

**13th Meeting on the Follow-up of the  
Joint Statement on Guiding Principles on the Development of Inland Navigation and Environmental  
Protection in the Danube River Basin**

## **Border Section Croatia-Serbia**

**CEF Study “Preparing FAIRway 2 works in the Rhine Danube  
Corridor”**

**Budapest, September 14.–15. 2021**



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## Preparing FAIRway 2 works in the Rhine – Danube Corridor

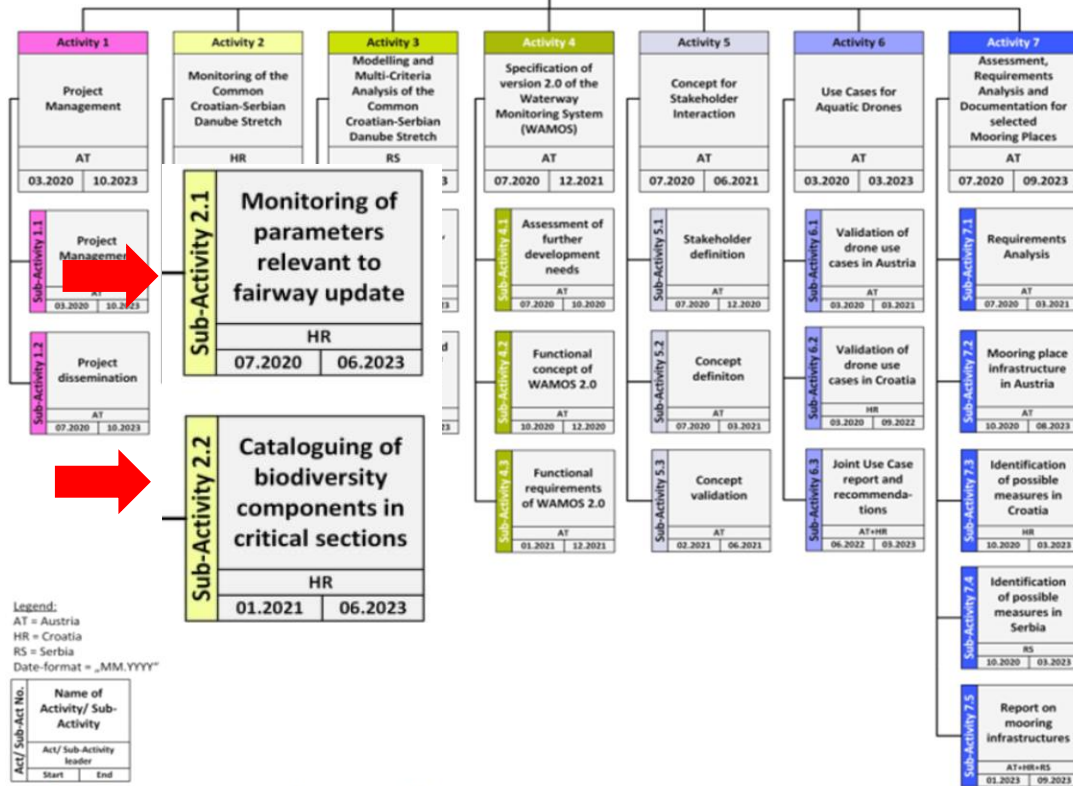


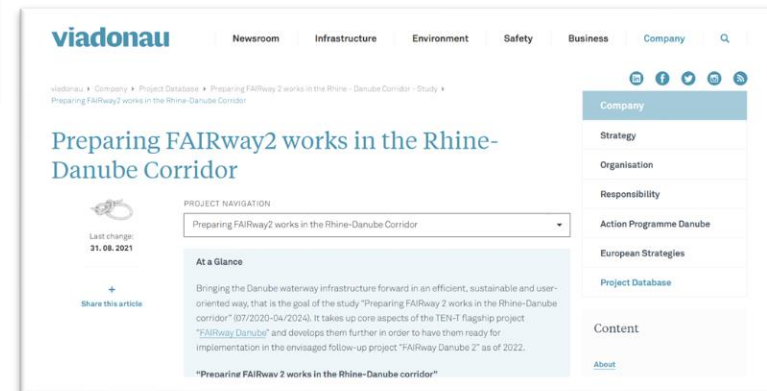
Figure 1: Work breakdown structure of the proposed Action

Duration: 07/2020 – 04/2024

Budget : € 3 292 000

- Joint CEF project (study) by Austria (lead), Croatia and Serbia
- Takes up core aspects of FAIRway Danube and develops them further
- Prepares for implementation in an envisaged “FAIRway Danube 2” project (proposal planned for 1<sup>st</sup> semester 2022)

Web: [www.preparingfairway2.org](http://www.preparingfairway2.org)



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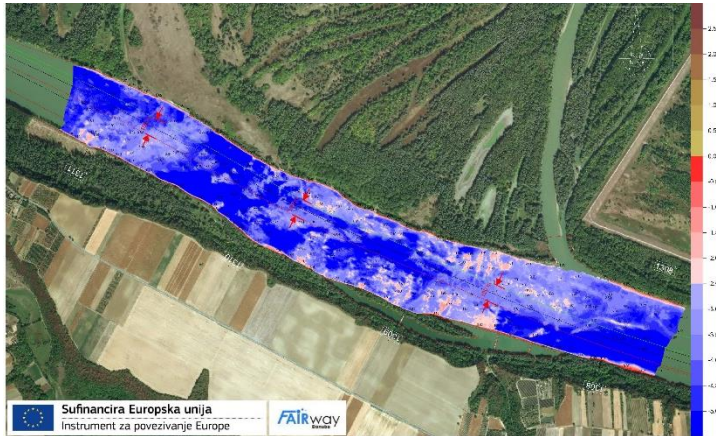
# Croatian-Serbian common Danube section



## Monitoring of the Croatian/ Serbian Danube common section (river-km 1433,1 - 1295,5)

01/10/2020

28/02/2024



Monitoring of hydrological, hydraulic, & morphological characteristics

→ focus on navigational parameters and bottlenecks



Catalogue of biodiversity components

→ focus on enviro characteristics for the ichthyofauna, ornithofauna, river bottom types (benthos) and floodplain habitats

### OBJECTIVES

- ▶ Set up an inventory of **navigational** & **environmental** characteristics of the HR/RS common Danube section (rkm 1433,1 - 1295,5)
- ▶ Use collected data ...
  - ... for navigation purposes - to identify possible variants for future infrastructure related measures
  - ... to support the environmental authorities in the definition of the conservation objectives of the River Basin Management Plans in Croatia

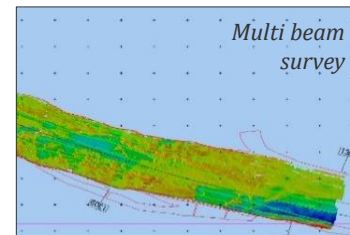
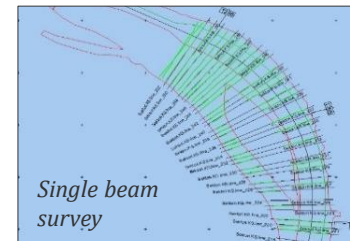


## Monitoring of the Croatian/ Serbian Danube common section (river-km 1433,1 - 1295,5)

Focus on the navigational parameters and bottlenecks

- Riverbed surveys (single beam and multi beam surveying)
- Inventory of existing river regulation structures (digital catalogue)
- Suspended sediment and bedload measurements (few times per year under diff. hydrological conditions)
- Velocity & flow measurements (few times per year under diff. hydrological conditions)
- Investigation works (determine underground water and temperature)

Input to “*Modelling & Multi-criteria Analysis*” to identify possible variants for future infrastructure related measures



Monitoring Plan (ready to download)

# Monitoring of the Croatian/ Serbian Danube common section (river-km 1433,1 - 1295,5)



## Focus on environmental characteristics

- Inventory of **ichthyofauna** (1x season – during spawning, summer and winter)
- Inventory of **ornithofauna** (sand bar nesting species, steep river banks nesting species, passage birds fauna, wintering bird fauna)
- Mapping of river bottom types (**benthos**) (1x project duration between May-Oct)
- Mapping **floodplain habitats** (1x project duration between mid Jul - end Aug)

- ▶ **Catalogue of biodiversity components** in line with national legislation and in compliance with EU legislation (EIA, Birds, Habitats, WFD)
- ▶ **Definition of conservation objectives for River Basin Management Plans in Croatia**
- ▶ **All consolidated into GIS database**



Monitoring Plan (ready to download)

# Monitoring of the Croatian/ Serbian Danube common section (river-km 1433,1 - 1295,5)

... Active involvement of Stakeholder's Forum members.  
... Two revised versions with integrated inputs Forum's members

April 2021

25.05.2021

April-May 2021

Final version

Monitoring plan for Sub-Activities 2.2 and 2.3

Monitoring plan presented and distributed to Stakeholders on 1st Stakeholders Forum Meeting on 12.04.2021

## 2.2.Sub-Activity 2.3 Monitoring Catalogue biodiversity components of the Croatian/Serbian common section of the Danube

In order to prepare **monitoring catalogue** for the ichthyofauna, ornithofauna, river bottom types (benthos) and floodplain habitats along the Croatian/Serbian Danube common section following tasks will be performed:

1. **Ichthyofauna** investigations for providing necessary data for creation of the ichthyofauna catalogue of this stretch of the Danube river is made of over 65 species, among them many are threatened and protected under EU directives. The aim of fish monitoring study is to determine: a) fish populations on Croatian/Serbian common section of the Danube; b) fish population parameters as biomass, age classes, abundance, etc.; and c) the exact locations within critical sites and their floodplain areas areas that where certain species of freshwater fish use for spawning, sheltering and wintering. Particular importance should be given to NATURA 2000 and threatened species according to national Red Lists, bottom dwelling species such as sturgeon (*Acipenseridae*), lampreys (*Petromyzonidae*), perches (*Perca fluviatilis*) and zonal species, gobies (*Gobiidae*), as well as migratory fish species such as eel (*Anguilla anguilla*). Scope of the monitoring area Delineation of critical sites from table 24 are given as Fig. 22-24. Within the borders of scope are each delineated critical site all prospective sites for fish spawning, shelter and wintering should be included and sampled at least once per appropriate season (spawning, summer, winter). Attention during fish monitoring should be on monitoring of invasive species of fish. According to last monitoring their habitats are stone embankments and T-roads so for future planning these results have to be taken into consideration.



Figure 3: river km 1433 - 1423

Figure 4: river km 1423 - 1413

CRO MPPI: the name of this sub-activity is defined and it cannot be changed.

**Author**  
Laszlo Galambos: Evaluation of the effects and consequences of potential construction works on floodplains, **gobies** in the vicinity of the 7 priority

**Author**  
CRO MPPI:  
Thank you for your proposal. Unfortunately, we are co-financed within this project to perform monitoring of the

**Author**  
CRO NGO's & WWF:  
catalogue is a complete list of items, typically one in alphabetical or other systematic order. A list of fish or

**Author**  
CRO MPPI: Thank you for your proposal. Unfortunately, we need to keep the original wording as stated in Grant agreement. For the purpose of this activity, we will

**Author**  
CRO NGO's & WWF:  
fish inventory (a list of fish species) is known for this stretch of the Danube and has been done several times

**Author**  
Laszlo Galambos:  
Data on ichthyofauna should be collected also from existing documents (in Serbia e.g. Nature conservation)

**Author**  
CRO MPPI:  
Thank you for detail information. We will keep that in mind.

**Author**  
ZZCF:  
More specific instructions (methodology, timing) are required for each method as detailed in the proposed

**Author**  
CRO MPPI: More detail instructions will be provided in Term of reference for tendering procedure. We didn't want to put every detail in the plan, just the same

**Author**  
CRO MPPI: number will be changed after insertion of new maps

Download:

[www.viadonau.org/fileadmin/content/viadonau/Projektdatenbank/Preparing FAIRway 2 works in the Rhine Danube Corridor/Monitoring plan 24052021 final.pdf](http://www.viadonau.org/fileadmin/content/viadonau/Projektdatenbank/Preparing FAIRway 2 works in the Rhine Danube Corridor/Monitoring plan 24052021 final.pdf)

## Monitoring of the Croatian/ Serbian Danube common section (river-km 1433,1 - 1295,5)



May -June  
2021



ToR finalised



July 2021 – April  
2022



2nd Tender  
publication



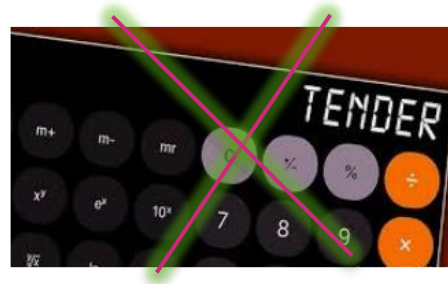
... Croatian Ministry +  
Institute for Environment and  
Nature joined forces  
... Dedicated people working  
together to ensure common  
goal → safe navigation and  
environment protection



July 2021

... Tender preparation +  
tendering procedure...

22nd July 2022







**Thank you for your  
attention!**

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# Hydraulic and morphological modelling of the common SRB-HRV stretch of the Danube River



General concept for hydraulic and morphological modelling of the common Serbian-Croatian stretch of the Danube River

- agreed during the series of Stakeholders' Forum activities in 2021

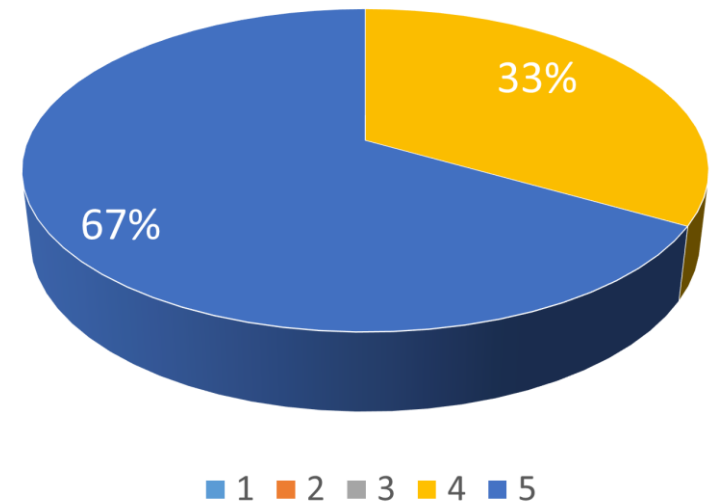


The following components of the process will be performed:

1. **1D hydraulic model** for the entire Serbian and Croatian common Danube stretch,
2. Redefinition and **prioritization** of navigational bottlenecks,
3. Definition of parameters for and execution of the **multi-criteria analysis**,
4. Definition of **alternative solutions** for prioritized sectors and detailed **hydrodynamic and morphological modelling**, and
5. Development of the **integrated study** on alternative solutions and definition of next steps for future investments.

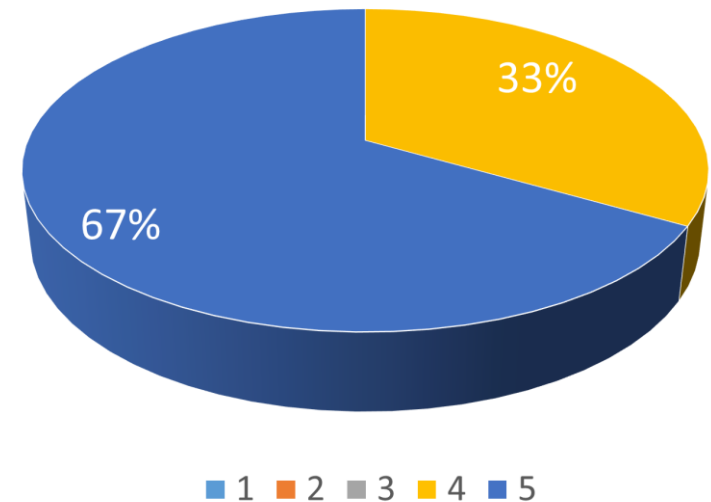
## Stakeholders Forum activities

- to what extent the Forum has contributed to **enabling transparency and public participation** during the implementation of the Project



## Stakeholders Forum activities

- the **form and coherence of the information** provided at the Forum meeting



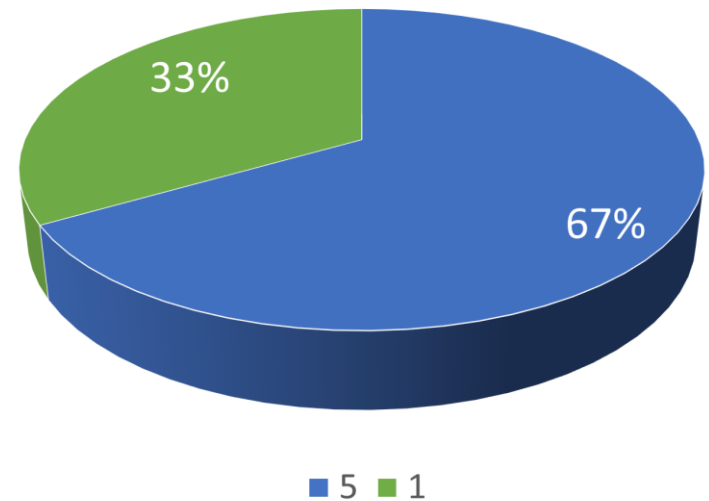


## Stakeholders Forum activities

- if **all relevant fields of interests** are represented in the Forum

For more info:

<https://www.viadonau.org/en/company/project-database/preparing-fairway-2-works-in-the-rhine-danube-corridor-study/stakeholder-forum>



# Hydraulic and morphological modelling of the common SRB-HRV stretch of the Danube River



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