## Introduction to the Science underpinning River Basin Management Planning





## **The Danube River Basin**





# From Black Forest to Black Sea















## Ecological prioritisation approach for continuity restoration general prioritisation scheme

# ICPDR IKSD

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau



# Development



For rivers with a catchment size >4000 km<sup>2</sup> in the DRBD

- First implementation in the DRBMP 2009 (Annex 18)
- First update for the DRBMP 2015 (Annex 15)
  - Extended by hydromorphological pressures
  - Highlighting barriers within the LDM-habitat equipped with fish passes for MDM-species
- Second update for the DRBMP 2021 (Annex 16)

# Input data and criteria rating



for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

Criteria	Variables	rating
Migratory Habitat	LDM (Danube) LDM MDM	4 2 1
River Segment	1st in Danube 1st in Tributary 2nd in tributary 3rd in tributary	5 4 2 1
Length of reconnected habitat (Danube / tributary)	>100 km / >50 km 40-100 km / 20-50 km	2 1
Protected site	Yes	1
Pressures	0 pressures 1 pressure 2 pressures 3 pressures	3 2 1 0

LDM = Long distance migratory species MDM = Medium distance migratory species

#### Segment = Section between two tributaries

Natura2000 or other protection areas for water-dependent species/habitats

Impoundments, water abstractions and hydropeaking sections (waterbody level)

PI = migratory habitat \*

(1 + river segment + length reconnected + protected site + pressures)

#### Ecological Prioritisation Regarding Restoration Measures for River and Habitat Continuity



#### **DRAFT MAP** Ecological Prioritisation Regarding Restoration Measures for River and Habitat Continuity

DRAF

MAP





ICPDR IKSD

International Commission for the Protection of the Danube River zum Schutz der Donau

Internationale Kommission



# **Joint Danube Survey 4**

a

One of the world's most comprehensive investigative surface-water monitoring efforts in the world



This action has received funding from the European Union

by Péter Kovács



33<sup>rd</sup> MA EG Meeting

## **JDS4 OVERVIEW**

- ✓ WFD investigative monitoring;
- Provided opportunity for harmonization and training in WFD related monitoring and covered information gaps for the Danube River Basin Management Plan Update;
- Parallel application & comparison of classical and new monitoring techniques for WFD assessment;
- New concept of JDS4 with more active participation of countries proved to be successful.





## **JDS4 SAMPLING SITES**



This ICPDR product is based on the Joint Danube Survey (JDS4) data. National borders data was provided by the Contracting Parties to the ICPDR and CH; ESRI data was used for national borders of AL, ME, MK; Shuttle Radar Topography Mission (SRTM) from USGS. The rest of the background layers depicted in the legend, were taken from the ICPDR's DanubeGIS. Seamless Data Distribution System was used as topographic layer; Data from the European Commission (Joint Research Center) was used for the cuter border of the DRBD of AL, IT, ME and PL.



33<sup>rd</sup> MA EG Meeting

## JDS4 KEY FINDINGS



- Parallel application of traditional biological assessment techniques and modern molecular methods demonstrated a big potential of DNA and environmental DNA-based approaches for biodiversity and WFD ecological status class assessments;
- HYMO monitoring showed intensified restoration on the still strongly altered Upper/Middle Danube and only insignificant deteriorations on the Lower Danube, the long reaches of which are still only slightly to moderately altered;
- Analysis of antibiotic resistant bacteria showed a significant increase in multi-resistance.





33<sup>rd</sup> MA EG Meeting

## JDS4 KEY FINDINGS

- ✓ Wide-scope chemical target screening and non-target screening proved to be a promising alternative to target analysis of WFD PS and RBSPs;
- Analysis of groundwater showed that for some compounds lower concentrations were detected in groundwater than in the Danube, but the opposite situation was also observed;
- ✓ First ever comprehensive screening of microplastics along the Danube established a baseline of pollution by MP;



Find us on social media



#JDS4 #discoverDanube #ICPDR

### More in JDS4 Scientific and Public Reports Available on ICPDR.ORG

Get in touch:

jds4@icpdr.org www.danubesurvey.org



This action has received funding from the European Union





International Commission for the Protection of the Danube River zum Schutz der Donau

## **Further information**





Danube Basin

Issues Activities & Projects

cts Publications





ICPDR

Public Consultation on Draft River Basin and Flood Risk Management Plans 2021

Vienna. 31 March 2021. The Danube River Basin



(Press Release) World Water Day 2021: valuing the water of our shared basin

VIENNA. 22 March 2021 - World Water Dav 2021 is

### www.icpdr.org

Welcome to ICPDR.org!



SEARCH

We invite you to browse through our website and sincerely hone we can