

**Regional Strategy \***  
**for the Conservation and Sustainable Management**  
**of Sturgeon Populations of the N-W Black Sea and Lower Danube River**  
**in accordance with CITES**

(26 November 2003)

## **Introduction**

In accordance with Resolution Conf. 12.7 representatives of the Fisheries and CITES Management Authorities of countries of the N-W Black Sea and Lower Danube River (**Annex 2**) met in Tulcea, 24 - 27 November agreeing on this Regional Strategy.

**Species concerned:** beluga sturgeon (*Huso huso*), Russian sturgeon (*Acipenser gueldenstaedti*), stellate sturgeon (*Acipenser stellatus*), ship sturgeon (*Acipenser nudiventris*) and sterlet (*Acipenser ruthenus*)

**Countries of the region:** Republic of Bulgaria, Romania, Serbia and Montenegro, and Ukraine

**Geographic location:** N - W part of the Black Sea and Danube River till Iron Gates / Djerdap

## **1.Strategy Objectives and Management Recommendations**

The recommendations listed below for each objective have been given a priority order (I - III) by being assigned to one of following three categories: **(I)** in 1 – 2 years, **(II)** in 3 - 5 years, **(III)** in 5 –10 years.

### **1.1 Sturgeon Population and Life History Information Needs**

**Objectives:** 1.1.1 Develop and implement standardized population assessments on all existing populations

1.1.2 Conduct life history research / assessments where needed.

**Recommendations:** a. Develop as standardized sampling and assessment techniques as possible to conduct population studies (estimates, age / growth, size structure, etc.) **(I)**

b. Establish river / sea zones that need life history research / assessment work **(I)**

c. Assess homing and imprinting behavior **(II)**

d. Assess early life stage behavior in each species and population **(II)**

### **1.2 Protection of essential habitats**

**Objectives:** 1.2.1 Identify critical habitats and habitat requirements for various life stages

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\* Based on :

Staras, M., *et al.* (2000) Management Strategy of Sturgeons Stocks of Lower Danube River System. Final Report, GEF / WB / DDBRA Tulcea: 48 p

Wisconsin Department of Natural Resources Bureau of Fisheries Management and Habitat Protection (2000) Wisconsin' s Lake Sturgeon Management Plan, 12 p

- 1.2.2 Identify barriers and other factors within the N-W Black Sea and Lower Danube River System negatively affecting populations of different sturgeon species
- 1.2.3 Enhance habitat where possible
- 1.2.4 Monitor threats to key habitats.

- Recommendations:**
- a. Identify critical seasonal habitats, threats to key habitats and habitat improvement opportunity (I)
  - b. Start assessment of behaviour of adults in the N-W Black Sea (I)
  - c. Assess behavior of migrant adults below Iron Gates I & II dams (I)
  - d. Study the possibility and feasibility to construct fish passes at Iron Gates I & II dams (II)
  - e. Evaluate implemented habitat protection and improvement projects (II)
  - f. Determine habitat needs for different (sub-) populations (III)

### **1.3. Genetics, Propagation and Restocking / Reintroduction**

#### **Objectives:**

- 1.3.1 Identify and conserve existing sub-populations / populations and develop recommendations regarding management, rehabilitation and reintroduction taking into account the genetic make-up of these populations.
- 1.3.2 Ensure regionwide coordination of all propagation activities for supportive stocking (rehabilitation) or reintroduction.
- 1.3.3 Maximize genetic variability in hatchery reared fish used for rehabilitation or reintroduction, following internationally recognized guidelines (e.g. guidelines of the US Atlantic States Marine Fisheries Commission for the Atlantic sturgeon) (**Annex A**)
- 1.3.4 Establish best technical criteria and protocol for maximum quality assurance in propagation efforts.

- Recommendations:**
- a. Countries conduct studies for identifying of sub-population of sturgeon species spawning in the Lower Danube River (I)
  - b. Countries conduct research on recovery, rehabilitation and reintroduction of the sturgeon species in need (I)
  - c. Take measures to ensure that only breeder from the Danube River native stock are used, and to prevent unauthorized release and hybridization (I)
  - d. Countries ensure a system for genetic control on the production in sturgeon fish farms and hatcheries on their territory. (I)
  - e. Acclimate fish to water body prior to release (I)

- f. Countries form a **Regional Expert Committee** which co-ordinates all activities deriving from item.1.3 of the Strategy **(I)**.
- g. Reintroduction efforts should be directed towards ship sturgeon (*Acipenser nudriventis*) **(II)**

#### 1.4 Harvest and Fisheries Information Needs

**Objectives:** 1.4.1 Develop and implement standardized exploitation assessments at regional level

1.4.2 Develop and implement a real time (online) information system to register each sturgeon captured in the region

**Recommendations:** a. Improve the actual Regional Monitoring System (RMS) (Annex B) of sturgeon fisheries and stocks, adopted by BSSMAG in 2002, in order to make it fully implementable in all countries of the region **(I)**

b. Determine incidental catch and harvest of sturgeons in other commercial fisheries (not licensed for sturgeons) that may be reduced or closed in future **(I)**

c. Design and launch a webpage on which to register in real time (max. 2-3 days) each sturgeon captured in the region **(II)**

d. Conduct literature review on exploitation of sturgeon fisheries, similar to those organized by the International Danube Research Association (Reinartz, 2002)<sup>1</sup> and, more recently, the American Fisheries Society (Fisher & Burroughs, 2003)<sup>2</sup> **(III)**

#### 1.5 Stocks of different sturgeon species

**Objectives:** 1.5.1 Manage sub-populations / populations of sturgeons in the region to ensure their longterm conservation and sustainable utilization.

1.5.2 Clarify distinction between sturgeon populations of Azov Sea and N–W Black Sea

1.5.3 Base fishery exploitation on scientific evaluation of sturgeon stocks.

**Recommendations:** a. Conduct genetic study to distinguish between sturgeon population of Azov Sea, N–W Black Sea and Lower Danube River **(I)**

b. Elaborate separate management plans for main sub-populations (identified at par.1.3.1) of each sturgeon species **(II)**

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<sup>1</sup> Reinartz, R. - 2002 - Sturgeons in the Danube River. Biology, Status, Conservation. Literature Study. **IAD, Bezirk Oberpfalz, Landesfischereiverband Bayern**, 15 p

<sup>2</sup> Fisher, W.L., Burroughs, J.P. 2003 - Stream Fisheries Management in the United States : A Survey of State Agency Programs. **Fisheries**, vol. 28 : 10 - 18

- c. Conduct research to develop stock assessment system of diadromous sturgeon species of the N–W Black Sea and the Lower Danube River. **(II)**

## **1.6 Regulations and Enforcement**

**Objectives:** 1.6.1 Ensure strong enforcement of sturgeon fisheries regulations and relevant CITES provisions, regionally co-ordinated in time and space.

1.6.2 Extend CITES labeling and control system of sturgeon products (including caviar) to the domestic / internal market, implementing CITES Resolution Conf. 12.7.

1.6.3 Ensure that adequate legislation and fisheries regulations are developed and effectively implemented.

### **Recommendations:**

- a. Participate in developing a DNA based identification system of sturgeons and sturgeon products in trade **(I)**.
- b. Harmonise prohibition periods for a better correlation with the biology of species. **(I)**
- c. To examine and correct those fishing practices which non-selectively target sub-adults or juveniles **(I)**.
- d. Restrict / eliminate the practice of catching wild broodfish for hatchery purposes during the prohibition period. **(II)**
- e. Develop a regional information system on cases of violation of regulations by organizing a regional webpage on reporting of cases of violation of regulations. **(I)**
- f. Amend national law to enforce CITES labeling and control system of sturgeon products (including caviar) to the domestic / internal market, implementing Resolution Conf. 12.7. **(I)**
- g. Identify effective measures to combat poaching and illegal trade and implement these measures as necessary **(I)**.

## **1.7 Adaptive Management under CITES**

**Objectives:** 1.7.1 Implementation of Resolution Conf. 12.7 in all countries of the Lower Danube River region.

1.7.2 Implement consistently the adaptive management system until a scientific stock assessment of sturgeon stocks of the region will be available, in accordance with the Conclusions of the Sofia Meeting.

1.7.3 Adopt by consensus non-detrimental catch and export quotas for each species based on results of Regional Monitoring System.

## **Recommendations:**

- a. Improve national law system to enable implementation of Resolution Conf. 12.7. **(I)**
- b. Keep the BSSMAG as consultative and coordinative body for developing regional protocols including monitoring and assessment of the status of stocks and natural reproduction of sturgeons in the region. **(I)**
- c. Organise at least once a year national workshops on management of sturgeon stocks under CITES. **(I)**
- d. Negotiate annually in BSSMAG non-detrimental catch and export quotas for each species based on results of current monitoring of sturgeon populations and fisheries (RMS) and communicate these quota to the CITES Secretariat by 31 December of each year.
- e. Organise a regional data base on the management of sturgeon stocks, hosted by a webpage maintained by BSSMAG. **(II)**
- f. Monitor the socio economic aspects of the sturgeon fishery in the Region and take this into consideration when developing adaptive management programmes **(I)**

## **2. Management Plans**

Objectives: 2.1 Develop, implement and update, as needed national management plans for each country of the region.

- Recommendations:
- a. Develop and implement national sturgeon management plan for each country. **(I)**
  - b. Ensure management recommendations are addressed in national management plan. **(I)**
  - c. Exchange information on National Management Plans and their implementation through BSSMAG **(I)** .
  - d. The National Sturgeon Management Assessment Team of each country should meet annually to assess implementation of Plan and conduct updates when necessary **(I)**
  - e. BSSMAG should act as regional liaison and oversee the implementation of the national management Plan, coordinating activities of the National Sturgeon Management Assessment Team. **(II)**

## **3. Implementation of the Regional Strategy for the Conservation and Sustainable Management of Sturgeon Population of the N-W Black Sea and Lower Danube River in accordance with CITES**

Objectives: 3.1. Ensure that the necessary resources are available to implement the Regional Conservation Strategy

Recommendation:

- a. Identify the national resources and resource needs for implementing the Regional Strategy and the National Management plans **(I)**.
- b. Develop proposals to secure funding to implement the activities related to the Regional Strategy and National Management Plans **(I)**.

c. Request assistance from the CITES Secretariat to help in securing financial resources from Parties, United Nations specialized organizations, FAO, intergovernmental and non-governmental organizations and the industry (I).

## Annex A

### Effective breeding number ( $N_e$ )

of sturgeons [of one endangered sub-population / population] to be used in all propagation activities for supportive stocking (rehabilitation) or reintroduction when producing the progeny generation for one year-class (to achieve a generational effective population size  $N_{e(GEN)} = 100$  and an inbreeding rate / generation  $\Delta F_{max} = 0,50\%$ ) (after ASMFC, 1996<sup>3</sup>)

Species	Average age of first spawning females [years]	Effective Breeding number $N_e$	$N_e$ / generation	No. females / No. of males* captured in the same zone of Danube River recommended to be used / year for artificial spawning
Beluga sturgeon	14	100	7	4 / 3 3 / 4 5 / 2 2 / 5
Russian sturgeon	9	100	12	6 / 6 7 / 5 5 / 7
Stellate sturgeon	7	100	14	7 / 7 8 / 6 6 / 8
Sterlet	5	100	20	10 / 10 11 / 9 9 / 11
Ship sturgeon	12	100	8	4 / 4 3 / 5 5 / 3

\* Sperm from multiple male donors should not be mixed for artificial fertilisation.

Where:  $1 / N_e = 1/(N_m) + 1/(N_f)$  and  $\Delta F = 1/(2 N_e) = 1/(8N_m) + 1/(8N_f)$

with  $N_m$  = number of males and  $N_f$  = number of females

$N_e$  / generation =  $\Delta (N_{e,1} + N_{e,2} + N_{e,3} + \dots + N_{e,GI})$ , where GI = generation interval

<sup>3</sup> Atlantic Sturgeon Aquaculture and Stocking Committee (1996). ASMFC Breeding and Stocking Protocol for Cultured Atlantic Sturgeon. NOAA

Rev. 0.3  
(27. 04. 2004)

## Monitoring system of effects of current catch quotas on sturgeon stocks

**Species monitored:** *Acipenser ruthenus*, *A. stellatus*, *A. gueldenstaedti*, and *Huso huso*

Indicators	Location	Timing	Reason
<b>1. Fisheries information</b>			Characteristics of sturgeons captured by licensed professional fishermen; CPUE in selected fishing sites; RRA of real captures
1.1 Number of fishermen licensed to fish sturgeons, including number of fishing boats and gears (gill nets, trammel nets, baited and unbaited hooklines, etc)	Black Sea and Danube River	Jan. – Dec.	To evaluate catch / fisherman
1.2 Number of fishing hours using standard gillnets of 100 m	Black Sea and Danube River	Jan. – Dec.	For CPUE calculation
1.3 Number of fish captured	Black Sea and Danube River	Jan. – Dec.	For CPUE calculation
1.4 Catch / species / fishing zones	Black Sea and Danube River	Jan. – Dec.	For CPUE calculation and Evaluation of catch / river Km
1.5 CPUE	Black Sea and Danube River	Jan. – Dec.	To appreciate trend of abundance
1.6 Sex ratio	Black Sea and Danube River	Jan. – Dec.	Should be normally close to 50 % / 50%
1.7 Distribution of length frequencies	Black Sea and Danube River	Jan. – Dec.	Gives an indication about % of first spawners and degree of fishing pressure
1.8 Distribution of age frequencies	Danube River Km 100 – 130 *	Jan. – Dec.	Shows the % of fish spawning repeatedly
1.9 RRA of captures in 5 selected fishing sites	<b>Black Sea</b> <b>1. St. George</b> <b>Danube River:</b> <b>2. R Km 125</b> <b>3. R Km 238</b> <b>4. R Km 480</b> <b>Borcea branch:</b> <b>5. Km 40</b>	Nov.	To evaluate legal and illegal capture and compare it with official statistics
<b>2. Fisheries - independent information</b>			
2.1 Number of downstream migrant juveniles [ CPUE]	Danube River Km 100**	April –Oct.	To monitor spawning success and evaluate strength of current year class / recruitment

\* There are captured yearly more than 1/3 of all sturgeons fished in Romania

\*\* Monitoring Station for juvenile sturgeons will be constructed and organized in 2006 – 2007 at Isaccea, Romania  
CPUE – Catch Per Unit of (fishing ) Effort  
RRA - Rapid Rural Appraisal