



# Joint water and biodiversity objectives in climate change adaptation

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EUSDR Thematic Event on Climate Change & Water Management





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**EU STRATEGY FOR THE DANUBE REGION,  
PRIORITY AREA 4 „WATER QUALITY“**



# The European Green Deal



The EU as a global leader

A European Climate Pact



# 2021 EU Strategy on Adaptation to Climate Change – impacts on water quality



„Climate change also threatens water quality. A stable and secure **supply of drinking water** is of highest importance and it must be guaranteed. **Climate change will increase the risk of contamination and acute pollution of freshwater due to impacts such as low river flows, increased water temperatures, flooding, and forest loss.** It is important to include climate impacts in the **risk analyses of (drinking) water management plans, develop water-monitoring technologies, and ensure minimum river flow.** These will play an important role in ensuring water quality and preserving sufficient water quantities for the environment and all people. Similarly, it is important to **maximise the capacity of soils to purify water and reduce pollution.**”

Brussels, 24.2.2021  
COM(2021) 82 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS

Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate  
Change

{SEC(2021) 89 final} - {SWD(2021) 25 final} - {SWD(2021) 26 final}

# 2021 EU Strategy on Adaptation to Climate Change – Link to water, ecosystems and biodiversity



„We need to better understand the **interdependencies between climate change, ecosystems, and the services they deliver**. Major shifts in terrestrial ecosystems and vegetation types on the European Union’s land area are expected during this century, including in protected areas. **Water cycle and temperature changes, or sea level rise will put ecosystems under additional stress**. Over this century, the ocean is expected to reach unprecedented conditions with increased temperatures, further acidification, and oxygen decline. **We need science-based, robust ecosystem restoration and management that helps minimise risks, improves resilience, and ensures the continued delivery of vital ecosystem services** and features: food provision, air and **water purification**, flood protection, **biodiversity**, and **climate mitigation**.”

...

„**Nature-based solutions are essential for sustaining healthy water, oceans and soils**. They must play a bigger role in land-use management and infrastructure planning to reduce costs, **provide climate-resilient services, and improve compliance with Water Framework Directive requirements for good ecological status**. Using nature-based solutions inland, including the restoration of the **sponge-like function of soils, will boost the supply of clean, fresh water** and reduce risk of flooding. In coastal and marine areas, nature-based solutions will enhance coastal defence and reduce risk of algal blooms. Simultaneously, they will provide benefits such as carbon sequestration, tourism opportunities, and **biodiversity conservation and restoration**.”



# EU Strategy for the Danube Region (EUSDR)



Priority Area 4:  
Water Quality

Priority Area 5:  
Environmental Risks

Priority Area 6:  
Biodiversity

# Revised EUSDR PA4 „Water Quality” Action Plan (I)



## Actions:

1. HAZARDOUS & EMERGING SUBSTANCES: Promote monitoring, prevention and reduction of water pollution deriving from hazardous and emerging substances (EU priority substances and watch list candidates as well as Danube basin specific pollutants candidates and others e.g. microplastics-plastics, pharmaceuticals, PFOS)
2. WASTE WATER: Continue boosting major investments in building, upgrading, maintaining and rehabilitating urban wastewater treatment facilities and promote alternative collection and treatment of wastewater in small rural settlements, including measures to build capacity at the regional and local level across the Danube basin
3. WATER & AGRICULTURE: Promote prevention and reduction of diffuse pollution, promote nutrient retention, smart irrigation and water reuse, foster and develop an active process of dialogue and cooperation between authorities responsible for agriculture and environment to ensure that measures are taken to address diffuse pollution and ensure smart water use
4. DRINKING WATER: Promote measures aimed at reducing knowledge deficits related to protecting water resources and safeguarding drinking water supply

# Revised EUSDR PA4 „Water Quality” Action Plan (II)



## 5. MIGRATORY FISH: Promote measures to enable fish migration in the Danube river basin

Description and targets:

- Raise broad public awareness and political commitment for the Danube sturgeons as **flagship species** for the Danube River basin and for the **ecosystems and biodiversity** of the Danube River basin as a whole
- Foster **sturgeon conservation activities** including protection of habitats, restoration of fish migration routes and ex-situ conservation measures
- Close knowledge gaps concerning monitoring of pressures and planning of **measures for fish migration in coordination with PA 6** (Action 3)

## 6. CLIMATE CHANGE: Promote measures to adapt to climate change impacts in relation to water quality and quantity

Description and targets:

- Implement water quality measures of the ICPDR Strategy on Adaptation to Climate Change.
- Promote concrete measures to control water abstraction and groundwater overexploitation
- Promote the establishment and maintenance of **green infrastructure and natural water retention measures** (NWRMs)
- Promote water related measures in **urban planning**
- Raise farmers' and public awareness about the importance of **soil moisture and soil water retention capacity** in soil fertility under changing climate conditions

## 7. TOOLS: Enhance cooperation, increase and exchange knowledge and secure financing to water quality measures in the Danube Region

# Revised EUSDR PA6 „Biodiversity” Action Plan



**ACTION 1:** Establish transnational cooperation and harmonisation of the strategic management documents between **protected areas on river systems** in the Danube basin

**ACTION 2:** Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters

**ACTION 3:** Develop and/or implement **conservation action plans** and/or management plans for **endangered umbrella species** of the Danube Region

**ACTION 4:** Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014

**ACTION 5:** Anchoring the concept of **EU green infrastructure** in the Danube Region

**ACTION 6:** Promote **ecological connectivity** through cooperation between macro-regional strategies (MRS)

**ACTION 7:** Enhance and/or maintain **soil-related ecosystem services** (ES)

**ACTION 8:** Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents

**ACTION 9:** Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive

**ACTION 10:** Stimulate the management and the **ecological restoration of wetlands**, particularly in the Danube delta



# Pan-European Action Plan for Sturgeons

[https://ec.europa.eu/environment/nature/conservation/species/action\\_plans/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/species/action_plans/index_en.htm)

Numerous research and pilot activities in many countries have prepared the ground for stepping up effective common action.

## Examples of sturgeon recovery measures in Europe

### GERMANY

**European Sturgeon**  
Reintroduction ongoing in River Elbe based upon National Action Plan and for **Baltic Sturgeon** in Oder River

### NETHERLANDS

**European Sturgeon**  
Reintroduction planned, National Action Plan in preparation, habitat restoration in the delta ongoing

### FRANCE

**European Sturgeon**  
National Action Plan in place; Recovery ongoing in the Gironde and tributaries; *Ex situ* programme established; Monitoring in place

### ITALY

**Adriatic Sturgeon**  
National Action Plan in place; Recovery ongoing, but uncoordinated; Reintroduction of **Beluga** planned

### BALTIC SEA



**Baltic Sturgeon**  
Regional Action Plan adopted in 2019 focusing on joint habitat, bycatch, *ex situ* and release measures

### AUSTRIA

**Sterlet**  
National Action Plan planned; Stocking and monitoring ongoing

### RUSSIA

**Russian Sturgeon, Stellate, Beluga, Sterlet**  
Stocking ongoing in the tributaries to the Sea of Azov

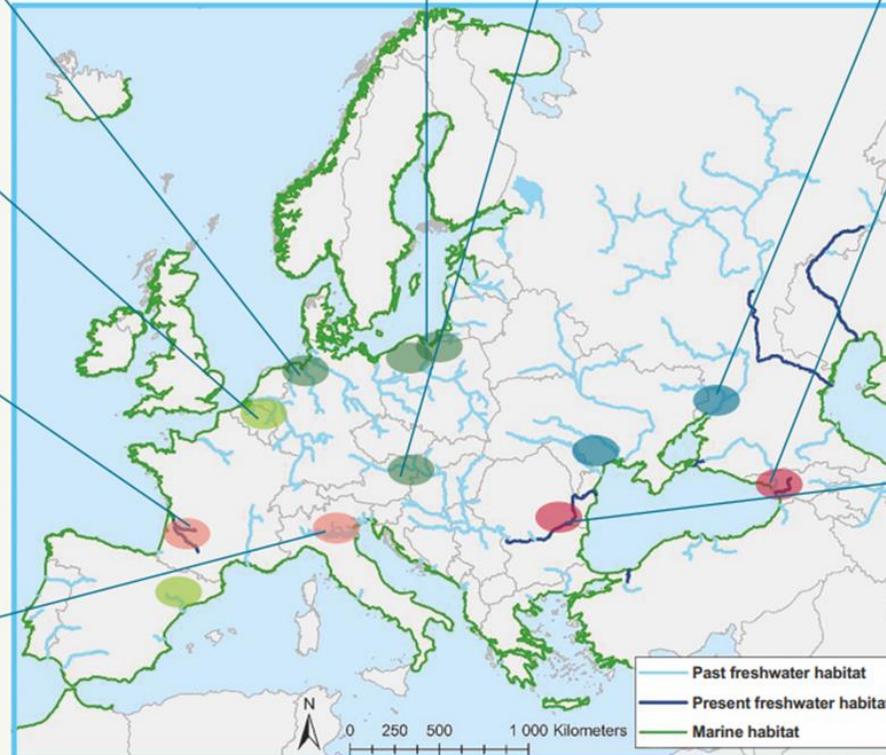
### GEORGIA

**Russian Sturgeon, Stellate, Beluga**  
Monitoring ongoing and creation of a protected area in Rioni River

*Only the Lower Danube and the Rioni River in Georgia still host self-sustaining populations today.*

### LOWER DANUBE

**Russian Sturgeon, Stellate, Beluga, Sterlet**  
Danube-wide Action Plan in place; Habitat identification ongoing; Monitoring and stocking uncoordinated; Project against illegal fishing and trade; Feasibility study for fish passage at Iron Gate; *Ex situ* planned



● Self sustaining    
 ● Reproduction ceased and recovery ongoing    
 ● Recovery ongoing    
 ● Recovery planned    
 ● Stocking

# Projects on migratory fish



**MEASURES:** Managing and restoring aquatic Ecological corridors for migratory fish species in the danube River basin

<http://www.interreg-danube.eu/approved-projects/measure>

LP: University of Natural Resources and Life Sciences, Vienna; PPs from AT, SI, BG, RO, SK, HU, HR, RS

**We Pass:** Facilitating fish migration and conservation at the Iron Gates

<https://www.we-pass.org/>

PPs: ICPDR, RS, RO, NO



MEASURES aims to create ecological corridors by identifying key habitats and initiating protection measures along the Danube and its main tributaries. In this sense, sturgeons and other migratory fish will act as flagship species in support of our goals.

Migratory fish species represent a historical, economic and natural heritage of the Danube and are indicators of the ecological status of its watercourses, especially concerning the function of the river as an ecological corridor. Transnational management of these corridors and restoration actions, as well as restocking with indigenous species are essential.

### In the three years of the project, MEASURES means:

- » developing and testing a methodology for mapping and identifying habitats for migratory fish species;
- » design a harmonized strategy for restoring ecological corridors and supporting implementation in future management plans;
- » restocking of two native species to conserve their genetic pool in Hungary and Romania, establishing a network for the coordinated repopulation of the target species and composing a manual for the operation of broodstock facilities that will provide the offspring needed for future re-population efforts;
- » the implementation of the MEASURES Information System will facilitate the access of relevant information to experts, decision-makers and the general public to the relevant information available.

Concrete input into future drafts of policy and management plans will secure the consideration of our project outcomes into sustainable measures aimed to restore the function of ecological corridors

### Project partners:

**Austria** - University of Natural Resources and Life Sciences, Vienna

**Bulgaria** - WWF Bulgaria, Institute of Biodiversity and Ecosystem Research - Bulgarian Academy of Sciences

**Croatia** - Karlovac University of Applied Sciences

**Hungary** - National Agricultural Research and Innovation Centre, Research Institute for Fisheries

**Romania** - Institute of Biology Bucharest, Romanian Academy Danube Delta National Institute for Research and Development Ministry of Waters and Forests, WWF-Romania

**Serbia** - Institute for Multidisciplinary Research, University of Belgrade

**Slovakia** - Trnava University in Trnava, Faculty of Education

**Slovenia** - Institute for Ichthyological and Ecological Research REVIVO

### Associated strategic partners:

**Austria** - International Commission for the Protection of the Danube River, Austrian Federal Ministry of Sustainability and Tourism, Danube River Network of Protected Areas

**Germany** - Bavarian State Ministry of the Environment and Consumer Protection, German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Leibniz-Institute of Freshwater Ecology and Inland Fisheries - a member of the Research Association Berlin e.V.

**Netherlands** - World Fish Migration Foundation,

**Romania** - Ministry of Environment, Biodiversity Directorate, River Administration of the Lower Danube Galati,

**Hungary** - Ministry of Foreign Affairs and Trade, Ministry of Agriculture, Department of Angling and Fisheries Management, Duna-Drava National Park Directorate





# WePass

## FACILITATING FISH MIGRATION AND CONSERVATION AT THE IRON GATES

Task	Desired Outcome	Deliverable
Task 1	Cohesive and successful completion of project	Project management tasks
Task 2	A report on site specific conditions at the Iron Gate I & II dams. Sturgeon passage facilities literature study.	Gathering of hydrological and technical data of Iron Gate I & II dams. Review of sturgeon passage facilities.
Task 3	Coarse-grid study of migratory fish behaviour downstream Iron Gate II Dam and in the reservoir.	Design and installation of acoustic receivers? network
Task 4	Improvement of public engagement for plight of migratory fish at the Iron Gates Task 4	Notable and provable public engagement with a strong focus on social media
Task 5.1	Identify & specify technical data; documentation and QC of received data	Key data lists
Task 5.2	Brainstorming of ideas & incorporation of special knowledge	International expert workshop
Task 5.3	3D CAD models of the Iron Gate dams using data gathered in Task 2 as basis for future fish passage design. (Data, e.g. as-builts and topography, on Romanian side is extremely limited).	Commence building 3D basis data model
Task 5.4	Roadmap clarifying implementation process and required works.	Roadmap



# OPTAIN

OPTimal strategies to retAIN and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (H2020)



<https://www.optain.eu/>

<https://cordis.europa.eu/project/id/862756>



LP: Helmholtz Centre for Environmental Research – UFZ (DE), PPs from NL, BE, FR, CH, IT, CZ, SI, HU, SK, PL, LT, LV, SE, NO

The project objective is to better adapt to extreme events that exacerbate conflicts between agricultural water uses and other human and environmental demands for water.

OPTAIN aims to:

- Identify efficient and easy-to-implement techniques for the retention and reuse of water and nutrients in small agricultural catchments across Boreal, Continental, and Pannonian regions.
- Optimize the spatial allocation and combination of Natural / Small Water Retention Measures, based on environmental and economic sustainability indicators.

# Danube Floodplain

Reducing the flood risk through floodplain restoration along the Danube River and tributaries

<http://www.interreg-danube.eu/approved-projects/danube-floodplain>



LP: National Administration "Romanian Waters", PPs from AT, BG, HR, CZ, DE, HU, SK, SI, RO, RS.

The main objective of the project is improving transnational water management and flood risk prevention while maximizing benefits for biodiversity conservation, related to integrative water management through restoration of floodplains, combination of classical and green infrastructure, natural retention measures.

The project develops:

- 1) The Danube basin wide floodplain restoration and preservation manual addressed mainly to practitioners;
- 2) A DRB Sustainable Floodplain management Strategic Guidance targeting a wider audience;
- 3) A DRB Roadmap comprising agreed next steps towards realizing floodplain projects.

# IDES

Improving water quality in the Danube river and its tributaries by integrative floodplain management based on Ecosystem Services



<http://www.interreg-danube.eu/approved-projects/ides>

LP: Catholic University of Eichstaett-Ingolstadt (DE), PPs from AT, RO, HU, DE, SI, BG, RS

Nutrient loads transported by the Danube affect its ecological status and have to be reduced, active floodplains can have a significant retention potential. Danube Floodplain Project links attempts of improving flood retention and restoration, while water quality is not yet in focus.

IDES project aims to add water quality targets to this effort and improve water quality by developing an integrative floodplain management based on Ecosystem Services. National action plans with prioritized areas and a joint strategy will be developed to improve water quality at transnational level regarding the Danube river basin management plan and targets of EUSDR PA4 and PA6.

**SaveGreen:** Safeguarding the functionality of transnationally important ecological corridors in the Danube basin

<http://www.interreg-danube.eu/approved-projects/savegreen>

LP: WWF Central and Eastern Europe, PPs from AT, BG, CZ, HU, RO, SK

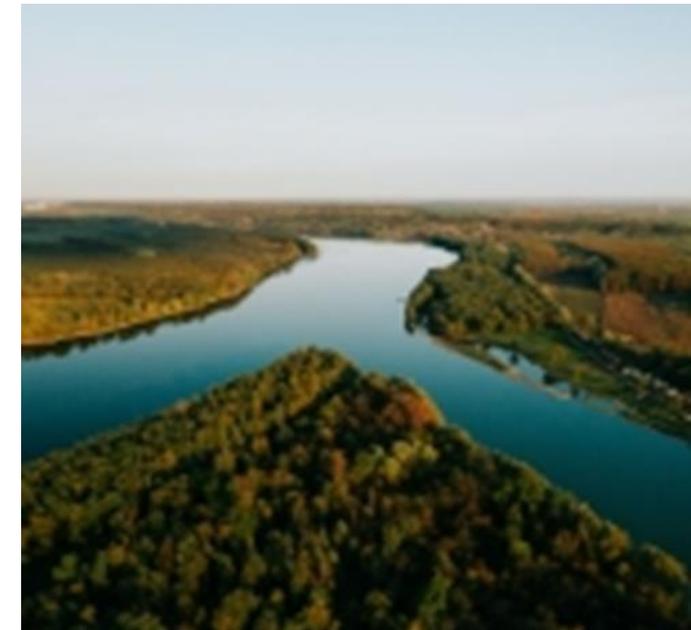
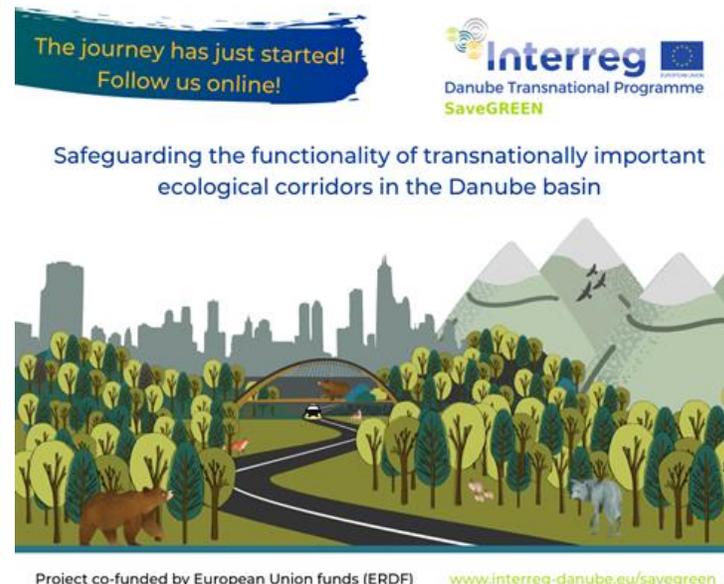
The project aims to demonstrate ways of designing appropriate mitigation measures and maintaining or improving the functionality of ecological corridors through integrated planning.

**lifelineMDD:** Protecting and restoring ecological connectivity in the Mura-Drava-Danube river corridor through cross-sectoral cooperation



<http://www.interreg-danube.eu/approved-projects/lifelinemdd>

LP: WWF Austria, PPs from AT, SI, HR, HU, RS



# JOINTISZA

Strengthening cooperation between river basin management planning and flood risk prevention to enhance the status of waters of the Tisza River Basin



<http://www.interreg-danube.eu/approved-projects/jointisza>

- Elaboration of the **Integrated Tisza River Basin Management Plan (ITRBMP)** with the integration of **flood risk management**
- **Data** collection and presentation
- Identification of **win-win measures**
- Paying attention to the effects of **climate change** and the needs of **urban water management**
- The **cooperation** of the Tisza countries and international organizations
- Consideration of the feedback of **stakeholders**
- Total harmony and compliance with EU regulations
- Thorough and **comprehensive approach**

# *BISEL: Biotic Index at Secondary Education Level*



- The bioindex (BI) is calculated on the basis of biological tests (i.e. ecological health checks), and is used to rate the quality of waters. The index shows the purity and ecological status of waters based on aquatic life analysis.
- Since 1984, Belgium has applied the Belgian Biotic Index (BBI) as the country's official water rating procedure, but the method can be applied all over Europe with only a few minor modifications.
- BISEL (Biotic Index of Secondary Education Level) is a simplified version of BI and has been integrated into secondary school teaching materials. BISEL requires no special expertise. As BISEL efficiently unites taxonomy and human ecology and can also be linked to various chemical analyses, it is an excellent tool by which chemistry and biology lessons can be made more practical, allowing science teachers to make their subjects more appealing to students and potentially achieving commitment to these subjects in the long term.
- Students e.g. can collect macro-invertebrates from creeks or lakes and identify them. They indicate how clean the water of the creek or lake is. Living creatures can be released back to the water after examination.
- The method especially attracts children between the age of 6 and 16 – few people know how much life exists in an average water body. According to the experience children's attitude changes significantly and positively after the common work. In many cases they continue with own examinations. Knowing how much life is in the water they act against other people's polluting activities.

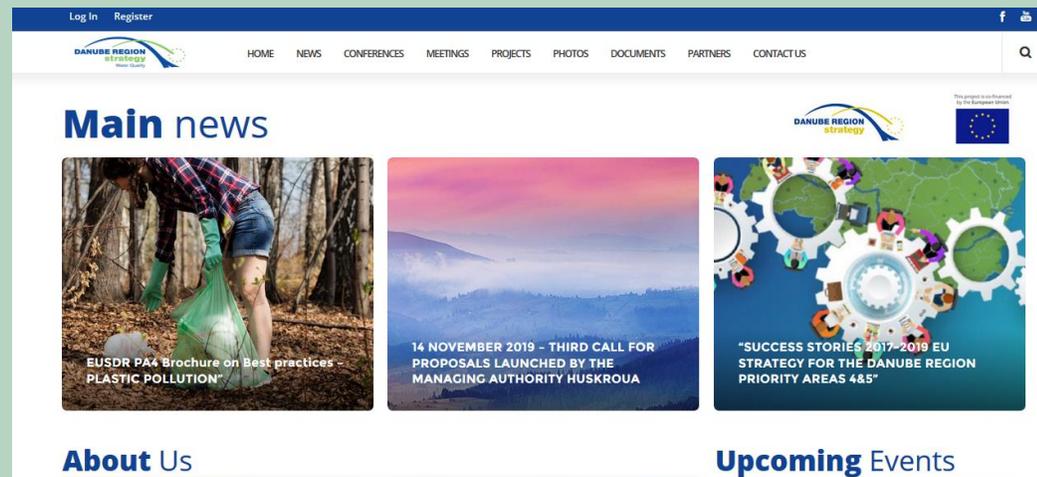
# EUSDR to assist water quality, biodiversity and climate change action



- **Cooperation in the preparation, implementation and capitalisation process of international projects as well as in dissemination of the results,**
- **Focus on project funding, post 2020, embedding of EUSDR objectives into EU funding schemes,**
- **Strengthening capacity building, preparing studies, organizing workshops and conferences...**

**...and much more!**

<https://waterquality.danube-region.eu/>



**Thank you for your  
attention**

**Planet 2021 Sustainability Expo**  
29 November – 5 December 2021, Budapest  
<https://planetbudapest.hu/en>

