



**Clustering Event Fresh Water Related project  
19th March**

## **DPSI-Szigetköz**

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[FRESHWATERNET.EU](http://FRESHWATERNET.EU)



[BIO-HUB.CZ](http://BIO-HUB.CZ)

# Szigetköz



Total area:	375 km <sup>2</sup>
Length:	53 km
Width:	6-8 km
Inhabitants:	167.000
Elevation:	110 – 125 m.a.s.l.
Floodplain area:	99%



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## Problems

River regulation  
HPP upstream along the  
Danube

## Gabcikovo HPP– Diversion of Danube

## Impact

Duna- riverbed incision  
Floodplain reduction  
Floodplain-Dry branch  
system  
Groundwater level drop



## Solution

### Construction

Submerged wier-Barrage  
Sluice gates  
Fish passages

### Operation

Water allocation dynamic  
control  
Artificial flooding

### Szigetközi Operating Committee

Stakeholder involvement

**Result: Szigetköz revitalization**

# Past Active and Historical Floodplains in 1992

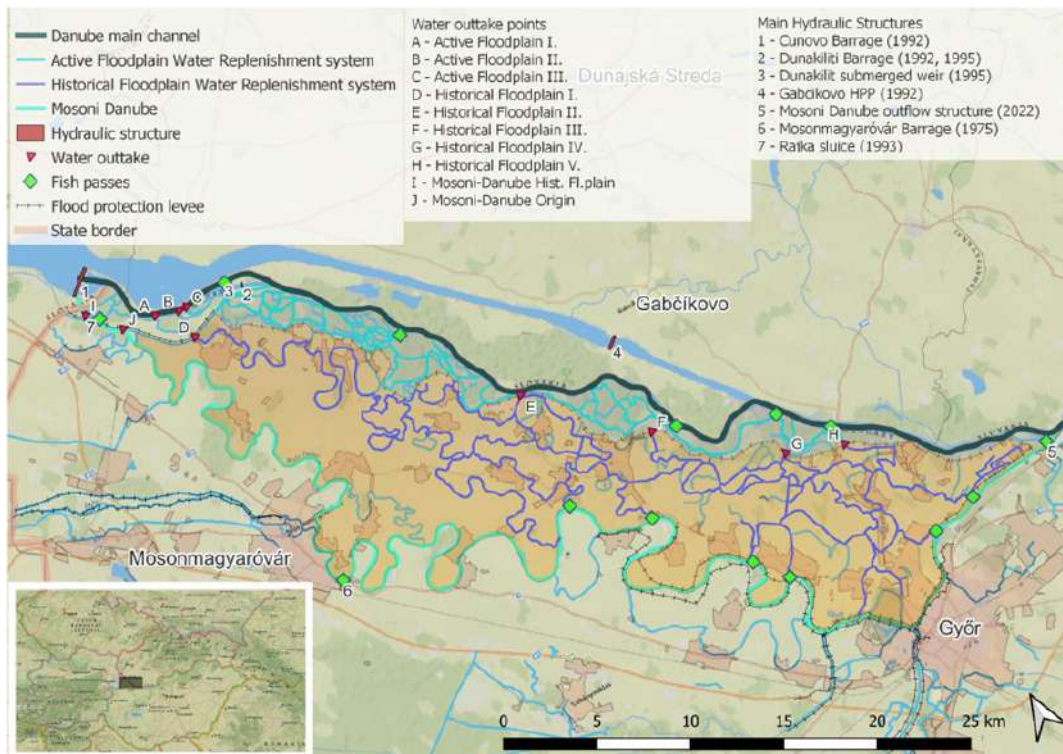


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# Present Active and Historical Floodplains in 2023



# Construction Water Replenishment – 1992-2022



Start:	1992
End:	(2022)
Active floodplain:	120 km
Historical floodplain:	240 km
Mosoni-Danube	125 km
Waterbodies.:	9+1



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# Fish passages – unique designs



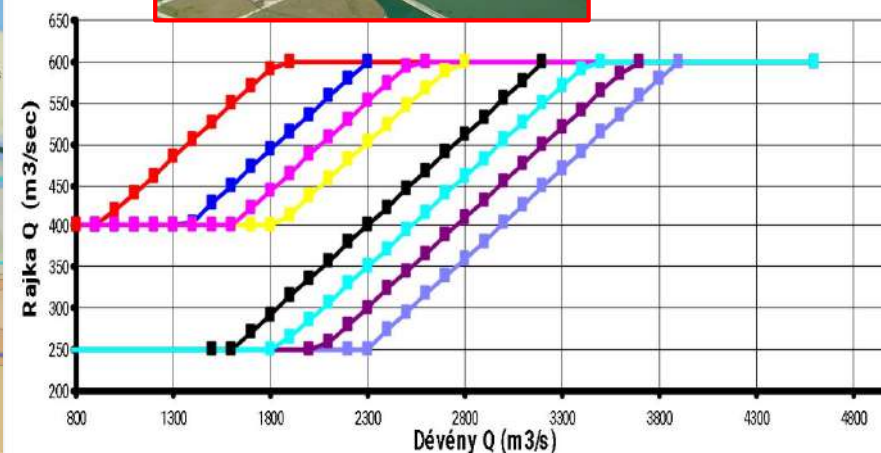
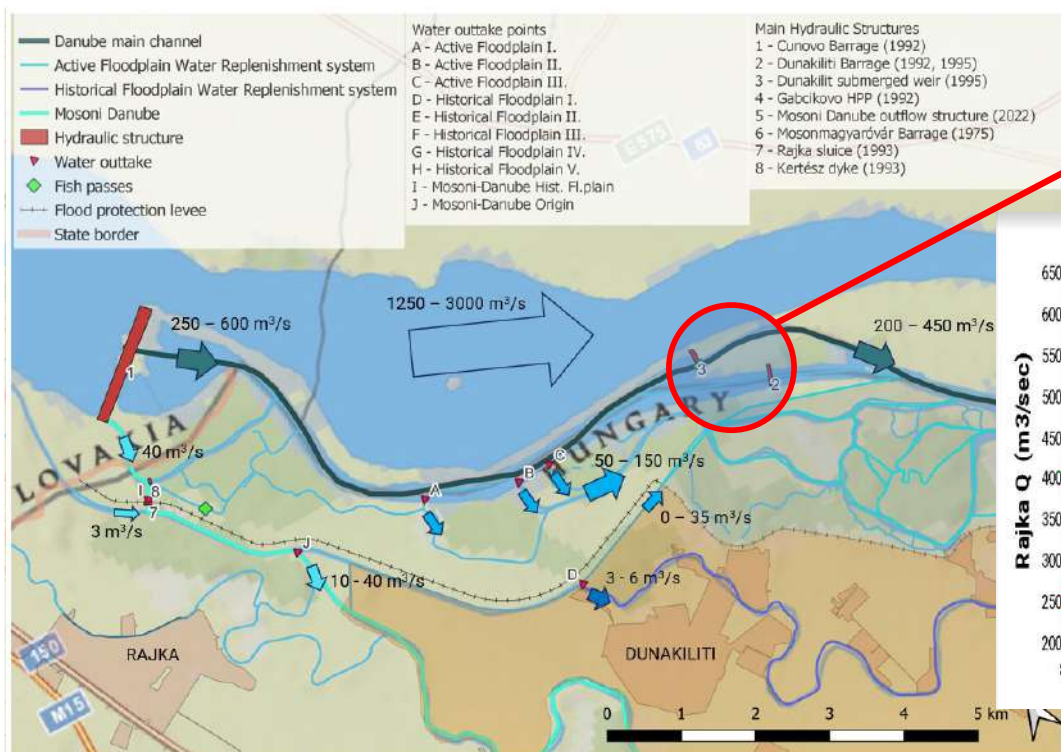
Watercourse	Ásványi-branch (active floodplain)	Constructor:	SzKK Vízép. konzorcium
Location:	Ásványráró, Ásványi-branch 0+464	Difference in water level ( $\Delta h$ )(m)	2,4 (2,9)
Year of construction:	2015	Discharge (m <sup>3</sup> /s)	1,5 (0,65)
WFD water course type:	9F	Length (m)	70
WFD fish species:	Danube	Slope (‰)	34,2
Fish-pass type:	nature-like fish-pass	Costs:	1355 000 €
Material:	riprap, concrete, reinforced concrete	Cost/length (€/m)	19 400
Design:	K+K Kft	Cost/ $\Delta h$ (€/m)	542 000



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# Operation

## Water allocation – dynamic control



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# Dynamic control – artificial flooding



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# Szigetköz Operating Committee



All water-related sectors  
and stakeholders  
represented

Annual meetings

Supervising, advising  
and conflict resolution  
role



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# REPLICATION POTENTIAL



**Water replenishment** in a **Diversion-canal hydropower** situation  
in Heavily Modified Water Body

## OUTCOMES

- Ecosystem monitoring and restoration
- Reconnection of floodplains
- River replenishment
- Longitudinal and lateral connectivity of river branch system

## GOOD PRACTICE FOR ADAPTION

### Design

- Stakeholder involvement
- Technical solutions for gravitational replenishment
- Design guidelines for fish passes

### Operation

- Dynamic Control
- Artificial flooding

### Policy and Decision-making

- Szigetköz Operating Committee



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# POTENTIAL REPLICATION SITES



Rivers affected by **Diversion-canal hydropower plants.**

AUSTRIA      Drava (Rosegg), Mura (Mixnitz)

SLOVENIA      Drava (Zlatolicje, Markovski)

CROATIA      Drava (Varazdin, Cakovec, Dubrava)

POLAND      Vistula (Laczany)



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# DALIA ACTIONS



**A. Quantifying benefits with stakeholders**  
research activity



**B. Knowledge transfer – replication sites**  
guidelines, manuals and consultation



**C. Educational materials – for both local and wider public**  
informing, training, capacity building



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**FRESH WATER  
NET**

**Thank you for your attention**

Katalin Bene

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