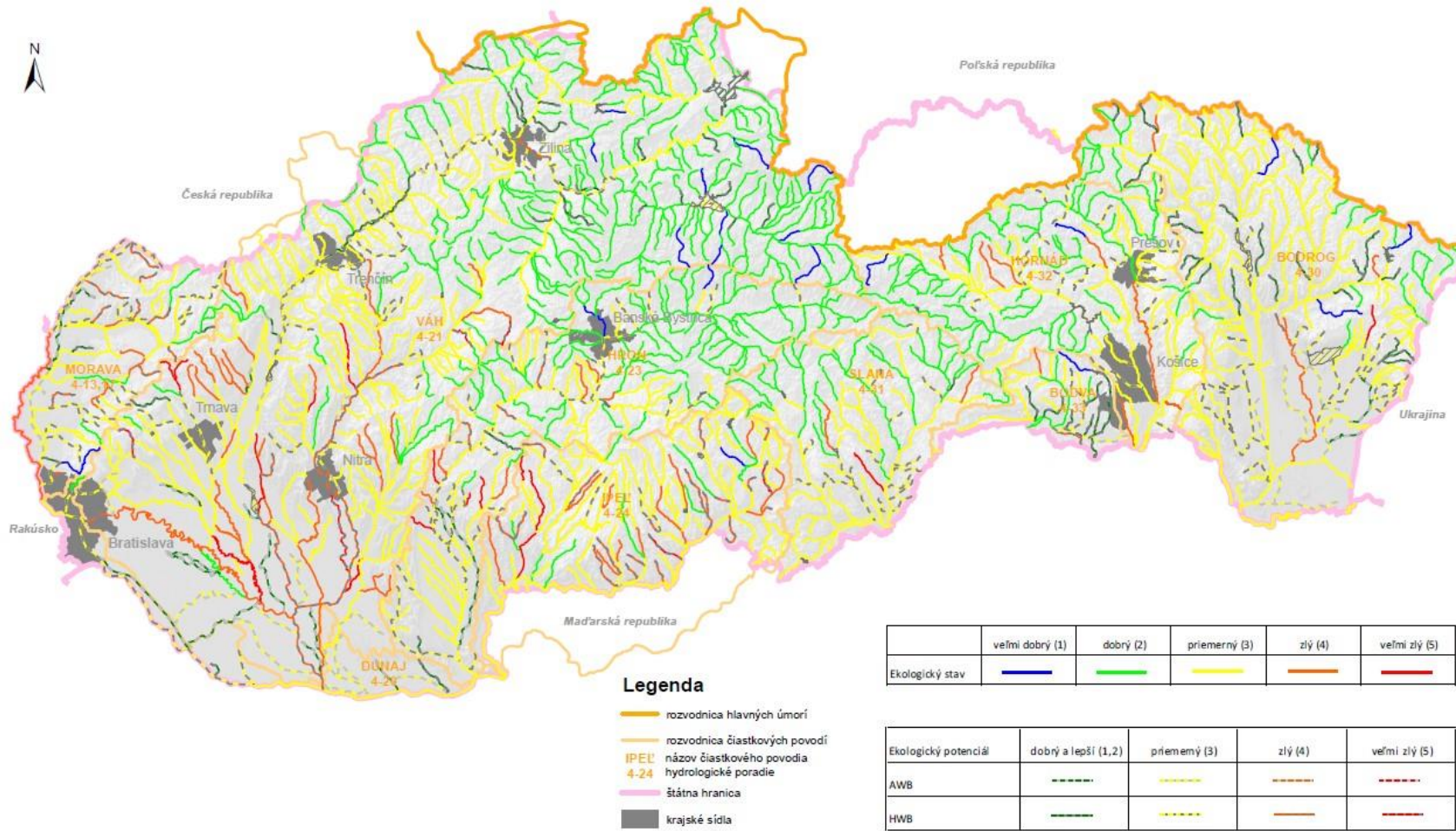
The conception tackles with these challenges, the 3rd RBMP is one of the instruments

Change of paradigm towards Nature Based Solutions in water management

Hydromorphological measures and river restorations are more supported, also new challenges: climate change adaptation, drought, sediment management, fish managements and sturgeons, invasive species...

Still many gaps in the RBMP planning and implementation process → LIFE SIP

# Ecological status of surface wbs 2013-2018



**Legenda**

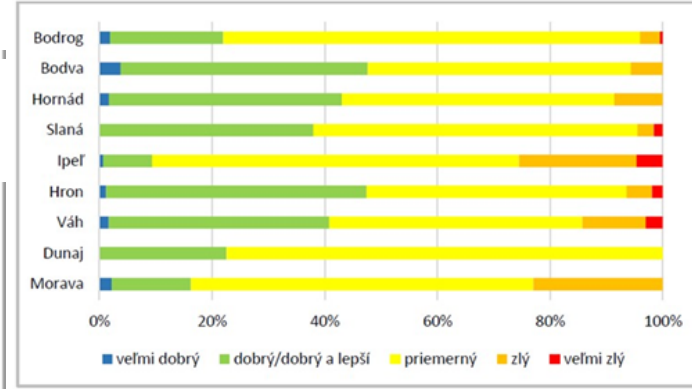
- rozvodnica hlavných úmorií
- rozvodnica čiastkových povodí
- IPEL názov čiastkového povodia hydrologické poradie
- štátna hranica
- krajské sídla

	veľmi dobrý (1)	dobrý (2)	priemerný (3)	zlý (4)	veľmi zlý (5)
Ekologický stav					

Ekologický potenciál	dobrý a lepší (1,2)	priemerný (3)	zlý (4)	veľmi zlý (5)
AWB				
HWB				

Mierka 1:1 000 000  
1 cm = 10 km

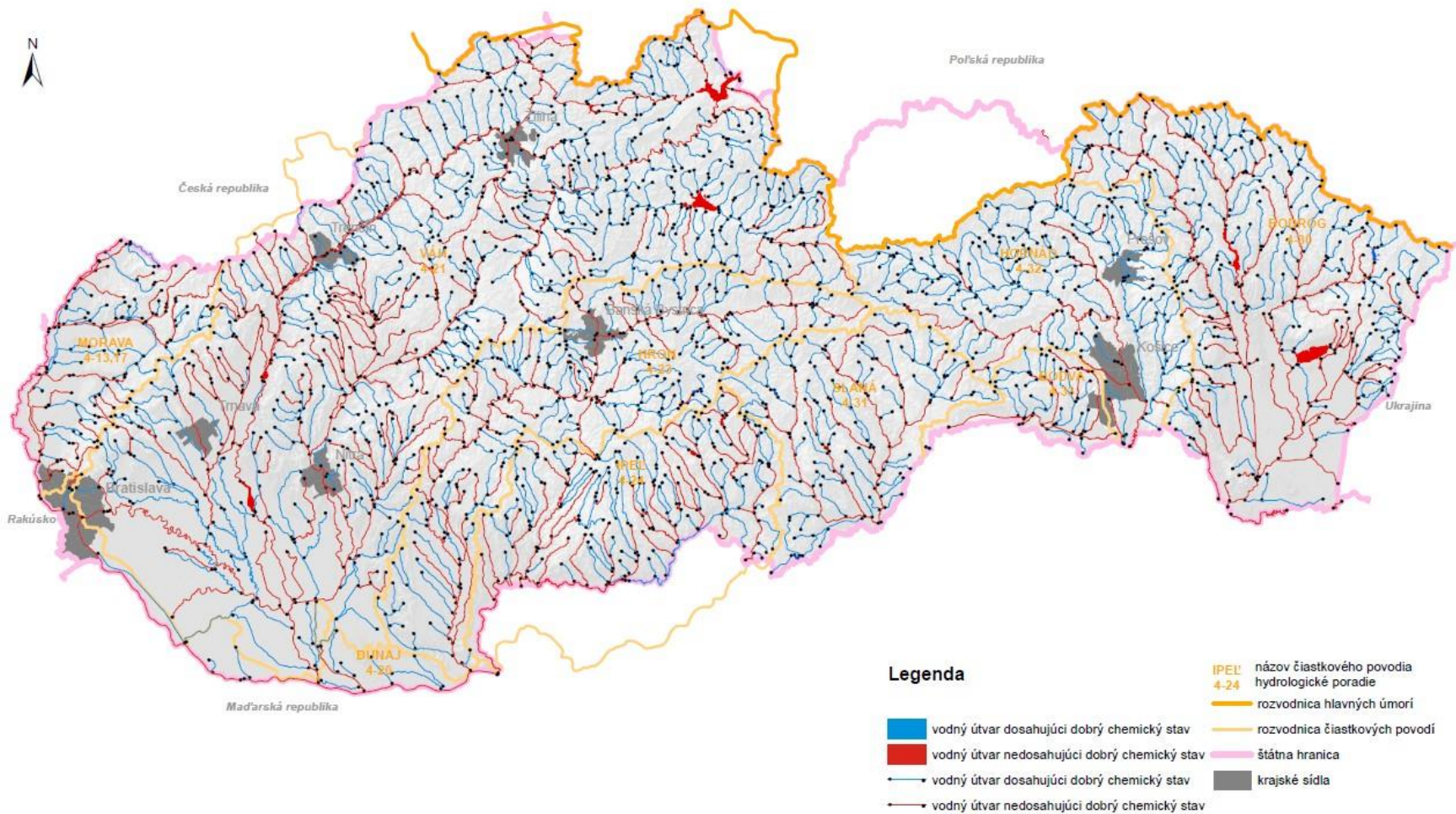
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1351 surface water bodies:

- 59% failed to reach good ecological status/potential in 2013-2018

# Chemical status of surface wbs 2013-2018



## Legenda

- vodný útvar dosahujúci dobrý chemický stav
  - vodný útvar nedosahujúci dobrý chemický stav
  - vodný útvar dosahujúci priemerný chemický stav
  - vodný útvar nedosahujúci dobrý chemický stav
- IPEĽ 4-24 názov čiastkového povodia hydrologické poradie
  - rozvodnica hlavných úmoří
  - rozvodnica čiastkových povodí
  - štátna hranica
  - krajské sídla

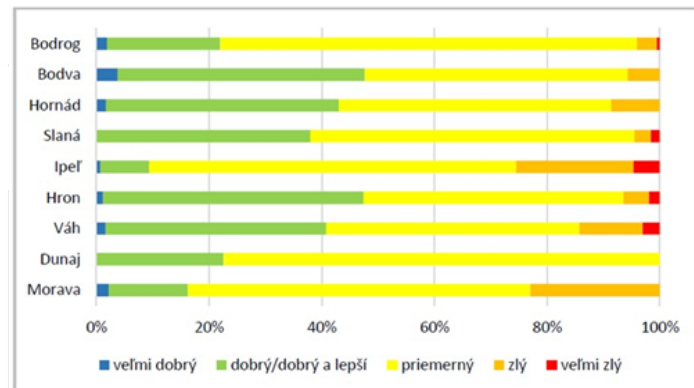
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Mierka 1:1 100 000

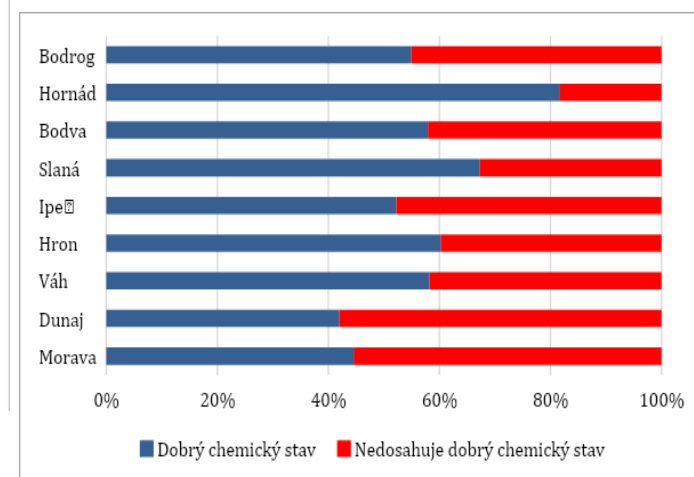


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1351 surface water bodies:

- 59% failed to reach good ecological status/potential in 2013-2018
- 29% failed to reach good chemical status
- 4,5% failed to reach good chemical status without PBT



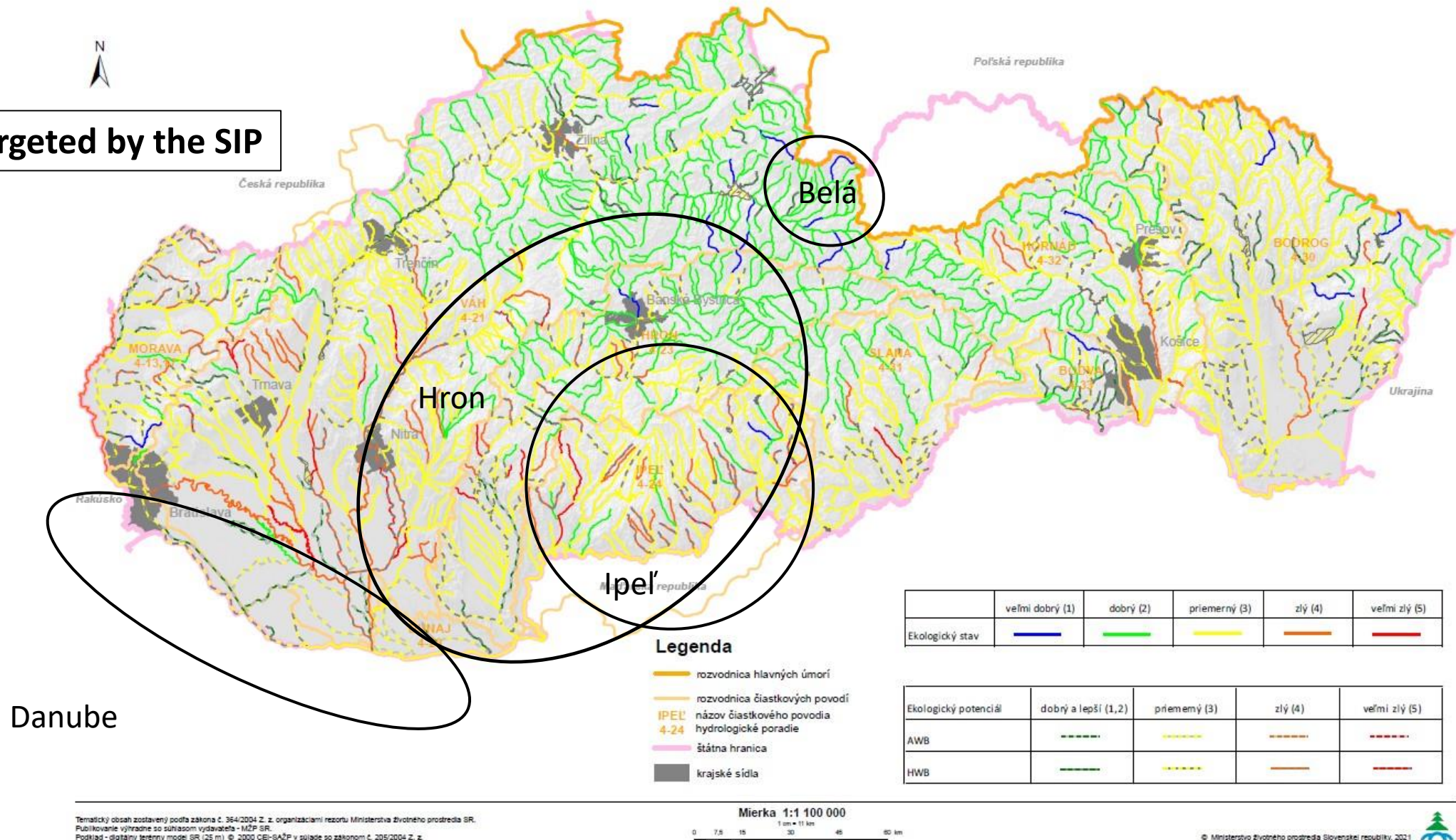


# Plán manažmentu správneho územia povodia Dunaja

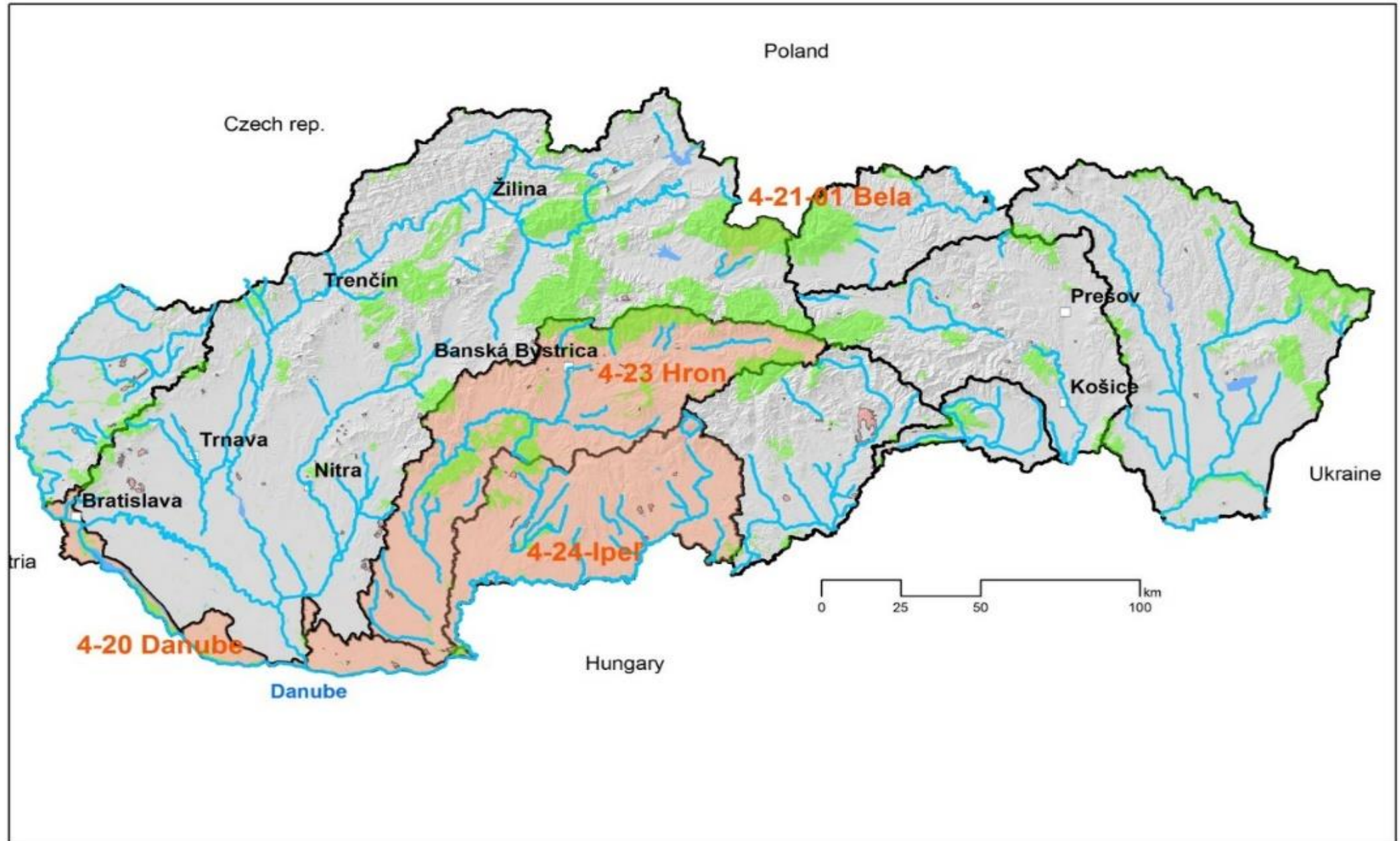
## Ekologický stav/potenciál útvarov povrchovej vody – obdobie 2013 až 2018

Mapa 5.3

4 basins targeted by the SIP



# Priority water bodies (169) recommended by the 3rd RBMP for restoration



# Project objectives

- **Implementation of the 3rd RBMP of the Danube (2021-2027)** - ecological targets of the Water Framework Directive 2000/60/EC to achieve **good ecological status/potential** (GES/GEP) of surface water bodies
- **Active measures (in the field) on 10 water bodies (344 km)**

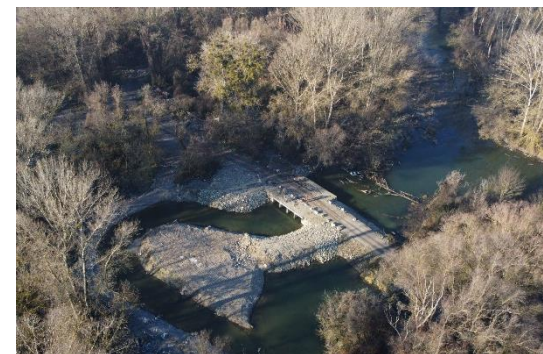
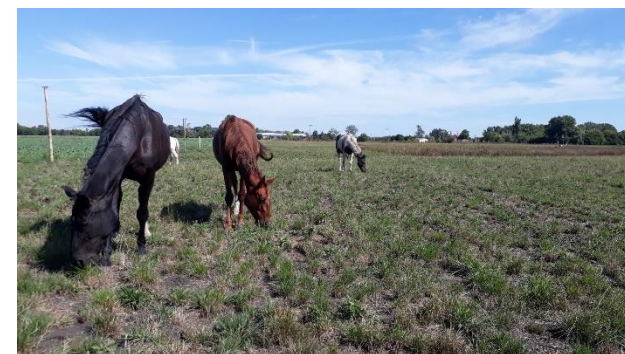
**HYMO  
measures**

**management of  
protected areas**

**sustainable forest, land management**

**reproduction of native fish species**

**water quality measures on local scale**



# Project objectives

- **improvement of the RBM planning** (Harmonised Plan of measures, Action Plan, inputs for the 4th RBMP, databases, prioritisation etc., bottom-up approach, priorities given)
- **cooperation of stakeholders and institutions**, capacity building, education, dissemination of results, public awareness etc.
- **replication of the project approaches, mobilisation of complementary funds and actions**

*Habitats Directive, Birds Directive, EU Biodiversity Strategy, Bern convention, Bonn convention, Ramsar convention, Pan-European Action Plan for Sturgeons, EUSDR and other actual strategies in nature protection*

# Expected impacts

## **Key parts of RBMP implemented by end of the project:**

- Measures to eliminate hydromorphological pressures: longitudinal continuity, lateral connectivity, in-stream river morphology, improved hydrological conditions
- Sediment management
- Fishery management and sturgeon migration issue
- Measures to reduce pollution (organic, nutrient pollution, priority and relevant substances)

## **Sustainability:**

- Inputs to 4th RBMP: harmonised programme of measures, improved planning, bottom-up approach, priorities given
- Best practice examples, implementation procedures and their replication in Slovakia
- Complementary sources identified and projects mobilised
- Capacity building – staff training, methodologies, studies

## Specific goals

1. focus on **nature based solutions**
2. restoration of **longitudinal continuity**– removal of 15 barriers
3. restoration of **lateral connectivity** and protected habitats (3268 ha)– reconnect floodplains, wetlands and stagnant waters, reconnect side-arms (13,6 km)
4. improve channel **morphology** - natural river banks
5. improvement of **hydrological regime and flow dynamics**
6. **restoration of degraded natural ecosystems and natural fish species populations by:**
  - **improvement of natural reproduction of native endangered and vulnerable fish species, restoration of wild populations of rheophilic fishes (sterlet) using in situ methods,**
  - **restoration of habitats**

## Specific goals

- 6. Introduction of land, wetland and forest management practices** in the water-dependent SCIs and SPAs, restoration of vegetation cover on the river banks and in the floodplains (60.000 trees), grazing, mowing
- 7. Targeted monitoring and implementation of several innovative monitoring methods** (e.g. eDNA, drones, sediment monit.stations)
- 8. Exploitation of project results, replication of actions** in other regions, stakeholder cooperation, **complementary funding and mobilisation of funds**
- 9. Demonstration:** necessary step-by step procedures leading to successful cost-efficient and sustainable restoration

# Key project actions

**WP2: Integrated management planning – from basin scale to river reach**

**STUDIES, PREP.ACTIVITIES**

**WP4: Nature and biodiversity friendly fishing management and active measures to support prospects of target umbrella fish species**

**IMPLEMENTATION IN THE FIELD**

**WP3: Restoration measures on selected surface water bodies at pilot basins**

**IMPLEMENTATION IN THE FIELD**

**WP5: Nature and river friendly forest and land management and restoration**

**Detailed monitoring, stakeholder cooperation, capacity building, networking**

**Replication and exploitation of project results**



# Upscaling results of other EU projects

**REFORM, AMBER** - recommendations relevant and applicable also in Slovakia - hydromorphological classification of river reaches, monitoring, ecological prioritisation approach, barriers classification and tracking, possible measures etc.

**Danube Sediment DTP** - sediment monitoring (practices, network), sediment management measures, sediment balance calculation etc. which will be applied on the SK Danube and tributaries

**DanubeFloodplain DTP** - floodplain evaluation, approaches to restore floodplain areas with combination with flood peak reduction, measures and approaches to deal with nature based solutions, development of feasibility studies for NBS, methods for assessment of ESS and CBA

**DREAM SK-AT** – hydrodynamic modelling and sediment transport modelling on Danube river, sediment management issues, sediment monitoring stations construction, calibration and start of operation in SK

**DuReFlood SK-HU Interreg project** - developed concept of measures at SK-HU section of the Danube to improve ecological status in combination with flood protection, with special focus on Medved'ov-Kľúčovec side arm and recommended type of measures in the Danube channel

**LIFE12 NAT/SK/001137** Restoration of nesting and feeding habitats of Sand Martin, Kingfisher and European Bee-eater in Danube-Morava region, **LIFE12 NAT/SK/001155** Conservation of birds in SPA Ostrovné lúky, **LIFE14 NAT/SK/001306** - Restoration and management of Danube floodplain habitats, **LIFE18 NAT/AT/000733** Dynamic LIFE Lines Danube follow-up implementation of measures at additional localities, experiences from good practice to be used also at other restoration localities in Slovakia

**LIFE19 IPE/SK/000003** Role of the Natura 2000 network and management of some prioritized habitats in the integrated landscape protection of the Slovak Republic - habitats and species monitoring methodology in areas targeted by SIP

**DANUBE4all - Horizon project** - this SIP can also be part of the puzzle for Restoration Plan of the Danube River Basin to be developed in the DANUBE4all project, knowledge transfer to our practices



# Complementary actions

## Recovery and Resilience Fund

- Coordination: Ministry of Environment
- Implementation of RBMP measures
- Goal in Slovakia: **restoration of 97 km of rivers** and water retention measures (lateral connectivity)
- **Danube and Morava** top priorities (studies done, detailed planning ongoing)
- **Implementation till end of 2026**
- **Financing: ca 62 M EUR**

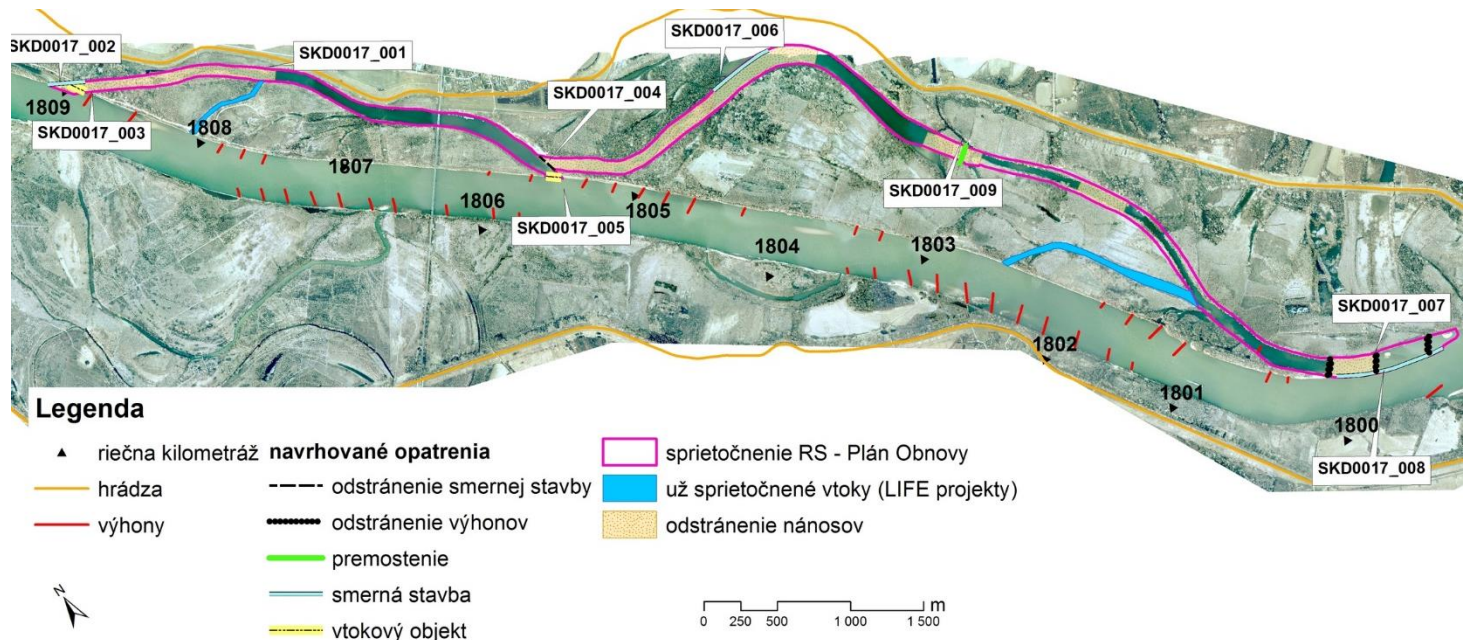
Legislative changes, manuals

- To support river restoration and eliminate legal obstacles

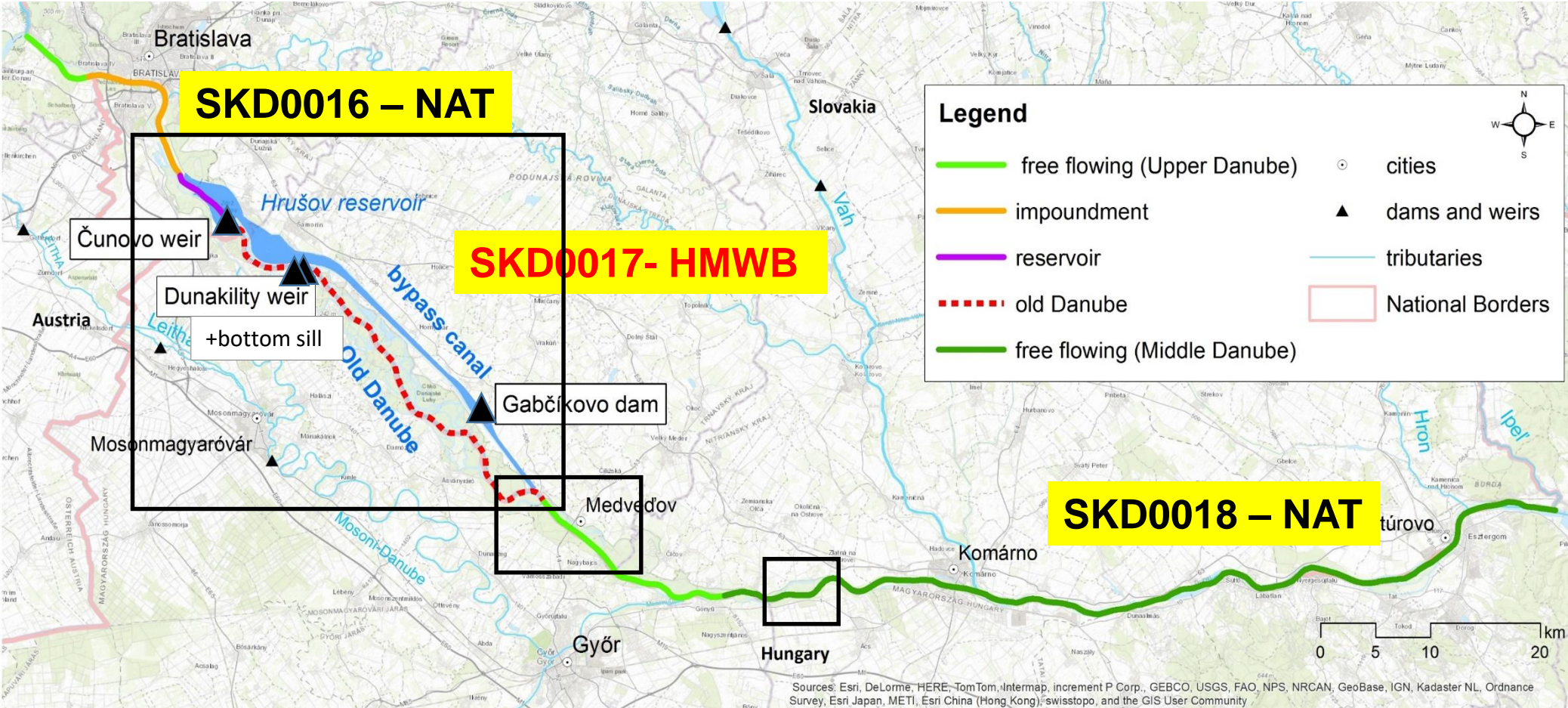
Large infrastructure projects on the Danube: **fishpasses Cunovo and Gabčíkovo** on the Danube river; Cunovo to be implemented ca 2028

Measures to support restoration of lateral and longitudinal connectivity – New Programme Slovakia (2021-2027)- funds available for mobilised projects

Development plan of public freshwater system and public sewage system of the Slovak republic 2021-2027

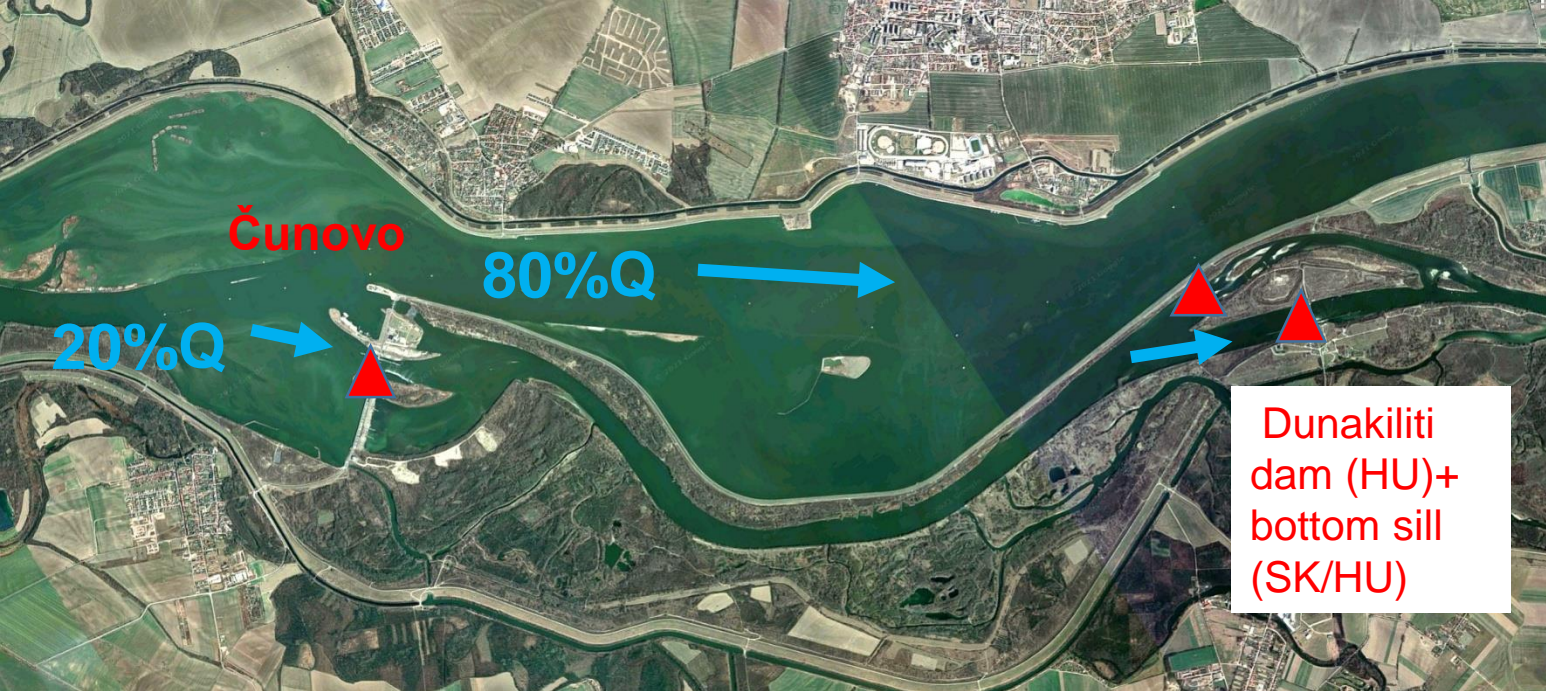


# T.2.3 Re-establishment of migration routes for sturgeon species on the Danube river and re-connection of its floodplain habitats- VUVH, SVP, ŠOP SR, BROZ, JU



**Ecological status/potential: 3 (moderate)**

**Slovak section of the Danube river -172 km**



Barriers on the Danube and on the canal



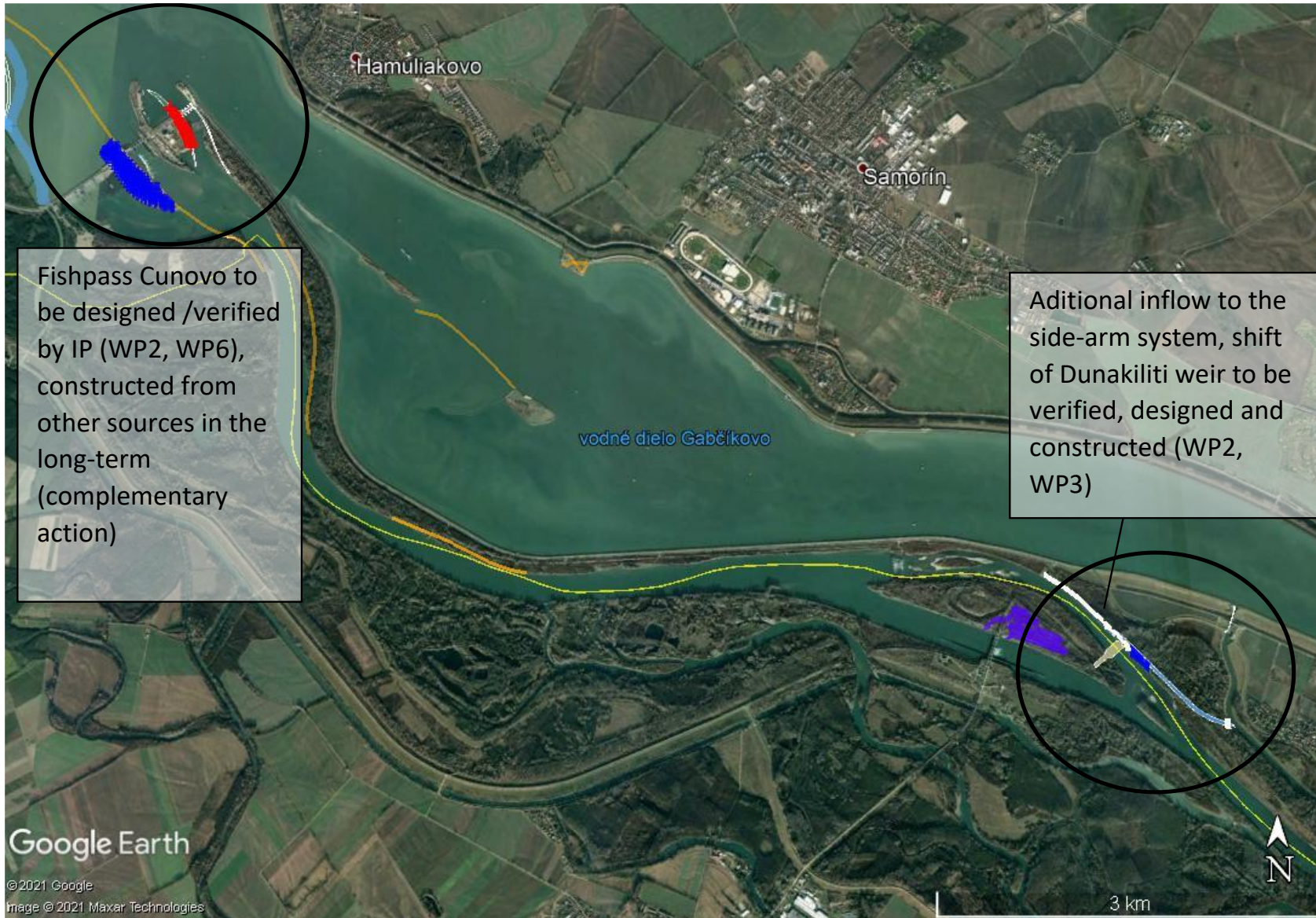
Čunovo dam



HPP Gabčíkovo



## T.2.3 Re-establishment of migration routes for sturgeon species...



Cunovo dam – fishpass variants+sediment measures, also small HPP to be constructed

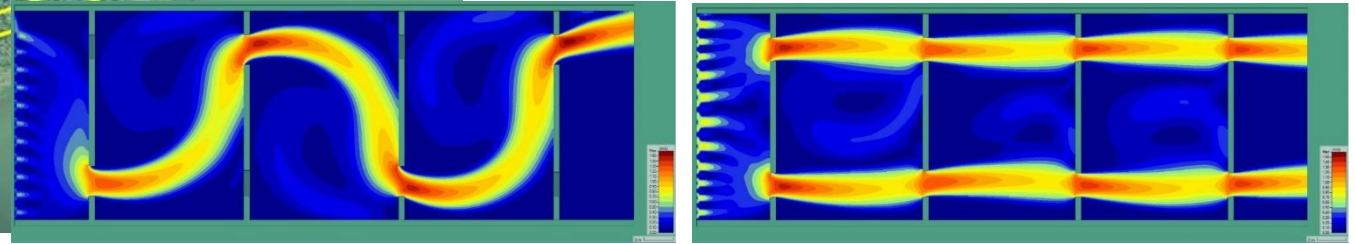
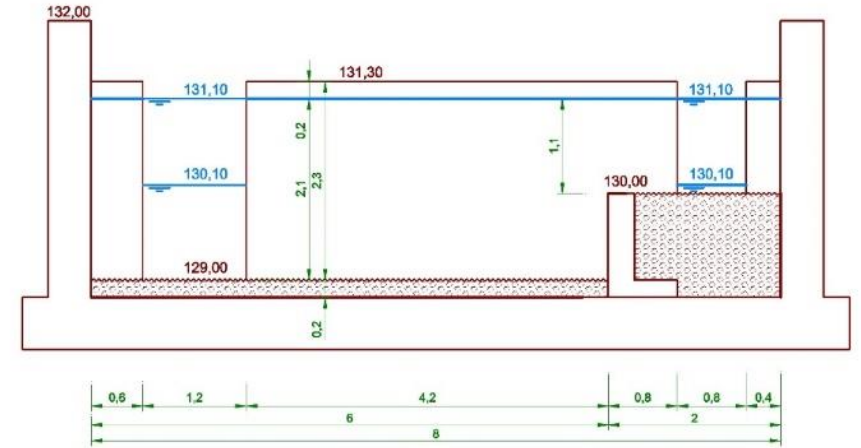
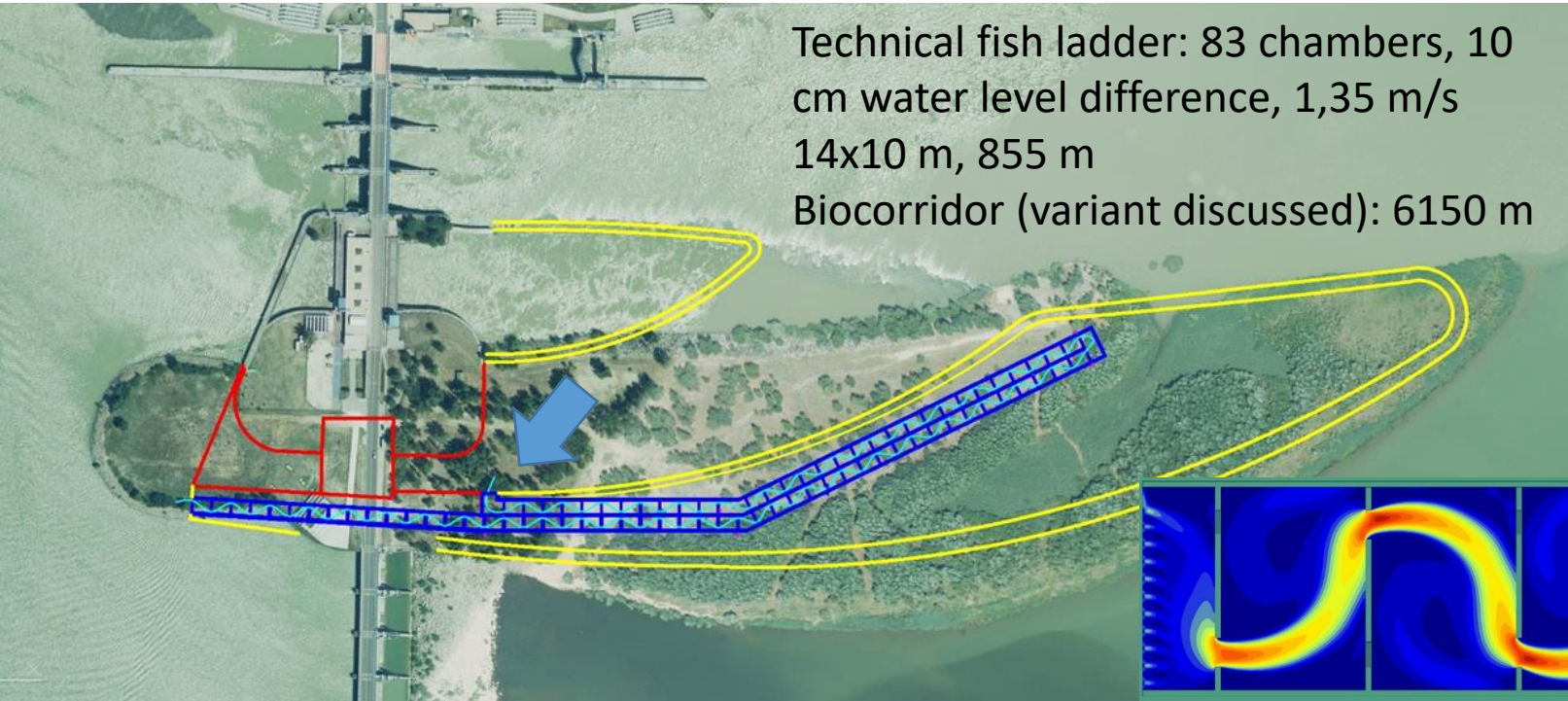


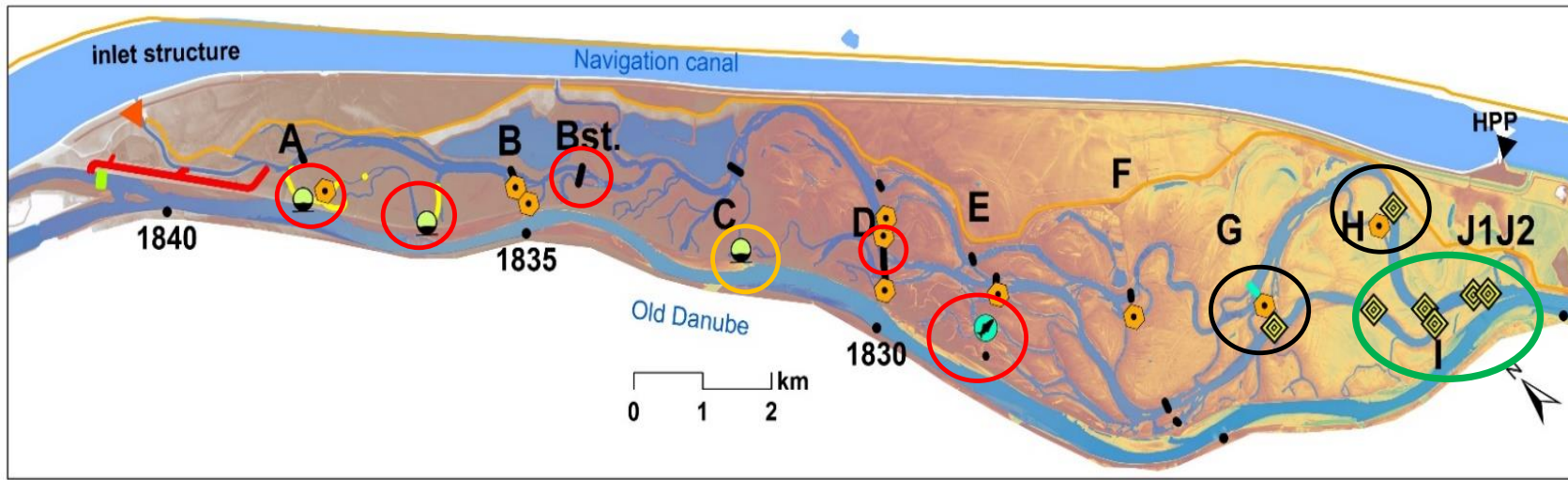
**Gabcikovo/Cunovo fish passes** – feasibility study, modelling, technical parameters, ichthyological surveying and cooperation with experts



# Construction of HPP Čunovo II (12 MW)

Fishpass near Čunovo II (giant sturgeon - *huso huso*, sterlet - *acipenser ruthenus*, barbus barbus, aspius aspius...)



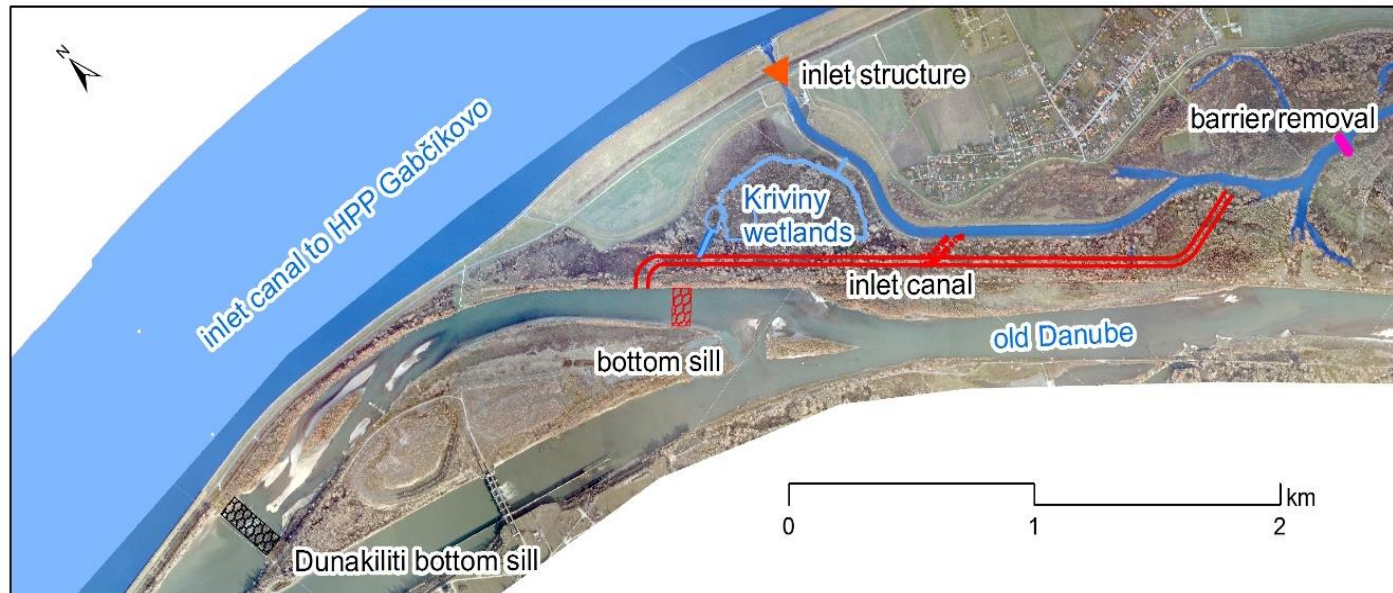


LIFE14 NAT/SK/001306

### Legend

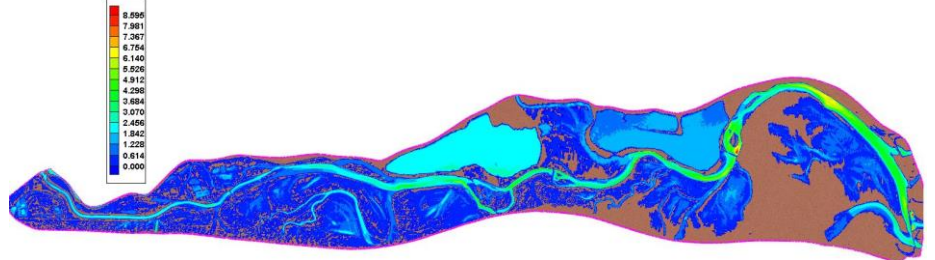
#### Proposal of restoration measures

- culvert construction (no longitudinal connection at present)
- culvert structure enlargement
- inflow channel from the Danube
- fishpass reconstruction
- sediment removal (side-arms reconnection)
- increase the number of existing culverts
- bottom sill to impound water in the Old Danube
- barrier altitude increase



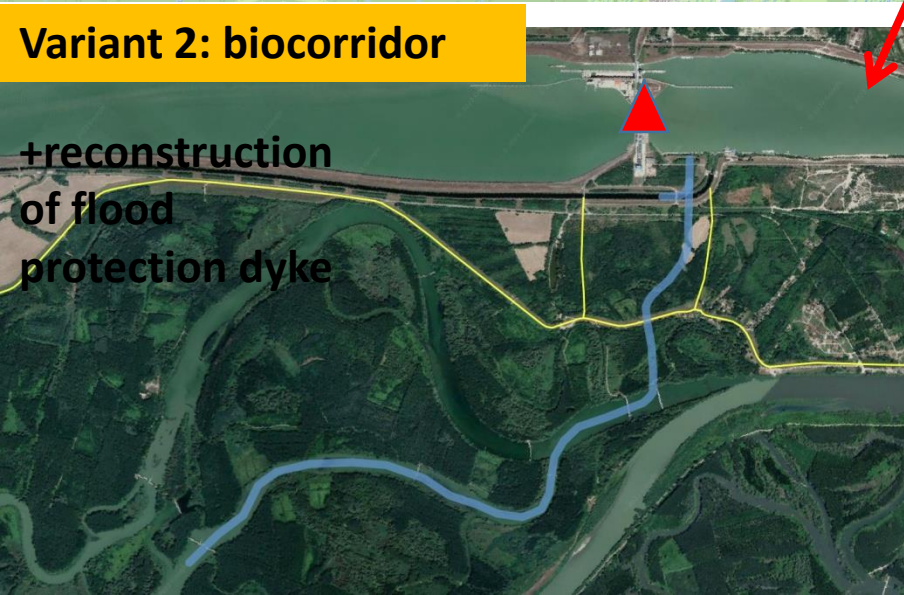
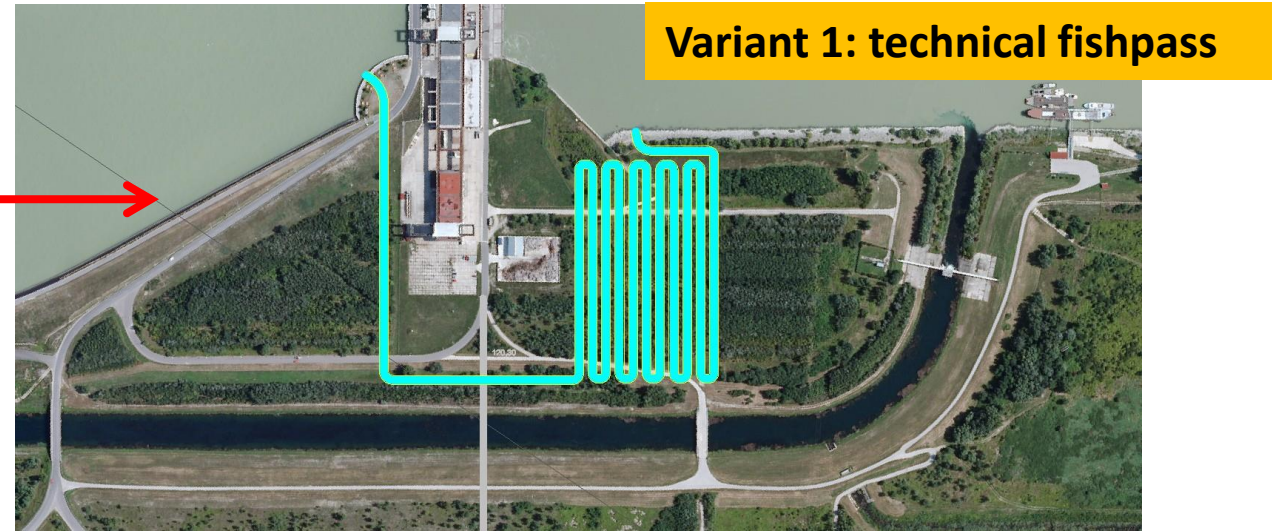
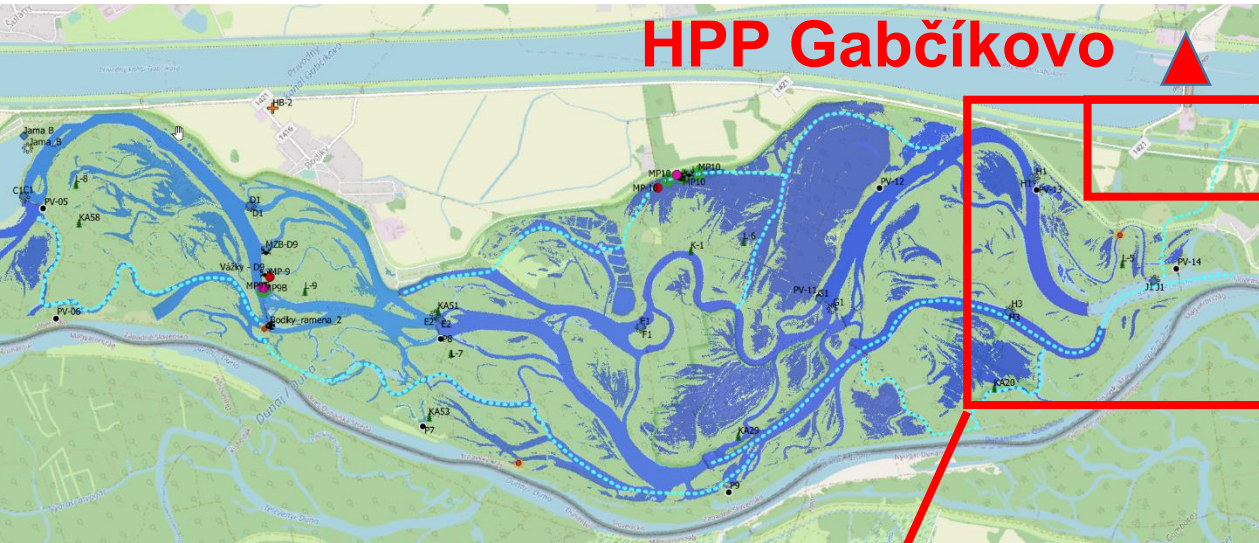


# Hydromorphological and hydrobiological monitoring of the side arm system+modelling (2015-present)



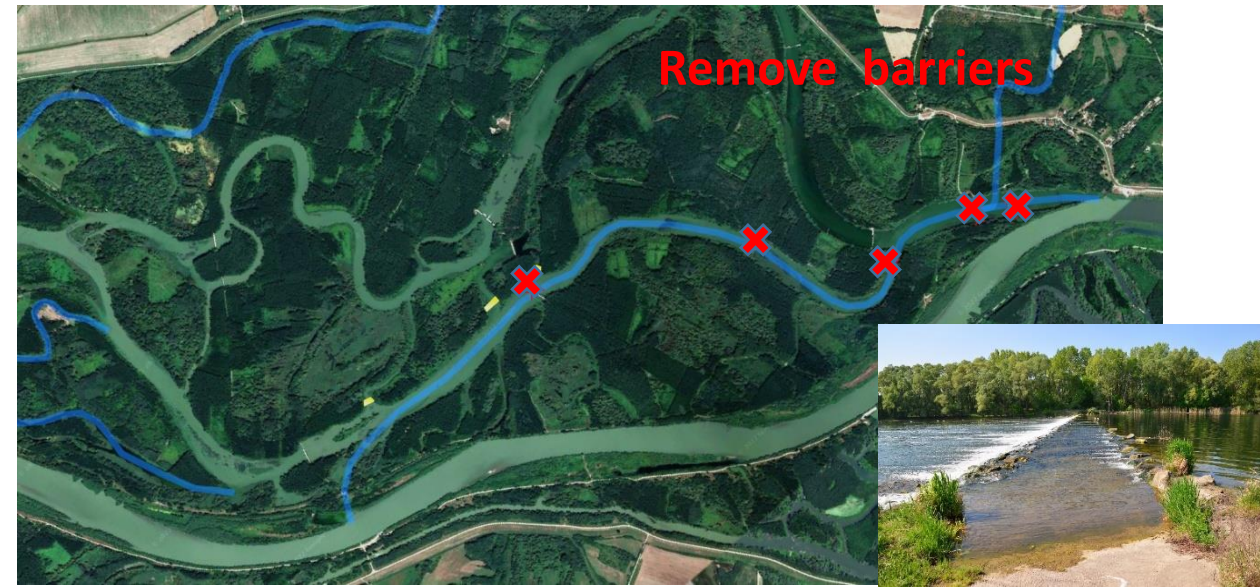
# Danube sidearm system (SK side) – Gabčíkovo HPP

Biocorridors for fish migration- free flowing, without impoundments, gravel bed



**Variant 1:**  
Spád: 21 metrov  
Prevýšenie: 0,10 m  
Dĺžka: 2100 metrov  
Počet bazénov: 210  
Hĺbka vody: 2,5 metra  
Šírka bazénov: 8 metrov  
Dĺžka bazénov: 9 meter  
Rýchlosť v štrbine: 1,40 m/s  
Prietok: 5,0 m<sup>3</sup>/s

Za VE - rybovod v násype  
Pred VE - akvadukt na stĺpoch



## WP4: Nature and biodiversity friendly fishing management active measures to support prospects of target umbrella species



Fakulta rybnářství  
a ochrany vod  
Faculty of Fisheries  
and Protection  
of Waters

Jihočeská univerzita  
v Českých Budějovicích  
University of South Bohemia  
in České Budějovice

**Task T.4.2. In situ strengthening of natural populations of Danubian sturgeons using eggs incubation in the wild**

**Task T.4.3. Juveniles re-stocking as an in situ conservation measure for reinforcement of the sturgeon's populations in the Slovak part of the Danube**

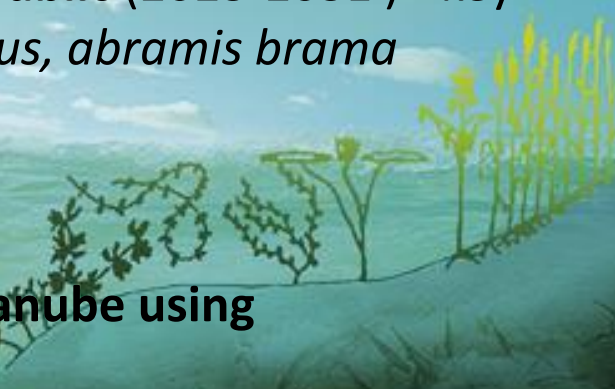
**Task T.4.4. Nature and biodiversity friendly fishing management**

## WP6: Monitoring of the impact of the project actions

**Task T.6.3 Monitoring of the ichthyocoenoses in the target river catchments (Danube, Belá) (2023-2030)**

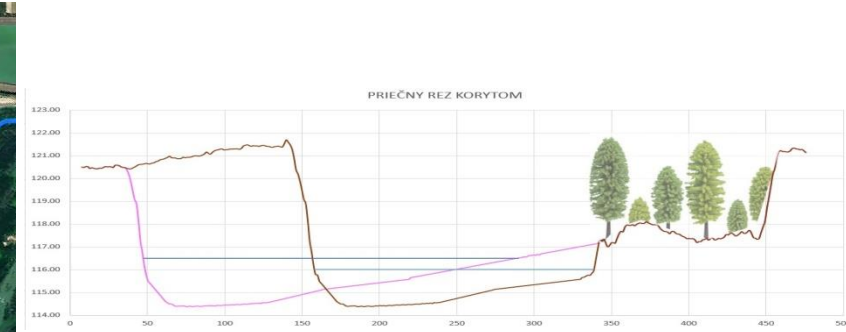
**Task T.6.4 Telemetric surveys of passability of the Danube for fish in the Slovak Republic (2023-2031) - key species *acipenser ruthenus*, *aspius aspius*, *barbus barbus*, *silurus glanis*, *Leuciscus idus*, *abramis brama***

**Task T.6.5 Verification of sturgeon natural reproduction in the Slovak part of the Danube using ichthyoplankton collection nets – method used in US and Canada**



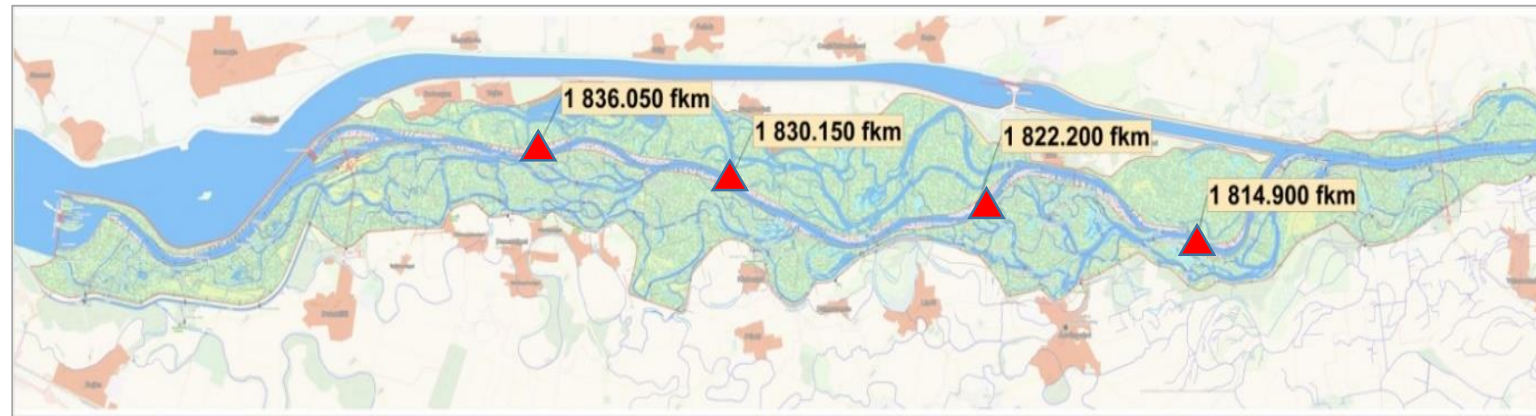
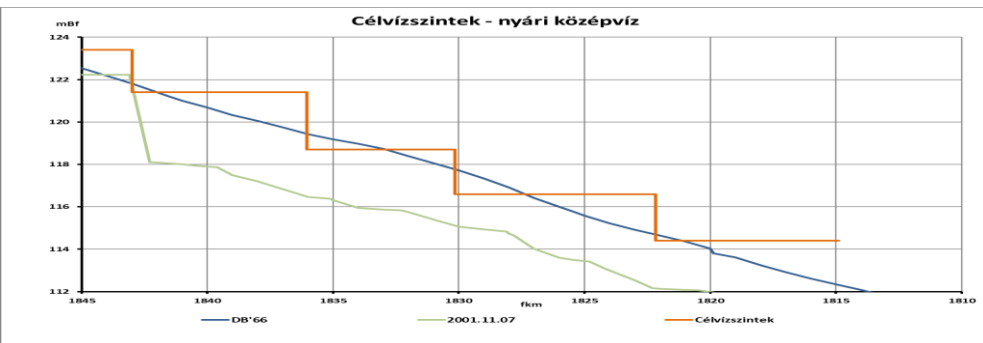
# Long – term visions

Free flowing old Danube channel (remove bank pavement, allow natural morphology)



**No new barriers on the Danube**

**Insula magna – Hungarian project - need bilateral cooperation and harmonisation of plans**



Thank you for attention

