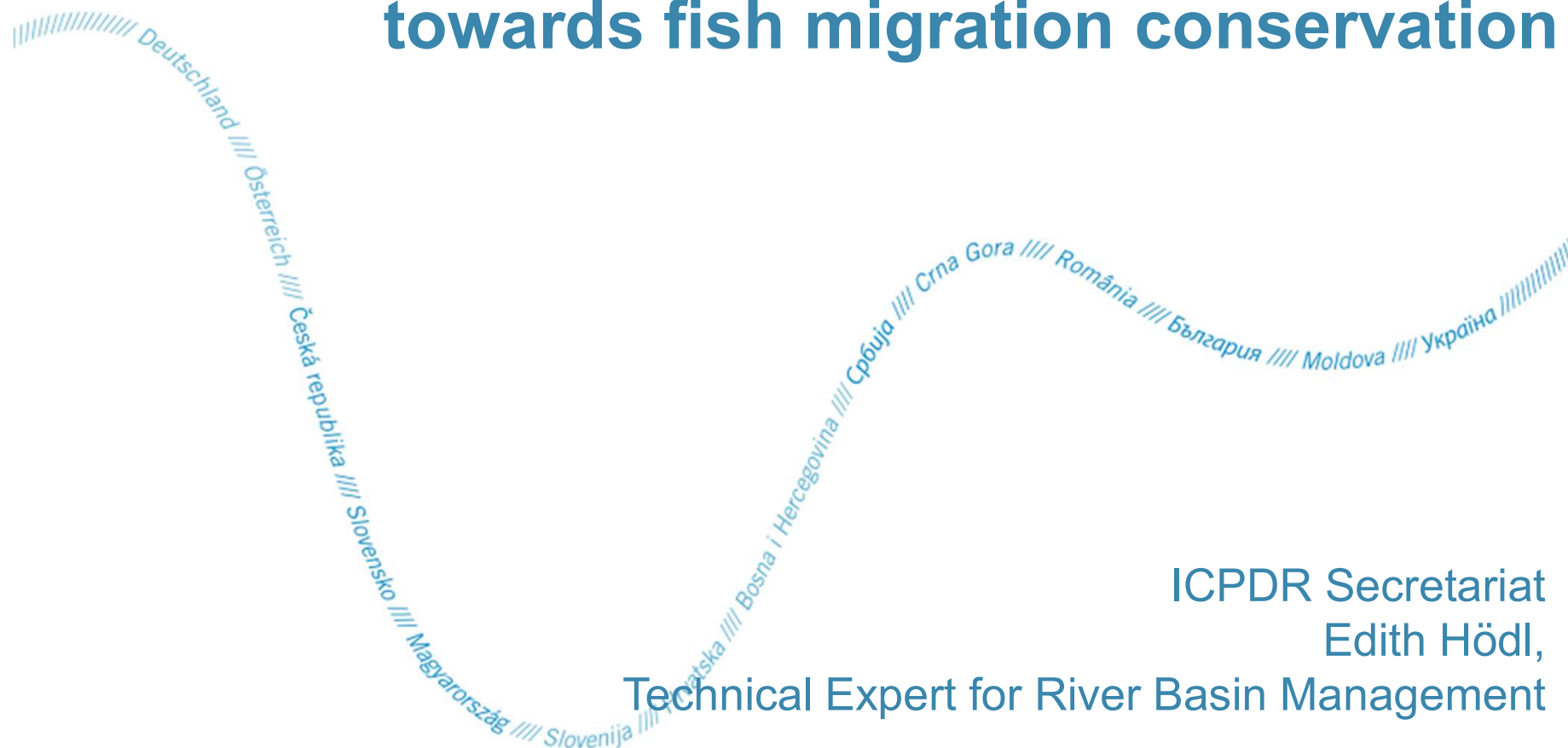


ICPDR activities towards fish migration conservation



ICPDR Secretariat
Edith Hödl,
Technical Expert for River Basin Management

Significant Water Management Issues

Main pressures on basin-wide level

ICPDR IKSD



Organic
Pollution



Nutrient
Pollution



Hazardous
Substances
Pollution



Hydromorphological
Alterations

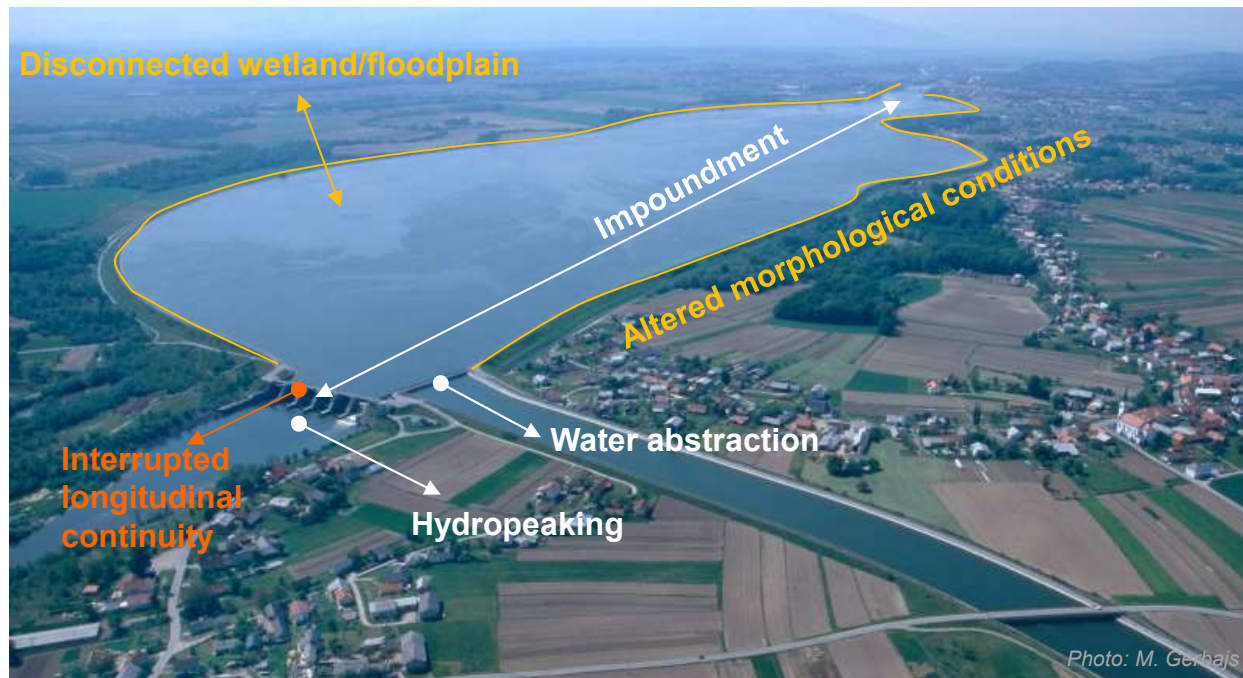


Effects of Climate
Change (drought,
water scarcity,
extreme hydrological
phenomena and other
impacts)

- **Priority pressures for actions** requiring **joint actions** by Danube countries
- Addressed in **Danube River Basin Management Plan**, updates every six years (first 2009, updates in 2015 and 2021; next update in 2027)

- | | |
|---|---|
| <ul style="list-style-type: none">■ Hydrological regime
Quantity and dynamics of flow
Connection to groundwater bodies■ River continuity
for aquatic organisms (fish)
for sediment transport | <ul style="list-style-type: none">■ Morphology
River depth and width variations
Structure and substrate of river-bed
Structure and conditions of riparian zone
Flow velocities |
|---|---|

Hydromorphological Alterations in the Danube River Basin



Hydromorphological pressure	Criteria for significant pressure assessment
Impoundment	Danube River: $l > 10$ km, Danube tributaries: $l > 1$ km
Water abstraction	$Q_{res} < 50\%$ of Q_{mean} annual minimum
Hydropeaking	$\Delta h > 1$ m/day (or less in case of neg. effects)
Interruption of river continuity	$h > 0.7$ m height (rhitral/upper stretch of river), $h > 0.3$ m (pothamal/lower stretch of river)
Morphological alteration	Morphological class ≥ 3 (moderately altered)
Disconnected wetland/floodplain	$A > 500$ ha (basin-wide importance, reconn. potential)

Hydromorphological pressures identified in
Danube River Basin Management Plan



* The barriers are related to different water uses. More detailed information is available in the chapter 2 of the DRBMP Update 2021.

This ICOPR product is based on national information provided by the Contracting Parties to the ICOPR (AT, BA, BG, CZ, DE, HR, HU, MD, ME, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World Countries was used; Shuttle Radar Topography Mission (SRTM) from UGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

Vienna, November 2021

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ICOPR **IKSD**

International Commission
for the Protection
of the Danube River



Ecological prioritisation approach – planning of priority fish passes on the DRB

- Hydropower, flood protection and water supply main driving forces for continuity interruptions
- Prioritisation criteria: main migration routes, location of barrier, reconnected habitat route, protected sites, presence of anthropogenic pressures

Criteria	Rating
1. Migratory habitat	
- Long-distance migrants habitat (Danube)	4
- Long-distance migrants habitat (tributary)	2
- Medium-distance migrants habitat	1
- Short-distance migrants habitat (head waters)	0
2. River Segment	
- First river segment in Danube	5
- First river segment upstream of mouth (tributary)	4
- Second river segment upstream of mouth	2
- Third river segment upstream of mouth	1
- River segments upstream of third river segment	0
3. Length of reconnected habitat (Danube/tributary)	
- >100 km / >50 km (tributary)	2
- 40-100 km / 20-50 km (tributary)	1
- <40 km / <20 km (tributary)	0
4. Protected site	
- Yes	1
- No	0
5. Pressures	
- 0 pressures	3
- 1 pressure	2
- 2 pressures	1
- 3 pressures	0

Progress and challenges in fish migration measures



Hydromorphological Alterations

Progress 2009-2021:

- 127 fish migration aids were completed (47 in 2015-2021); as for 8 fish migration aids the construction is on-going

Remaining Challenges (-2027):

- 424 restoration measures on river continuity for fish migration planned



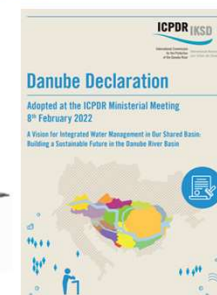
(27) *express full support for the ICPDR Sturgeon Strategy (2017) for the Danube flagship species and for the cooperation with the Danube Sturgeon Task Force, with a view to contribute to the implementation of the Pan-European Action Plan for Sturgeons, welcome the progress made in the assessment of possibilities for opening fish migration routes at the Iron Gate dams, emphasize the need for ensuring the necessary financial resources for the implementation of technically and economically feasible solutions and see the need to discuss sturgeon migratory routes and habitats upstream of Iron Gates as soon as passability of Iron Gates will be foreseeable.*

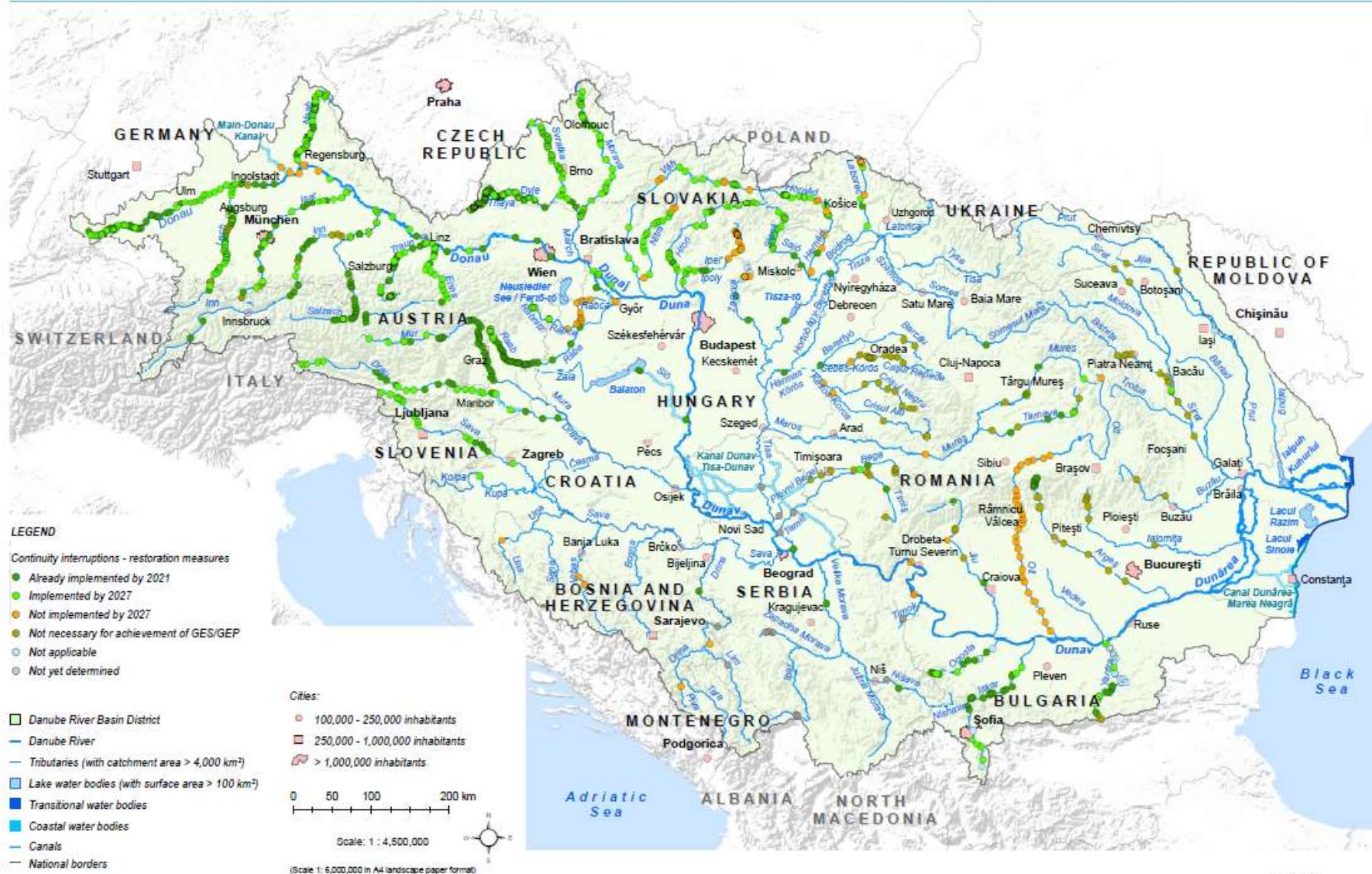


Picture: FAO-FGIS



Picture: FAO-FGIS





In case of overlapping continuity interruption symbols, they are drawn on top of each other in this order (top to bottom): Not implemented by 2027, Not yet determined, implemented by 2027, Already implemented by 2021, Not necessary for GESGEP, Not applicable.

This ICPRD product is based on national information provided by the Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, MD, ME, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World Countries was used; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

Vienna, November 2021

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of the Danube River

Sturgeons in the DRBMP Update 2021

Table 36: Overview of key measures to avoid the extinction of Danube sturgeons and necessary supportive actions

Description of measure /action	Key measure to avoid the extinction of Danube sturgeons	Necessary supportive action	Further details are available under
1. Ex situ broodstocks/ Reproduction and release programmes	X		https://dstf.info/wp-content/uploads/2021/06/DSTF-WSCS-Recommendations-for-Ex-Situ-Sturgeon-Conservation.pdf (accessed 15 October 2021)
2. Follow-up of the We Pass project	X		https://www.we-pass.org/ (accessed 16 February 2021)
3. Effectively enforced multi-decadal fishing bans	X		https://dstf.info/wp-content/uploads/2020/09/DSTF-Fishing-Moratorium-Paper.pdf (accessed 16 February 2021)
4. Habitats, Migration Corridors and Controls on Infrastructure Development	X		http://www.interreg-danube.eu/approved-projects/measures (accessed 16 February 2021)
5. Monitoring and control of by-catch in marine fisheries	X		http://www.interreg-danube.eu/approved-projects/measures (accessed 16 February 2021)
6. Coordination with sturgeon conservation in the Black Sea Basin	X		https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3 https://danube-sturgeons.org/the-project/ (accessed 16 February 2021)
7. Sturgeon Population Monitoring		X	e.g. http://www.europeantrackingnetwork.org/ (accessed 16 February 2021)
8. Establishment and maintenance of a Danube Migratory Fish Database		X	e.g. http://www.interreg-danube.eu/approved-projects/measures (accessed 16 February 2021)

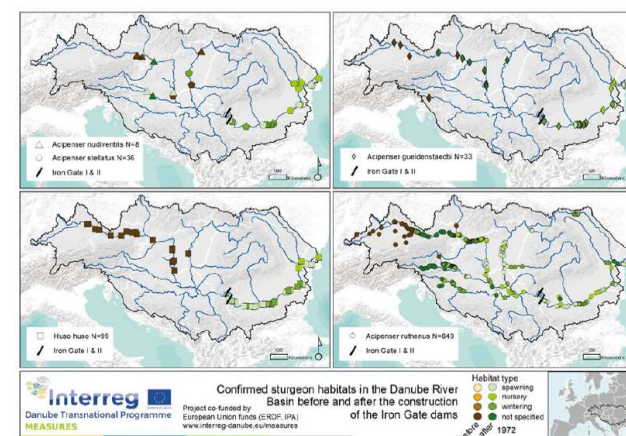
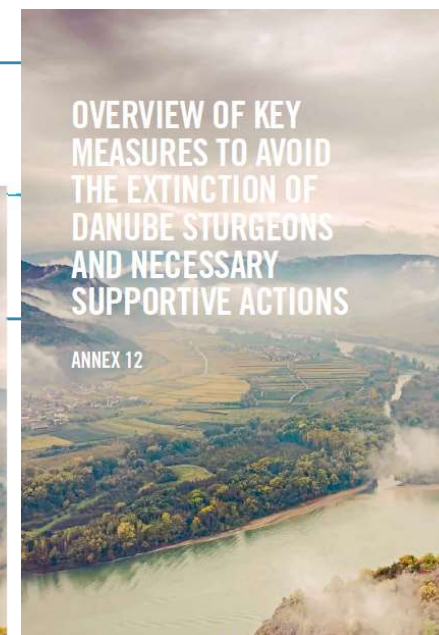
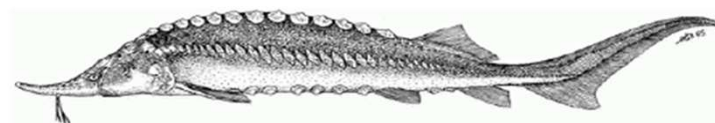
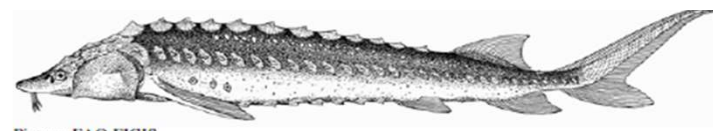


Figure 73: Confirmed Sturgeon Habitats in the Danube River Basin before and after the Construction of the Iron Gate dams (Outcome of MEASURES Project, Interreg, Danube Transnational Programme, co-funded by European Union funds (ERDF, IPA), as of August 2020)⁹⁵



Picture: FAO-FIGIS



Picture: FAO-FIGIS

How does the ICPDR contribute to sturgeon conservation actions?

- Restoration of lost and altered habitats
- Prevention of further habitat degradation
- Enabling of fish migration
- Improvement of water quality



Picture: FAO-FIGIS



Picture: FAO-FIGIS

Concerted action is needed to cover other activities such as

- Governance related measures
- Living gene banks and conservation stocking
- Control of poaching and fishing as well as trade in sturgeon products
- Combating overexploitation of fish stock

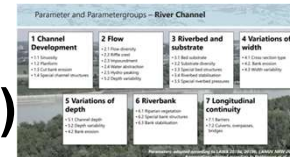
Sturgeons and planned activities in JDS5 (2025) and MonStur



- Danube Sturgeon Expert Group in JDS5 (lead Thomas Friedrich, BOKU Austria), close cooperation with the JDS5 Fish Expert Group (lead Paul Meulenbroek, BOKU Austria)
- **Sturgeon population monitoring (MA EG)**
 - ICPDR 26th Ordinary Meeting, 12-13 December 2023 (Vienna, AT): Resolution: The ICPDR “asks the MA EG to review the *possibilities of including the sturgeon monitoring into the Trans-National Monitoring Network (TNMN) and of accommodating the external sturgeon data into the TNMN database.*”

- **Sturgeon habitat assessment (HYMO TG)**

- DSTF proposed that the sites for HYMO monitoring sites in JDS5 include habitats with verified sturgeon occurrence (spawning, feeding, wintering, nursery), as identified in the MEASURES project and ongoing SCUTE project
- Availability of data on national level/existing gauging stations (no measurements during JDS5) as regards river discharge, water level and water temperature; sediment composition, water depth and bottom flow velocity (data sources on national level)



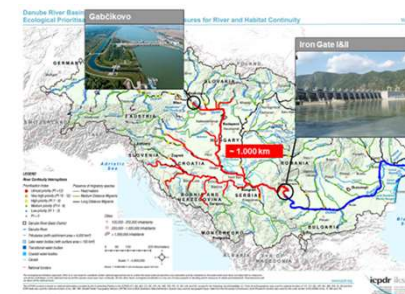
ICPDR and fish migration: Key messages



-
- More than half of water bodies in the DRB are still under (at least one) significant **hydromorphological pressure**
 - **Hydromorphological pressures** identified in Danube River Basin Management Plan including interruption of river continuity
 - More than **400 restoration measures on river continuity for fish migration** are planned in **WFD cycle 2022-2027**
 - **Ecological prioritisation approach** for planning of priority fish passes in the Danube River Basin (**Gabčíkovo Dam, Iron Gates I and II**)
 - **Sturgeons as Danube flagship species** are prominently highlighted in the **Danube River Basin Management Plan Update 2021**
 - **Integration issues to address different challenges in the Danube basin** of particular importance to meet objectives of the DRBMP and FRMPs and closely coordinate with key sectors (ICPDR worked on guidelines for sustainable **hydropower** management, **agriculture**, and close cooperation with **navigation** sector)
 - Fish migration activities (focus on sturgeons) in the Danube River Basin including **We Pass, LIFE Boat4Sturgeons** as well as **planned MonStur and JDS5 activities**



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For more information:

<https://www.icpdr.org/>

