

## Output Factsheet

### Output title:

Training of 20 experts in fish habitat mapping

### Summary of the output (max. 2500 characters)

From 17<sup>th</sup> to 22<sup>nd</sup> September 2018 DDNI organised the workshop 'Training of 20 Experts in Fish Habitat Mapping' on assessment of migratory fish habitat and behavior. During the training (total 8 days; 6 days training, 2 days travelling) all previously in this field cooperating institutions shared their knowledge with institutions new to the topic. All partners (with the exception of IBRA, MAP, and IMSI) participated. The know-how will be compiled and applied in A4.2, contributing to the respective manual in A4.3. The aim of the workshop was to present state of the art methodologies for habitat mapping of Danube sturgeons and other important migratory fish species in the DRB as a key input for restoring ecological corridors. The training led to international exchange of currently applied field methodologies, analysing and interpreting data, adaptation to local demands (river morphology, species, and hydrological regime).

Participants were provided with the theoretical background, as well as a hands-on training on methods used by experts from DDNI in the field. The methods included locating sturgeon habitats in the Lower Danube, as well as different tagging methods for fish, including acoustic tagging.

The activities took place in three locations: At the Danube Delta National Institute in Tulcea, the Migratory Fish Monitoring Station near Isaccea, and Sturgeon Aquaculture farm – Horia. All the participants attended lectures about the applied field methodologies in the DDNI information center and field applications on the Danube River and at the sturgeon farm.

The field applications were targeted on different methods to locate and identify migratory fish habitats: riverbed substrate identification, mapping riverbed morphology habitats using the multi-beam sonar, Hydraulic measurements on sturgeon spawning / wintering habitats, etc.

At the end of the workshop, all the PP participants received Participation Certificates, certifying that they attended the meeting.

### Contribution to the project and Programme objectives (max. 1500 characters)

The overall objective is gaining and applying new knowledge on habitat availability added to the already existing information on migration barriers. Based on such new insights, harmonized transnational actions and standardized methodologies for migratory fish habitat management and conservation will be developed.

The workshop aim was to develop a harmonized transnational methodology for habitat mapping of Danube sturgeons and other important migratory fish species in the DRB as a key input for restoring ecological corridors.

In that way, the workshop presented appropriate state-of-the-art techniques to identify and describe migratory fish habitats and ways how to adapt these methods in different sections of the Danube and its tributaries.

DDNI trained and coordinates teams of 7 MDR and LDR countries to locate, describe and map existing migratory fish habitats as a prerequisite for conservation of the ecological corridors and these species.

#### **Transnational impact (max. 1500 characters)**

The training workshop spread knowledge about habitat mapping of migratory fish to international partners. Therefore, this knowledge will be put to use in the upcoming activities in the whole Danube catchment. The applicability of the methodologies will be tested and adapted where necessary during joint pilot activities and gather detailed spatial data of migratory fish habitats in the Middle Danube River (MDR) and Lower Danube River (LDR) and major tributaries are to be fed into the MEASURES Information System (MIS). The training was the basis for the work on the habitat mapping manual, which will be of basin-wide relevance. This output enables us to identify new/previously unknown habitats essential for the conservation of migratory fish across borders in the Lower Danube River (LDR) and Middle Danube River (MDR).

In the long run, it is expected that the information and data gathered in the Danube River Migratory Fish Habitat Data Base will provide a strong basis for future enhancements of ecological corridors for migratory fish in the Danube and its main tributaries.

#### **Contribution to EUSDR actions and/or targets (max. 1500 characters)**

The workshop presented appropriate state-of-the-art methods to locate and describe the migratory fish habitats and how to be adapt them to different environmental circumstances.

Knowledge about these habitats will contribute to strategies for future river connectivity restoration, contributing to several EUSDR actions:

EUSDR supports on-going work and increased efforts to secure viable populations of Danube sturgeon species and other migratory fish species in the Danube River Basin (PA 4 Action 10, milestone 6 - "Study on the improvement of longitudinal continuity of rivers with operational changes in existing installations and low cost improvements in the light of the specific needs of various migratory fish species and taxa (coordination with PA6)";

PA 6 Action - "To protect and restore most valuable ecosystems and endangered species"; PA 6 Action - "To contribute to the 2050 EU vision and 2020 EU target for biodiversity;

PA 4 & 6 target: "Continue the ongoing work and efforts to secure viable populations of Danube sturgeon species and other indigenous fish species by 2020").

### **Performed testing, if applicable (max. 1000 characters)**

During workshop, DDNI has performed the following tests

- Spawning habitat identification using Kynard probe and Side scanner sonar;
- Spawning habitat identification by capturing eggs and larvae (anchored D-shaped nets and ichthyo-plankton nets);
- Nursery habitat identification by monitoring annual recruitment from the wild and capturing YOY fish (bottom drifting trammel nets and pelagic gill nets)
- Tracking and handling fish by using electro-narcosis and implanting acoustic transmitters.
- Wintering habitat identification by tracking movements and migration of long – and medium distance migratory fish.

### **Integration and use of the output by the target group (max. 2000 characters)**

Each of the trained partners will apply the learned techniques at national level, increasing the knowledge about migratory fish habitats in the Danube catchment.

During workshop, staff of relevant target groups were been invited to join / assist during training of 20 experts in fish habitat mapping (YugNIRO Odesa – UA, National Museum of Natural History Sofia – BG, Danube research Consulting SRL – RO).

The training methodology will be compiled and integrated in activity A4.2 (Pilot migratory fish habitat mapping in the DRB) leading to the defined manual in activity A4.3 (Migratory fish habitat mapping manual with GIS map).

### **Geographical coverage and transferability (max. 1500 characters)**

The relatively high number of PPs and ASPs represent the need of transnational cooperation between numerous Danube countries in establishing these corridors, as valuable key habitats are located along the Lower Danube Basin (UA, RO, MD, BG), Middle Danube and tributaries such as Tisza, Drava, Sava (encompassing habitats in RS, HU, SK, SI, HR), and Upper Danube (habitats located in DE and AT).

This training was the basis to start creating a database including geographical locations of spawning, nursery and wintering habitats for long- and medium migratory fish in the LDR, MDR and several major tributaries.

For this, a methodological template for the identification of potential wintering-, spawning- and nursery habitats for sturgeons and other migratory fish will be distributed to PPs, who will gather existing / available information and will collect and transfer it in a draft database in MS EXCEL ©

### **Durability (max. 1500 characters)**

This training was the important basis for a lot of activities in the project. Knowledge was transferred between partner institutions. In the course of the project, this will lead to several deliverables aimed at making this knowledge available to others, and contribute to management plans like that of the International Commission for the Protection of the Danube River (ICPDR). In that way, the output and the products based on this work should be relevant for years to come.

Based on workshop findings and discussions, DDNI designed a first version of the Danube Migratory Fish Habitat Manual, which starts already to be discussed with and jointly improved by other WP4 PPs.

The Migratory Fish Habitat Manual will be printed in 200 exemplars and distributed to stakeholders such as governmental agencies, universities, NGOs and public libraries. It will also be posted as open source document on the DDNI and DSTF websites and will be promoted via ICPDR and the FIP.

The database and maps on long – and medium distance migratory fish habitats in the Danube River and tributaries will be embedded in the MIS produced in WP 3, which will be hosted on the server of DDNI Tulcea, with links to the FIP and the Danubis database.

DDNI Sturgeon Research Group (SRG) will ensure maintenance and updating with new data, coming from future national or transnational projects aiming to complete and update the mapping of migratory fish habitats in the whole LDR and MDR

**Synergies with other projects/ initiatives and / or alignment with current EU policies/ directives/ regulations, if applicable (max. 1500 characters)**

The project will strengthen transnational and cross-sectoral cooperation of stakeholders by using synergies and good practices from various previous and ongoing projects. In the long term, the establishment of ecological corridors and a more harmonized conservation approach will secure highly threatened populations of indigenous migratory fish in the DRB.

Beside the direct synergies among MEASURES and DANUBE parksCONNECTED, also the cooperation with the cross-over capitalization process of the DTP (DANUBE parksCONNECTED as coordinator for pole 5b) is ensured by this Strategic Partnership.

The experience and networks of stakeholders formed during the implementation of Sturgeon 2020 Program, a flagship project of EUSDR/PA6, will also be integrated in MEASURES and synergies will be built with partner organizations to increase the outreach of the project results.

**Output integration in the current political/ economic/ social/ technological/ environmental/ legal/ regulatory framework (max. 2000 characters)**

Besides contributing to the implementation of the EU environmental legislation, the project will be in line with the requirements of several environmental conventions ratified by the Danube countries such as: Berne Convention on European Wildlife and Natural Habitat, Bonn Convention (CMS), Convention on Biological Diversity (CBD), Carpathian Convention etc.

By identifying key habitats for endangered migratory fish species, identifying key ecological corridors, and creating strategies for further river connectivity restoration, the project contributes to several EUSDR actions: EUSDR supports on-going work and increased efforts to secure viable populations of Danube sturgeon species and other migratory fish species in the Danube River Basin (PA 4 Action 10, milestone 6 - “Study on the improvement of longitudinal continuity of rivers with operational changes in existing installations and low cost improvements in the light of the specific needs of various migratory fish species and taxa (coordination with PA6)”; PA 6 Action - “To protect and restore most valuable ecosystems and endangered species”; PA 6 Action - “To contribute to the 2050 EU vision and 2020 EU target for biodiversity; PA 4 & 6 target: “Continue the ongoing work and efforts to secure viable populations of Danube sturgeon species and other indigenous fish species by 2020”); PA 6 has adopted the Sturgeon 2020 programme formulated by the Danube Sturgeon Task Force (DSTF), initiated in the frame of PA 06, as flagship project. In several EUSDR-

publications and reports Sturgeon 2020 serves as a role model for successful transnational cooperation and is considered as one of the success stories for EUSDR (e.g. recent ""Success Stories"" brochure published for the Annual Forum 2016).

A very important aspect will be the transfer of project results to the Expert Groups of ICPDR and into the next River Basin Management Plan (according to the EU Water Framework Directive).