ICPDR
Sturgeon Strategy

ICPDR IKSD

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

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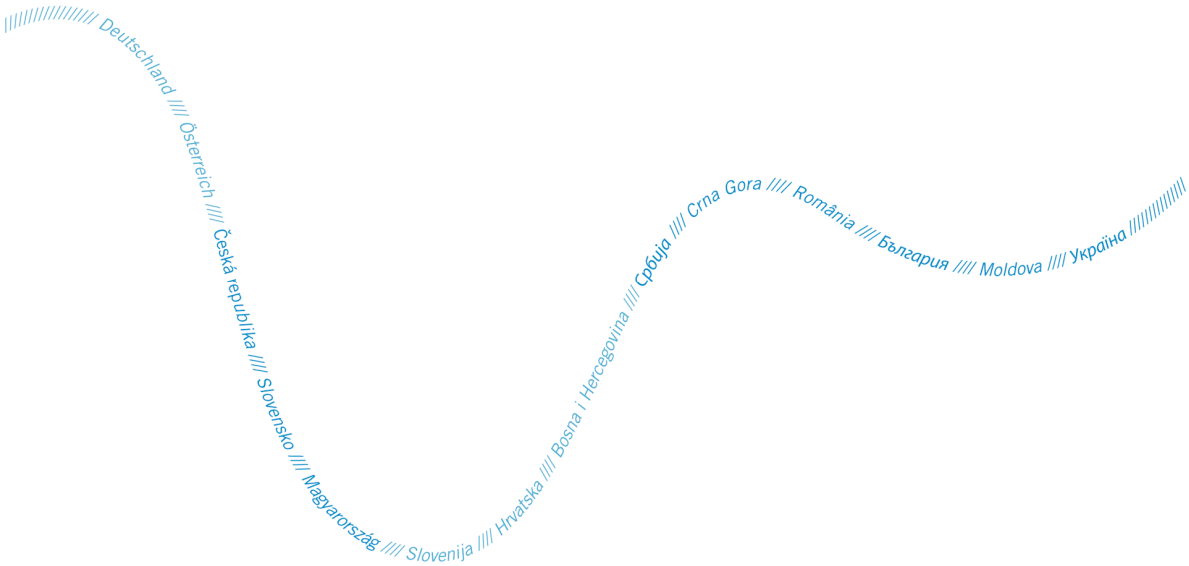


Table of contents

1. Introduction

Sturgeon populations are on the brink of extinction in the Danube. The aim of the ICPDR Sturgeon Strategy is to contribute to the survival and recovery of sturgeons in the Danube River Basin by highlighting the challenges currently faced. The scope of the action involves providing an overview of actions and measures considered necessary by sturgeon specialists, in particular from the Danube Sturgeon Task Force[1] working towards securing the survival of sturgeons within the framework of "water competences" of the ICPDR and fostering synergies and cooperation with all national and international players dedicated to sturgeon conservation activities. The ICPDR Sturgeon Communication Strategy aims to contribute to the survival of sturgeon species native to the Danube Basin and is considered to be a living document.

2. Sturgeons – A European Challenge

Sturgeons are an integral part of the natural heritage of Europe. They are among the oldest and largest fish still living in freshwaters. However, they have become a threatened species and are almost extinct. Originating 200 million years ago this ancient migratory fish can grow up to seven metres in length and can live to be a hundred years old. Once present in large, viable populations in many rivers and adjacent coastal areas of the European Union sturgeons have now either completely disappeared or declined very dramatically over the past century. Considered to be of particular social and commercial importance, sturgeons and their survival have become a continent-wide concern in Europe.

The largest stock of the sturgeon population in the European Union still living in the wild can be found in the lower Danube Catchment; further small and fragmented native autochthonous stocks have been reported in recent decades to be present e.g. in the Gironde, Garonne, Dordogne (France), Po (Italy), and Ebro (Spain). Furthermore, reintroduction efforts are ongoing in other basins, including e.g. the Elbe, Odra and Vistula.

All surviving stocks share the status of critically endangered species and their survival depends on imminent action. Today sturgeons belong to the most threatened species on the IUCN Red List. As a consequence of this alarming situation, Action Plans for conservation and restoration of the European Sturgeon and the Danube Sturgeon species were developed under the Bern Convention in 2005. In spite of these efforts, according to the last report of EU Member States in the framework of the Bird and Habitats Directives, seven out of the eight Sturgeon species which call EU waters their home are still in an unfavourable (U2) status.

The factors driving sturgeons to extinction in the European Union are manifold and include over-exploitation and illegal marketing (stemming from improper fishery management and insufficient legal enforcement of fishing bans), blocked migration routes through dams and loss or degradation of habitats and other negative pressures such as pollution, fish kills and trafficking[2].

Sturgeons depend on an interlinked network of habitats from rivers to the sea that provide them with suitable conditions for migrating, feeding and spawning. They show homing behaviour to the same freshwater spawning sites year after year and are therefore very sensitive to habitat changes or

[1] Expert Group under Priority Area 6 "Biodiversity" of the EU Strategy for the Danube Region"

[2] http://www.dstf.eu/assets/Uploads/documents/Bloeschetal2005Sturgeon-Action-Plan.pdf

blocked migration routes. Given their sensitivity to environmental pressures, sturgeons are a key indicator and umbrella species of the ecological status of rivers and their environmental functionality.

Urgent and sustained action is needed to preserve sturgeons in the European Union. This includes an array of actions such as removing barriers blocking their migration stopping the loss and deterioration of habitats and halting or mitigating other negative impacts such as pollution, overexploitation and trafficking. Immediate measures need to be taken to save those populations bordering on extinction by establishing living gene banks and conservation stocking. Actions must be longstanding and sustainable for a successful recovery given the late maturity of sturgeons for reproduction (10 to 20 years depending on species) and the thereof resulting long generation intervals. Concerted and sustained actions and measures (e.g. restocking based on ex – situ raising of sturgeons) can contribute[3] to the survival of sturgeons, as demonstrated e.g. in the Gironde estuary (France) or restocking programs in the Elbe, (Germany) Odra (Germany, Poland), Vistula (Poland) and in other tributaries of the Baltic Sea as well as in the Po (Italy) Efforts in these areas already span over 25 (Baltic Sea) to nearly 40 years (Po – region), with first indicators of success showing in the first returning specimen in the Odra River and an increasing number of large potential spawners[4] in the Po region.

There are many different on-going activities across Europe. However, there is a strong need to link those together and exploit synergies due to the similar challenges faced in the different river systems all over Europe. Enforced cooperation, especially in the framework of macro-regional cooperation, which have been established to serve as cooperation platforms should be envisaged.

3. Sturgeons in the Danube River Basin – on the brink of extinction

Sturgeons are an integral part of the natural heritage of the Danube River Basin. There are six species native to the Danube River Basin. Once present in large, viable populations - partly migrating as far as Regensburg on the Upper Danube and contributing greatly to the stocks of the Black Sea, their population is rapidly decreasing.

The beluga or great sturgeon (huso huso) is the most famous due sadly to the caviar trade but also its impressive size of up to seven metres. The other species are the Danube or Russian sturgeon (acipenser gueldenstaedti), the fringebarbel or ship sturgeon (A. nudiventris, the sterlet (A. ruthenus), the stellate or starred sturgeon (A. stellatus and the common or Atlantic sturgeon (A. sturio).

According to IUCN classification, the status of sturgeon populations has declined dramatically in recent decades[5]. From the six native Danube sturgeon species[6], the acipenser sturio (common sturgeon) is extinct, the acipenser nudiventris (ship sturgeon) is now considered functionally extinct[7]. The acipenser gueldenstaedtii (Danube sturgeon), once the most abundant sturgeon species of the Danube has only been observed in single numbers over the past years. The numbers and the natural

[3] Personal communication J. Geßner, Departments Biology and Ecology of Fish and Ecophysiology and Aquaculture Leibniz-Institute for Freshwater Ecology and Inland Fisheries

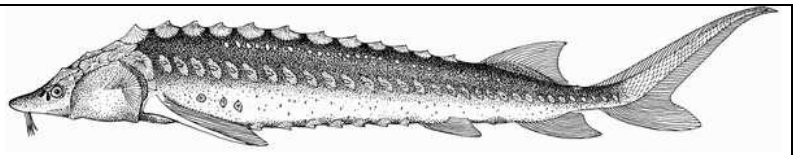
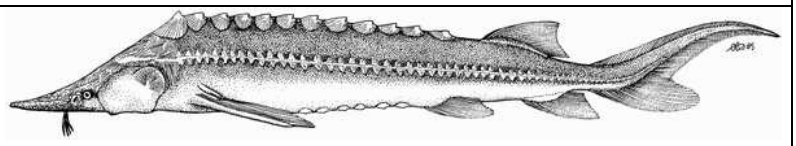
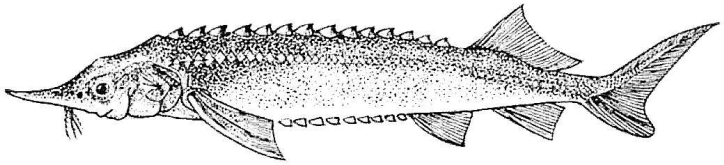
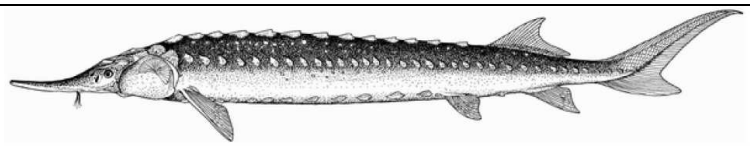
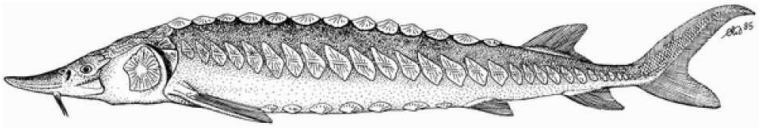
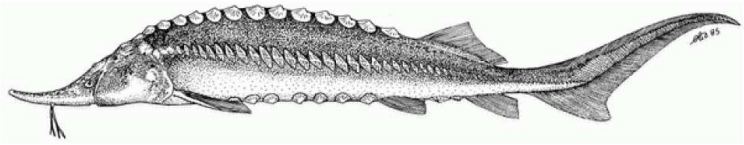
[4] Personal communication Thomas Friedrich based on P Bronzi World Sturgeon Conservation Society

[5] More information about distribution, life history and ecology, population size and development can be found in the Sturgeon Action Plan adopted under the Bern Convention in 2005. Sturgeon illustrations © FAO-FIGIS.

[6] Personal communication J. Geßner, Departments Biology and Ecology of Fish and Ecophysiology and Aquaculture Leibniz-Institute for Freshwater Ecology and Inland Fisheries

[7] Ivan Jaric; Jörn Gessner; Andrew R. Solow (2016) Inferring functional extinction based on sighting records. Biological Conservation. - 199: 84-87

reproduction of acipenser stellatus (stellate sturgeon) and huso huso (Beluga sturgeon or great sturgeon) are rapidly declining, The acipenser ruthenus (sterlet) is considered threatened in the lower and middle Danube and nearly extinct in the Upper Danube.

Acipenser gueldenstaedti (Danube or Russian sturgeon)	Critically Endangered	
Acipenser nudiventris (Fringebarbel or Ship sturgeon)	Critically Endangered	
Acipenser ruthenus (Sterlet)	Vulnerable	
Acipenser stellatus (Stellate or Starred sturgeon)	Critically Endangered	
Acipenser sturio (Common or Atlantic sturgeon)	Critically Endangered (extinct in DRB)	
Huso huso (Beluga or Great sturgeon)	Critically Endangered	

Cross-sectorial urgent and comprehensive actions are needed to secure their survival. Sturgeons have shown extensive homing behaviour to the same spawning sites year after year. Three anadromous species of sturgeons in the Danube (H.huso, A. gueldenstaedtii and A. stellatus) expressed both shorter distance migrating populations (spawning downstream of the Iron Gate Gorge) as well as long distance migrating populations (spawning upstream the Iron Gate Gorge), now blocked in their spawning migration by Iron Gate dam I and II. A clear priority is to take measures to save the genetic fingerprint of sturgeons in the Danube Basin. This applies most specifically to those sturgeon species close to extinction as well as the few individuals born upstream of the Iron Gate, which are still returning to the Iron Gate only to be trapped as their migration further upstream is blocked and the fish born upstream are already at least 55 years old. This may well cause their irreversible disappearance in a few years from now. Once lost, there is no way to replenish species that have adapted over thousands of years to the conditions of the Danube River and its tributaries.

An urgent and comprehensive set of actions involving a broad range of actors will be necessary to save the sturgeons in the Danube from extinction. See chapter 4 on the “Danube Sturgeon Task Force” for an overview of the situation.

A number of the required actions for sturgeon conservation clearly fall within the key competences of the ICPDR (see also chapter 5), such as the restoration of lost and altered habitats, the prevention of further habitat degradation, the enabling of fish migration as well as the improvement of water

quality. Other activities, such as the establishment of a living gene bank via a science based and government controlled artificial propagation program (ex – situ conservation) and conservation stocking, the effective control of poaching and fishing and of the trade in sturgeon products (caviar), combating over-exploitation, are outside the mandate of the ICPDR and require cooperation with other partners who are competent in these matters. However, only strong partnership and cooperation efforts involving experts and actors across Europe and across macro regional strategies will secure survival of Danube sturgeons as our "living fossils", an integral part of the natural heritage of the Danube River Basin

4. Danube Sturgeon Task Force – Roles, Projects and Future Activities

4.1 Danube Sturgeon Task Force and Program "Sturgeon 2020"

The Danube Sturgeon Task Force (DSTF)[8] was founded in January 2012 within the framework of the macro-regional EU Strategy for the Danube Region Priority Area 6 (Biodiversity) and aims to coordinate and foster the conservation of highly endangered native sturgeon species in the Danube River Basin and the Black Sea by promoting the implementation of the Programme "Sturgeon 2020".[9]

Based on the Sturgeon Action Plan adopted under the Bern Convention in 2005, the Program "Sturgeon 2020" [10] was developed as a framework for action for all DSTF stakeholders. This program combines environmental aspects with social and economic measures aiming not only to bring benefit for sturgeons, but also to contribute to the social stability of the Danube Region by improving the economic situation of stakeholders being affected by the conservation measures in the Middle and Lower Danube.[11] The Program "Sturgeon 2020" has a living structure. Its success depends on the long-term commitment and the comprehensive implementation power of the Danube and Black Sea countries, as it requires complex cooperation between governments, decision makers, local communities, stakeholders, scientists, and NGOs.

The key measures of the Program "Sturgeon 2020" fall into six interconnected key topics categories:

1. Acquiring political support for sturgeon conservation
2. Capacity building and law enforcement
3. In-situ sturgeon conservation
4. Ex-situ sturgeon conservation
5. Socio-economic measures in support of sturgeon conservation
6. Raising public awareness

[8] More information about the Danube Sturgeon Task Force (DSTF) founded in 2012 can be found following the link: http://www.dstf.eu/about-us/.

[9] https://www.icpdr.org/main/activities-projects/sturgeons-danube-basin

[10] http://www.dstf.eu/assets/Uploads/documents/Bloeschetal2005Sturgeon-Action-Plan.pdf

[11] https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/sturgeon2020-final.pdf.

4.2 Danube Sturgeon Task Force projects and activities

Applied projects and measures are required for the implementation of the Program "Sturgeon 2020". These are developed by making best use of existing funding instruments as well as EU and national legislation. Several projects described in Annex I have been accomplished, are currently ongoing or planned to address important elements of the programme "Sturgeon 2020".

4.3 Future sturgeon conservation activities in the Danube River Basin

Starting with December 2016, the DSTF benefited from a Technical Assistance grant from the European Investment Advisory Hub to prioritize the activities of Sturgeon 2020 and realize a funding matrix for priority actions. Following a multi-criteria evaluation, DSTF members were advised to adopt the following list of planned actions as urgent actions to be implemented:

	Name of the action
•	Establish a pilot ex-situ facility for migratory species (agreement with the owners to use part of their broodstock)
•	Secure most valuable sturgeons for ex-situ conservation for all 5 species (Huso huso, Acipenser gueldenstaedti, A. stellatus, A. ruthenus, A. nudiventris)
•	Rescue program for A. gueldenstaedti in the Lower Danube
•	In-situ monitoring for habitats and population behaviour along Danube River and major tributaries
•	Obtain the support of national authorities for the creation of a DSTF legal entity with governmental representatives and scientists
•	Create a DSTF legal entity
•	Establish national sturgeon conservation networks to foster the implementation of S2020 at national level
•	Feasibility study for in-situ sturgeon conservation (all 5 species), as a basis for the ex situ program (interlinked measures)
•	Genetic inventory of captive sturgeons (molecular methods, tagging, sexing) based on a contract with fish farm owners (catching, handling); analyses of 1200 fishes

5. ICPDR – Roles, Joint Programme of Measures and Future Activities

Sturgeons are an integral part of the natural heritage of the Danube River Basin. Given their sensitivity to environmental measures, sturgeons – which are recognized by ICPDR as "living fossils", are a key indicator species of the ecological quality of rivers. The ICPDR endorsed Danube sturgeons as a flagship species for the Danube River Basin to advance broad public awareness and political commitment both for the Danube Sturgeons and the ecosystem of the Danube River Basin[12] as a whole. This is also enshrined in the Action Plan of the EU Strategy for the Danube Region, where the extinction of sturgeons has also been singled out as one of the most urging challenges.

References to sturgeon conservation activities can be found in the national River Basin Management Plans of the Danube countries, the Danube River Basin Management Plan-Update 2015 and in the Danube Ministerial Declaration 2016 adopted at the third ICPDR Ministerial Meeting on 9 February 2016.

This document[13] highlights the ICPDR's key competences in Danube sturgeon conservation activities and outlines the ICPDR's Sturgeon Communication Strategy, an awareness-raising document that defines target groups, key measures and communication tools and channels. Activities undertaken within the framework of the ICPDR will support the implementation of the DSTF "Sturgeon 2020" program as well as complement efforts and initiatives by other national and international players to foster and improve comprehensive sturgeon conservation activities in the Danube River Basin. Only strong partnership and cooperation efforts will secure the survival of Danube sturgeons as our "living fossils", an integral part of the natural heritage of the Danube River Basin.

5.1 ICPDR and sturgeon conservation activities

The International Commission for the Protection of the Danube River works to ensure the sustainable and equitable use of waters and freshwater resources in the Danube River Basin. The work of the ICPDR finds its foundation in the Danube River Protection Convention, a major legal instrument for cooperation and transboundary water management in the Danube River Basin. Today, 14 Danube Basin countries and the European Union are so-called "contracting parties" of the ICPDR Furthermore 23 important stakeholders participate actively in the work of ICPDR as observers. The ICPDR has thus become the platform for cooperation of water management in the Danube River Basin. It brings the political and administrative level of national "line ministries competent for water management and the protection of waters" together with stakeholders and NGOs, thus actively shaping water cooperation at the Danube wide level. The broad participation of key players from various sectors in the concrete work of ICPDR also unveils an important potential towards the contribution to the survival of sturgeon populations in the Danube.

In 2000, the ICPDR contracting parties nominated the ICPDR as the platform for the implementation of all transboundary aspects of the EU Water Framework Directive (WFD). The Directive establishes a legal framework to enhance the status of aquatic ecosystems, prevent their deterioration, and ensure the long-term, sustainable use of water resources throughout the EU. The WFD establishes an innovative approach for water management based on river basins and addresses inland surface waters, transitional waters, coastal waters and groundwater.

The environmental objectives of the WFD are to achieve "good chemical and ecological status (or potential)" for all inland surface waters, transitional and coastal waters and "good chemical" and "quantitative status" for all groundwater to achieve. The ecological status of surface waters requires

[12] Expert Group under Priority Area 6 "Biodiversity" of the EU Strategy for the Danube Region

[13] PP EG resolution adopted at the 19th ICPDR Ordinary Meeting in December 2016

the assessment of several of hydromorphological and biological quality elements, one of which is fish fauna quality (in terms of composition, abundance and age structure).

The status of migratory fish, such as the Danube sturgeon (declared to be a species of basin-wide importance in the framework of the ICPDR), is a parameter of the ecological condition and key indicator of the entire Danube River Basin. The Danube River is not only a key migration route itself, it is also of special importance for those species migrating from the Black Sea and connects all tributaries in the basin for migration. In general, all fish species of the Danube River Basin are migratory; however, the importance of migration for the viability of fish populations varies considerably among them. Differences exist in terms of migration distances, direction (upstream, downstream, and lateral), spawning habitats, seasons and the life stage for which migration takes place. The Iron Gate Dams I & II, in part the Gabcíkovo Dam and the chains of hydropower plants in Austria and Germany represent significant migration barriers for fish. Migratory fish, such as sturgeons and medium distance migrators, are particularly affected, as they are prevented from moving up or downstream between their spawning grounds and areas used at other times in their life cycle.

Hydromorphological alterations were identified as one of the four significant water management issues of the Danube River Basin due to their impacts on the abiotic sphere as well as on the ecology and ecological status of the river system. Anthropogenic pressures resulting from various hydro-engineering measures such as for instance flood protection measures, hydropower generation or inland navigation can significantly alter the natural structure and dynamics of surface waters. Hydromorphological alterations can also result from anthropogenic pressures related to urban settlements, agriculture and other sources. These drivers can influence pressures on the natural hydromorphological structures of surface waters in an individual or cumulative way.

With regard to river morphology, approximately 17% of the river water bodies are still near natural and another 10% near natural to only slightly altered. The remaining water bodies are under pressure by morphological alterations. The following three key hydromorphological pressure components of Danube basin-wide importance have been identified:

a) Interruption of longitudinal river continuity and morphological alterations;

b) Disconnection of adjacent wetlands/floodplains, and;

c) Hydrological alterations, provoking changes in the quantity and conditions of flow.

The ICPDR's basin-wide vision for hydromorphological alterations is the balanced management of past, ongoing and future structural changes of the riverine environment, that the aquatic ecosystem in the entire DRB functions in a holistic way and is represented with all native species. This means in particular, that anthropogenic barriers and habitat deficits do not hinder fish migration and spawning anymore – sturgeon species and specified other migratory species are able to access the Danube River and relevant tributaries. Sturgeon species and specified other migratory species are represented with self-sustaining populations in the DRBD according to their historical distribution.[14]

5.2 Joint Programme of Measures to address hydromorphological pressures

The Danube River Basin Management Plan and its Joint Programme of Measures[15] as well as the national River Basin Management Plans of Danube countries include relevant measures for Danube sturgeon conservation activities.

[14] See Danube River Basin Management Plan-Update 2015 following the link: https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/drbmp-update2015.pdf.

[15] See Danube River Basin Management Plan-Update 2015 following the link: https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/drbmp-update2015.pdf.

Measures that will be undertaken by Danube countries by the year 2021 to ensure fish migration (where still needed) e.g. construction of fish migration aids, are intended to ensure both up and downstream migration of fish and will help improve the migration of other fauna. This includes ensuring the integrity and viability of migration routes, the existence of appropriate spawning grounds, appropriate ecology and water quality along migration routes and at spawning grounds.

5.3 Future sturgeon conservation activities in the Danube River Basin

Key interest of the ICPDR in sturgeon conservation activities lies in raising awareness and support for secured survival of sturgeons in the Danube River Basin, in bringing together relevant actors in this very field, helping tap potential financial resources and supporting activities at Iron Gates I and II. In case of positive results, such measures should also be applied to the Gabčíkovo Dam and the Upper Danube. Additionally, improved cooperation between the ICPDR and the Black Sea Commission would be useful and could be initiated at political and/or institutional level

5.3.1 Iron Gate I and II

The Iron Gate Hydropower and Navigation System (HPNS) is one of the largest engineering projects ever undertaken in Europe, built to provide cost effective and permanent utilization of available hydropower and to create adequate conditions for navigation along the Iron Gate stretch of the Danube. However, the Iron Gate I & II are also an obstacle for migratory fish such as the sturgeon, which block access to the middle Danube and its large tributaries Drava, Sava and Tisza, all extremely important habitats for spawning and nursing of migratory fish such as the sturgeons. The ICPDR facilitated the development of Terms of Reference for a Feasibility Study analysing options for fish migration at Iron Gate I & II. Currently, RO and RS are checking options for funding of the Feasibility Study; the Romania-Republic of Serbia IPA Cross-border Cooperation Programme 2014-2020 seems to be an appropriate funding mechanism. The following resolution was adopted at the 15th ICPDR Standing Working Group Meeting in June 2017 regarding the Feasibility Study at Iron Gate I and II: "*The StWG encourages Romania and Serbia (with assistance of the European Commission and the Secretariat) to further explore funding programmes such as the Romania-Republic of Serbia IPA Cross-border Cooperation Programme 2014-2020 to carry out the Feasibility study analysing the options for fish migration at Iron Gates dams I and II*.". The need to act upon this matter is also highlighted in the Action Plan of the Danube Strategy "One of the biggest obstacles is the Iron Gate Hydroelectric dam between Romania and Serbia. A feasibility study on the possibilities of fish migration through the dam should be carried out"[16]. For this reason, the European Commission, Directorate General for Regional and Urban Policy, will support the kick off and implementation of the Feasibility Study at Iron Gate I and II.

5.3.2 Gabčíkovo Dam and Upper Danube

If the results of these investigations at the Iron Gates dams I and II will be positive, the respective measures should be implemented and step by step a similar Feasibility Study will be performed for the Gabčíkovo Dam and in case of positive results also for the Upper Danube.[17]

[16] See Action Plan of the EU Strategy for the Danube Region:http://ec.europa.eu/regional_policy/de/policy/cooperation/macro-regional-strategies/danube/library/

[17] See Danube River Basin Management Plan-Update 2015 following the link: https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/drbmp-update2015.pdf .

6. ICPDR Sturgeon Communication Strategy

6.1 Objectives

The overriding goal of the ICPDR Sturgeon Communication Strategy is to contribute to the survival of sturgeon species native to the Danube Basin in cooperation with like-minded partners, in particular from the EU Danube Strategy.

For years, the ICPDR has supported efforts to restore and conserve sturgeons in the basin as well as to raise awareness about them. The latter included communication activities, such as Danube Day 2013 with the motto "Get active for the sturgeons". It has been noted that during such communications events sturgeons were having a wide impact on different target groups and were recognised even in countries with no wild sturgeon populations. Furthermore, sturgeon conservation can increase the visibility of ICPDR actions towards a more general public beyond the framework of Danube Day and stimulate countries to work together on the improvement of the status of the waters in the Danube river basin. Today, the necessity of coordinated campaigns within a single communication strategy for the entire Danube region is on top of the ICPDR agenda.

The key principles for river basin management from communications point of view are public participation and coordinated data and information management that complement the integrated approaches to reach the environmental objectives. Therefore, the proposed communication strategy aims at the following:

- to strengthen the information tailored for stakeholders in order to increase their capabilities for direct involvement in sustainable resource management with impact on sturgeon conservation;
- to increase the knowledge of the general public on sturgeons, their threatened status, value and conservation efforts in order to ensure public support and participation;
- to achieve informed conservation decisions and practices at national, regional and international levels by providing the necessary expert information through collaboration with key specialists in the areas of environment conservation and river basin management;

In order to achieve the objectives stated above, the ICPDR needs to:

(1) keep up the work to sustain sturgeons as the flagship species of ICPDR ("Save Our Danube Sturgeon") and a symbol of effective and sustainable water management.

(2) raise public concern regarding the causes that led to a situation where wild sturgeon populations in the Danube's district are threatened and their possible extinction and how they can contribute to help the sturgeons to survive and to thrive in the Danube;

(3) contribute to the closure of knowledge gaps by facilitating the stakeholders' access to information;

(4) increase the awareness of the infrastructure and energy sectors in the Danube River Basin (including the Danube Delta, the main tributaries of the Danube and the Black Sea), putting an emphasis on the impact of and potential solutions for river navigation management and hydropower.

(5) promote greater participation in River Basin Management Plan planning, in particular related to sturgeon conservation by supporting transboundary cooperation at local, national and regional level based on inputs from all players.

6.2 Target Groups

The approach of the sturgeon communication strategy will be to establish and subsequently align a regular interaction between different groups of stakeholders, based on the ICPDR Stakeholder mapping feedback at national and regional levels.

Long-term commitment and successful cooperation are crucial for the entire communication strategy and it predefines the success of any conservation practices. The strategy will seek the participation of stakeholders whose positioning and thus ability to influence can lead to real changes in river management.

- To ensure the information exchange with **institutions responsible for freshwater ecosystem and river basin management** at local, national and international levels in the Danube River Basin.
- To participate in discussions and facilitate the dialogue with **Iron Gates operators' hydropower and navigation industry and infrastructure sector players** in order to succeed in the work on interruptions/barriers and other hydromorphological alterations**.**
- To achieve the different objectives set by ICPDR in relation to river basin management, navigation and sturgeon conservation, new knowledge will need to be gained and applied in the river basin and the Black Sea coast. That is why the expertise of **academic institutions and scientific professionals** must be mobilised**.**
- To intensify communication with and involvement of **nature park managers, NGOs and environmental agencies** in the preservation and reintroduction of migratory flagship fish species, in particular Danube sturgeons.
- To intensify communication with and involvement of **sturgeon producers/farmers** to utilize their practical knowledge on sturgeon propagation and rearing and free technical capacity in the preservation and reintroduction of Danubian sturgeon species.
- **Fisher associations, fishermen, including recreational fisheries, their families, and anyone belonging to the fishing communities in the Danube River Basin and the Black Sea Coast** will be addressed with efficient communication tools to break the pattern of illegal practices, indifferent attitude, ignorance and negligence to environmental issues.
- **Children and young people from Danube communities** will be targeted to encourage the adoption of new attitudes.

The communications activities are envisaged to be multi-levelled and of multi-stakeholder character, that is, not exclusive for one or two target groups only.

Although similar target groups will be approached in each country in the region, communications need to be tailored to national circumstances. While in **Upper Danube countries** communication should be focused around habitat restoration for the Sterlet, in the **Middle and Lower Danube** this should focus more on maintaining and enhancing migration and habitat quality of all existing sturgeon species.

6.3 Key measures

- To build a communications database that collates all sturgeon initiatives and the related water management communication activities, which will be made available to use for all stakeholders, including local and national governments and law enforcements agencies. The database will be useful when planning future media activities.
- To gain participation and support of the inland navigation and energy sectors and the water management community in sturgeon conservation measures in close cooperation with the EU

Danube Strategy (priority area 1- waterways / mobility; priority area 2 – sustainable energy, priority area 6 – biodiversity and landscapes) through a series of communication events (meetings/workshops/webinars) for stakeholders.

- To design communication activities which aim at encouraging decision makers to take further steps in overcoming the significant obstacle of the Iron Gates Dams I and II, which interrupts the migration route of sturgeons.
- To present widely research results in the area of gene bank management for sturgeon conservation.
- To strengthen the positioning of sturgeons as flagship species in the framework of Danube Day by making it an ongoing theme that appears regularly. To communicate information about ongoing projects and to engage children and young people's attitude and behaviour by improving their knowledge of sturgeon species, life cycle, habitats, local movements, migration patterns, trade of caviar and meat.

6.4 Key tools of the communication approach

- Use of clear, simple everyday language in all messages with no technical jargon or hidden messages. A particular focus will be put to translate concepts such as ecological corridors, river connectivity, needs of the migratory fish, etc.
- Consistently use the slogan "Save our Danube Sturgeons" as well as the key visual and animation –developed by the ICPDR. The ultimate purpose of this slogan is to position sturgeons as a brand in the region, to create an irrevocable association between Danube and sturgeons and therefore, to highlight the importance of preserving sturgeon habitats and all ecosystems of the river.
- Focus on outlining benefits for external stakeholders;
- Use a number of different channels when communicating information and to employ suitable ones adapted a particular message and the targeted audience (TV, radio, newspapers, magazines, online media, social media, hard copy materials for distribution, information boards, etc.).To communicate messages through organisations of belonging, for example associations, clubs, sector working groups, education groups. To get involved in activities and events organised at local, regional, national and international level to make ICPDR and its programmes more visible and recognisable.
- Use the internet (ICPDR website, EUSDR website, DSTF website, WWF website, Wikipedia, forums, Facebook, Twitter, etc.) to advertise sturgeon protection and foster engagement and easy contact with target groups and stakeholders.
- Identify, engage and work with advocates and opinion-leaders whom the target groups see as credible, reliable and genuine.

7. ICPDR Sturgeon Partnership with relevant national and international players

7.1 Objectives

The success of the ICPDR Sturgeon Strategy lies in a strong partnership and enhanced cooperation with relevant national and international players for Danube sturgeon conservation activities. Key competences of the ICPDR focus on coordinating measures to address hydromorphological pressures in the Danube River Basin having a negative impact on sturgeon's habitats, their migration and procreation (as defined in section 4) as well as communication and information activities (as outlined in chapter 5).

However, those measures can only be (cost-)effective if accompanied by conservation activities outside the ICPDR area of mandate and expertise. Next to the continuation and further strengthening of the established network and cooperation of DSTF partners in the agreed activities of the "Sturgeon 2020" program, complementing activities include

- governance related measures such as capacity building and law enforcement,
- the establishment of living gene banks and conservation stocking,
- an effective control of poaching and fishing as well as trade in sturgeon products and
- combating overexploitation of the fish stock.

These measures shall be coordinated and managed by ICPDR Contracting Parties including water administration and other responsible national players in Danube countries, and where relevant, implemented by appropriate international players to ensure the effectiveness of measures.

A list of relevant international players and their role in sturgeon conservation activities is highlighted in section 6.2.

7.2 International players in sturgeon conservation activities

Institution	Role in Danube Sturgeon Conservation Activities
European Commission	EU Nature Action Plan and Biodiversity Strategy; Sturgeon conservation measures support an integrated implementation of the European Water Framework Directive, Habitats Directive and Marine Strategy Framework Directive. Sturgeons provide an easily understandable story to tell about how the EU in very practical terms contributes to the conservation of our biodiversity heritage. Potential Source of Funding for measures: LIFE, LIFE+, INTERREG.
World Sturgeon Conservation Society e.V. and International Symposia on Sturgeons	The World Sturgeon Conservation Society e.V. intends to act as an international forum of scientific exchange for all persons interested in pertinent issues on sturgeons while at the same time seeking opportunities for close co-operation at an international level. The vision for this Society is to see stocks thriving once again in important sturgeon waters in the basins of Caspian, Azov, Black, North and Baltic seas, rivers in Siberia and China as well as in North American waters. The Society through its activities enhances the understanding of species protection world-wide and across borders in regions with different cultural and political backgrounds (using the highly - endangered sturgeons as case examples) to foster the sustainable use of natural resources that are traded globally. The International Symposia on Sturgeons (ISS) are organised under the auspices of the World Sturgeon Conservation Society e.V. and are held at four-year intervals to provide a global platform to assess the progress made in both conservation and aquaculture but also to discuss and develop

	science-based recommendations that serve as guiding principles for future research and management measures. Adopted the Ramsar Declaration on Global Sturgeon Conservation in 2005; currently updating the Declaration as result of 2017 Symposium in Vienna. More information: http://www.wscs.info/.
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	The Bern Convention is a binding international legal instrument in the field of nature conservation, covering most of the natural heritage of the European continent and extending to some States of Africa. It is the only regional Convention of its kind worldwide, and aims to conserve wild flora and fauna and their natural habitats, as well as to promote European co-operation in this field. The treaty also takes account of the impact that other policies may have on natural heritage and recognises the intrinsic value of wild flora and fauna, which needs to be preserved and passed to future generations. Fifty countries and the European Union have already signed up to the Convention and committed to promoting national conservation policies, considering the impact of planning and development on the natural environment, promoting education and information on conservation, and coordinating research. More information: http://www.coe.int/en/web/bern-convention/home
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union). The text of the Convention was finally agreed at a meeting of representatives of 80 countries in Washington, D.C., the United States of America, on 3 March 1973, and on 1 July 1975 CITES entered in force. More information: https://www.cites.org/eng/disc/what.php.
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	As an environmental treaty under the aegis of the United Nations Environment Programme, CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats. CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. As the only global convention specializing in the conservation of migratory species, their habitats and migration routes, CMS complements and co-operates with several other international organizations, NGOs and partners in the media as well as in the corporate sector. More information: http://www.cms.int/en/legalinstrument/cms.
WWF Network Sturgeon Strategy	As of 2017, WWF offices/programmes came together to produce a WWF Network Sturgeon Strategy, which aims to foster synergies and cooperation. The outcomes will help to bring resources together in a synergistic way and achieve critical contributions to planned global network outcomes 2025 of the newly established WWF Freshwater and Wildlife Practices. In order to use resources effectively, focusing of WWF efforts was made through a prioritisation of key rivers and seas. This prioritisation roughly reflects population status and the resulting need for action, but also takes into account main WWF network interest and capacity as well as chances for conservation success. More information: https://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_sturgeon_strategy_2017.pdf.

Annex I: Sturgeon Conservation Activities – Overview of projects (finalised, ongoing and planned)

For the implementation of the Program "Sturgeon 2020" applied projects and measures are required. These will be developed by making best use of existing funding instruments as well as EU and national legislation. Several projects described in this Annex (as of 12 October 2017) have been accomplished or are currently ongoing addressing important elements of the programme "Sturgeon 2020". Additionally, a number of projects are currently planned and proposals were submitted to several programmes/funding institutions.

FINALISED projects					
Title	**Program/Financial support**	**Project partners**	**Main aim**	**Duration/timeline**	**Web-link to more information (if available)**
Beluga, European or Great Sturgeon (*Huso huso*) – survey on illegal caviar market	The Mohamed bin Zayed Species Conservation Fund	WWF Austria	Survey of different market products to check the provenance of sturgeon caviar (wild or aquaculture).	2011-2013	
Saving Danube Sturgeons	LIFE+2011 Communication	WWF Austria & WWF DCP	Raising awareness on sturgeon conservation problems along the Romanian and Bulgarian stretch of the Danube River	2012-2015	
Implementing activities under the Bulgarian Action Plan for sturgeons	Operational Program Environment Bulgaria	WWF Bulgaria	Undertaking research and restocking activities to strengthen the native sturgeon populations	2011-2016	
Improvement of Sturgeon Protection in the Danube Region	EUSDR Technical Assistance Facility – Danube Region Program, Call 1	IBB, ICPDR, IAD, WWF	Scrutinizing the legal frame protecting the Danube sturgeons and preparing 4 concept projects for further submission to upcoming calls (in situ conservation, ex-situ conservation, eco-tourism, communication).	2013-2014	

Monitoring species of community interest in the marine environ.	Environmental Operational Program Romania	NIRD Marine Research Constanta	Monitoring species of community interest for reporting under Art. 17 of Habitats Dir. (incl. sturgeons)	2012-2015	
Sturgeon dispersal in the marine environment	Fishery Operational Program Romania	University Lower Danube Galati, DDNI Tulcea	Evaluating the dispersal in the Black Sea of sturgeons restocked in the Danube River	2013-2015	
Monitoring Study on Sturgeon Behaviour at the Iron Gate dams	European Investment Bank (EIB)	Coordinated by Danube Delta National Institute in Tulcea (Romania) with expert participation from Romania, Bulgaria and Serbia.	To restore fish migration on the Danube river, focussing on the main migration barrier - the Iron Gates hydropower dams between Romania and Serbia – as part of the legal requirements under the Water Framework Directive. Final report is available.	Finalized in February 2016	
EUSDR STURGENE	EUSDR Start – Call 1	DSTF	Ex-situ survey to preserve sturgeon genetic diversity in the Middle and Lower Danube. A final report including Annex I (Technical report of field survey of sturgeon hatcheries in Serbia, Bulgaria, Romania and Ukraine) and Annex II (Investment costs and technical solutions for establishing ex-situ conservation facilities) as well as a roadmap for implementation of ex-situ conservation measures in the Middle and Lower Danube Region are available.	1 April 2015 to 31 March 2016	
Elaboration of pre-requisites for sturgeon conservation in the Danube	ICPDR	BOKU with expert participation from Germany	Feasibility Study for EX- Situ Actions	01.08.2014-31.03.2015	

River Basin		and Austria			
ONGOING projects					
Sterlet habitats Upper Austria and Bavaria	INTERREG	Government of Upper Austria	In situ research for identification and characterization of sterlet habitats in Upper Austria and Bavaria	2013-2017	
Autecology of Sterlet in the Middle Danube (SK)	Slovak Agency for Research and Development	Institute for Plant and Biodiversity Research, Slovak Academy of Sciences	In situ research of sterlet and its habitats on the Slovakian stretch of the Danube River	2013-2017	
LIFE for Danube Sturgeons	EU LIFE	Project management and coordination WWF Austria. Project partners from Austria, Bulgaria, Germany, Romania, Serbia and Ukraine.	To focus on sustainable protection of lower Danube sturgeons by preventing and counteracting poaching and illegal wildlife trade. Together with fishing communities, alternative income sources will be researched and developed to reduce the dependency on formerly prestigious but now illegal activities. Law enforcement agencies will be supported in building capacity and enhancing their fight against poaching, smuggling and illegal trade. In addition, the markets for caviar and sturgeon meat will be closely monitored and informed about legal requirements.	October 2016 to December 2020	http://danube-sturgeons.org/
LIFE Sterlet project	EU LIFE	Project management and coordination BOKU and MA45. Partners from Austria and Slovakia.	To apply innovative methods for breeding autochthonous sterlets ahead of releasing them into the wild. The release of genetic autochthonous juvenile sterlets will support the wild population by reaching the required population size for sustainable natural reproduction. Target areas for the release are the two free-flowing sections of the Austrian Danube in the Wachau and the Danube	1 September 2015 to 31 December 2021	http://life-sterlet.boku.ac.at/index.php/home.html

			National Park regions, the latter including the Morava river at the Austro-Slovakian border. Furthermore, the project aims to identify sensitive habitats in the project areas and provide recommendations for their conservation.		
Development of an identification method for and a genetic assessment of Danube River (and Black Sea) sturgeon stocks as a prerequisite for sustainable fisheries and conservation management	COFASP	IGB Berlin, Univ. Istanbul, CFRS Trabzon, DDNI Tulcea	The project aims to develop and apply new genetic markers (microsatellite loci and mitochondrial DNA) to determine the stock structure and to verify and distinguish between long and medium distance migrants of the spring and fall races of the four sturgeon species Acipenser gueldenstaedtii, A. ruthenus, A. stellatus and Huso huso in the Romanian part of the Danube. The same methods will be used in Turkey to discriminate the fish that are endemic from fish that are utilizing Turkish coastal waters as foraging grounds solely but originate from Western and Northern Black Sea tributaries including the Danube River.	2015-2018	http://www.igb-berlin.de/en/project/dastmap
Whole genome of Huso huso and Acipenser oxyrhincus	COFASP	IGB Berlin, INRA Rennes, DDNI Tulcea, UWU Wuerzburg	Mapping the genome of beluga and Atlantic sturgeon.	2017-2020	In the signature phase
PLANNED projects (proposals submitted)					
"Managing and restoring aquatic EcologicAl corridors for migratory fiSh species in the danUbe RivEr baSin"	Interreg Danube Transnational Programme – 2nd Call (specific objective 2.3)	Project management and coordination BOKU. Partners from Austria, Hungary, Romania, Bulgaria,	To enhance and protect aquatic bio-corridors for migratory fish in the Danube River Basin. The following resolution was adopted at the 15th ICPDR Standing Working Group Meeting in June 2017 as regards this project proposal: "*The StWG appreciates the submission of the MEASURES (Managing and restoring aquatic EcologicAl corridors*	Proposal submitted	

(MEASURES)		Slovenia, Croatia, Slovakia and Serbia.	*for migratory fiSh species in the danUbe RivEr baSin) project proposal to the Interreg Danube Transnational Programme and encourages Contracting Parties to support further actions, where appropriate, underlying the high priority of this project for the ICPDR.*"		
Establishment of an European eco-network for research and production of sterlet (SERENE)	HORIZON 2020			Proposal submitted	
Ethological assisted interventions for a sustainable and innovative fish aquaculture (ETHOFISH)	HORIZON 2020			Proposal submitted	
Towards the implementation of the "Sturgeon 2020" program: sustainable management of sturgeons in the Ukrainian part of the transboundary Danube Delta and the adjacent Black Sea area	Danube Strategic Project Fund			Proposal submitted	

Developing an E-learning tool for Environmental Education for Primary and Secondary School in the Lower Danube Region	Danube Strategic Project Fund	IIDE Slovenia, IBB Romania, IMR Serbia, IBER Bulgaria (ASP: RO, MD)	E-learning tools for environmental education of children of 6-15 years old will be developed. These tools will focus on water, as a central element of life and will be addressed to teachers and pupils, to complement the regular school curriculum.	Dec 2017 – Nov. 2018	Developing an E-learning tool for Environmental Education for Primary and Secondary School in the Lower Danube Region
Mitigating and preventing wildlife crime in the Danube – Carpathian area	Interreg Danube Transnational Programme – 2nd Call			Proposal under development	
Introduction of innovative technologies for in situ sustainable mariculture of sturgeons in Black Sea coastal areas using Recirculating Aquaculture Systems	JOP ENI Black Sea Basin			Proposal under development	