

8. ANNEXES

Annex 1

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 nudiiventris*) 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

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.

* 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

Recommendations:

- a. Identify critical seasonal habitats, threats to key habitats and habitat improvement opportunity (**I**)
- b. Start assessment of behavior 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)¹ and, more recently, the American Fisheries Society (Fisher & Burroughs, 2003)² **(III)**

1.5 Stocks of different sturgeon species

Objectives: 1.5.1 Manage sub-populations / populations of sturgeons in the region to ensure their long-term 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)**
 - 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 coordinated 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. Harmonize prohibition periods for a better correlation with the biology of species. **(I)**

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

² 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. 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)**.

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, 1996³)

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	5 / 3 3 / 5 3 / 4 4 / 3
Russian sturgeon	12	100	12	6 / 6 8 / 5 5 / 8
Stellate sturgeon	8	100	14	7 / 7 9 / 6 6 / 9
Sterlet	5	100	20	10 / 10 11 / 9 9 / 11
Ship sturgeon	12	100	8	4 / 4 3 / 6 6 / 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

³ 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
1. Fisheries information			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	Black Sea 1. St. George Danube River: 2. R Km 125 3. R Km 238 4. R Km 480 Borcea branch: 5. Km 40	Nov.	To evaluate legal and illegal capture and compare it with official statistics
2. Fisheries - independent information			
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

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

** Monitoring Station for juvenile sturgeons will be constructed and organized in 2004 – 2005 at Isaccea, Romania

CPUE – Catch Per Unit of (fishing) Effort

RRA - Rapid Rural Appraisal

Annex 2

Ministry of Agriculture, Forests and Rural
Development
No. 262 / 18.04.2006

Ministry of Environment and Water
Management
No. 330 / 5.04.2006

Published in the Official Publication of the Romanian Government No. 385 / 4 May 2006

ORDER on conservation of wild sturgeon populations and development of sturgeon aquaculture in Romania

Considering the scientific studies that show a continuous decline of populations of sturgeon species,

Considering the worrying evolution of sturgeon catches registered in Romania after year 2000,

Considering the actual unsatisfactory development of sturgeon aquaculture in Romania comparing with other European countries and even countries of Lower Danube region,

Considering the precedent of extinction of sturgeon species from other European rivers during the last century,

Considering the importance and the international protection given to the endangered sturgeon species by the Convention on International Trade in Endangered Species of Wild Fauna and Flora, adopted in Washington on 3rd of March 1973 (**CITES**),

Based on art. 12² align. (1) and align. (2) lett. d) of Law No. 192 / 2001 on fish fund, fishing and aquaculture, with later modifications and additions, art. 27 lett. b) and e) from Government Urgency Ordinance No. 236 / 2000 on the status of natural protected areas, the conservation of natural habitats, wild flora and fauna, approved with modifications and additions by Law No. 462 / 2001,

Considering the Scientific Report no. 222 / 20.01.2006 of the Danube Delta National Institute and the approval of the Commission for the Preservation of Natural Monuments of the Romanian Academy, No 994 / 08.03.2006.

Considering the joint Approval Report No. 4.705 / 22 March 2006 and No. 15 765 / 3 April 2006,

Based on art. 9 align. (6) of the Government Decision No. 155 / 2005 on the organization and functioning of the Ministry of Agriculture, Forests and Rural Development, with later modifications and additions,

Based on art. 5 align. (8) of the Government Decision No. 408 / 2005 on the organization and functioning of the Ministry of Environment and Water Management, with later modifications and additions,

The Minister of agriculture, forests and rural development and the Minister of environment and water management issue the following order:

CHAP. I – General dispositions

Art. 1 – (1) The object of the present order is the conservation of wild sturgeon populations in various degrees of endangerment and the development of sturgeon aquaculture.

(2) The sturgeon species that art. (1) is referring to are:

- a) Ship sturgeon (*Acipenser nudiiventris*) – critically endangered / extinct;
- b) Danube sturgeon (*Acipenser gueldenstaedti*) – endangered;
- c) Stellate sturgeon (*Acipenser stellatus*) - endangered;
- d) sterlet (*Acipenser ruthenus*) – vulnerable;
- e) Beluga sturgeon (*Huso huso*) – endangered.

Art. 2 - The purpose of present order is the conservation and rehabilitation of sturgeon populations of the species in art.1, align. (2), through temporary prohibition on commercial fishing and implementation of special actions for the development of sturgeon aquaculture.

CHAP. II – Conservation and rehabilitation of sturgeon populations of the North – West Black Sea and lower Danube region

Art. 3 – (1) In order to conserve sturgeon populations, starting with the date of publication of the present order it is forbidden:

- a) commercial fishing of wild sturgeon species for a period of ten years;
- b) trading of products and sub – products obtained from wild sturgeons captured in Romania;
- c) using any gears or equipments for capture of sturgeons, including stationary gill nets for sturgeons (ohane) and unbaited hook lines (carmace) in fishing areas of natural waters of Romania.

(2) Any sturgeons captured accidentally shall be released in their natural environment, regardless of their condition.

Art. 4 – (1) At the proposal of CITES Scientific Authority for Acipenseriformes and the National Agency for Fishing and Aquaculture (NAFA) the central public authority of environment protection and water management and central public authority of agriculture, forests and rural development will adopt restocking programmes and / or supportive stocking programmes with young sturgeons from species mentioned in art. 1 align. (2) which had deficient natural spawning.

(2) The main purpose of restocking and / or supportive stocking programmes with young sturgeons is the conservation of sturgeon populations and their genetic diversity by establishing the number of live specimens to be captured annually, the methods used to capture them, the methods used for their artificial propagation and the procedures to mark and register the broodfish and the young of the year used in restocking and / or supportive stocking programmes.

CAP. III – Developing of sturgeons aquaculture

Art. 5 - (1) The fishing of live sturgeon broodfish from the wild is admitted for artificial propagation in order to obtain young sturgeons for supportive stocking of natural water bodies, only when following rules are respected:

- a) the capture of a limited number of live sturgeon specimens of species mentioned in art. 1, align. (2), using non-destructive fishing methods, only with special authorization issued by NAFA;
- b) ensure the implementation of programmes outlined in art. 4 align. (1) by conditioning the special authorization to capture live sturgeon specimens needed in sturgeons aquaculture by the participation in these programmes;
- c) annually, until 15 November, at the recommendation of the CITES Scientific Authority for Acipenseriformes, NAFA will establish the number of live specimens from each sturgeon species to be fished in the next year which will be regionally agreed and transmitted to the CITES Secretariat until 30 November;
- d) compulsory use of artificial propagation methods that ensure the surviving of broodfish;
- e) compulsory employment of personnel qualified for aquaculture and fishing;
- f) purchasing by NAFA of equipment needed for marking with Passive Integrated Transponders (**PIT**) of all wild sturgeons captured;
- g) when wild sturgeons breeders are captured, they are marked with PIT tags by regional fishing inspector;

- h) young sturgeons obtained for restocking or supportive stocking will be marked with coded wire tags (**CWT**) before releasing them in the river;
- i) purchasing by NAFA of equipment that allow reading of PIT and CWT tags, as well as subsequent survey of survival of young sturgeons and wild breeders after releasing in the river;
- j) growing of young sturgeons, needed for Danube stocking, in specially licensed units to the minimal total length of 10 cm / specimen;
- k) producing of young sturgeons for restocking and / or supportive stocking by propagation of a minimal number of breeders, as detailed in **Annex 2.1**, that is integrated part of the present order;

(2) The central public authority of environment and water management assures the financial support to the Romanian CITES Scientific Authority on Acipenseriformes, to conduct annual scientific studies for the evaluation of status of wild sturgeon populations.

Art. 6 – In order to obtain a special authorization to capture live sturgeon broodfish from the wild, aquaculture companies must possess aquaculture license for production of young sturgeons.

Art. 7 – The number of sturgeon broodfish, by species and sexes, will be attributed based on the capacity of each hatchery.

Art. 8 – A recording file for captured sturgeon breeders will be filled in, in the presence of regional fishing inspector, who will transmit a copy of this document to the Aquaculture Department of NAFA. The template of recording file for live sturgeon breeders captured is presented in **Annex 2. 2**.

Art. 9 – Each breeder will be recorded in a special register where all steps, from capturing to spawning will be mentioned. The template of the special register is presented in **Annex 2. 3**.

Art. 10 – The method used for artificial propagation of sturgeons must guarantee the survival of wild sturgeon breeders and their subsequent release in the natural environment where they were captured, in the presence of representatives of NAFA.

Art. 11 – (1) In order to monitor the results of implementation of programmes presented in art. 4, align. (1) the DDBRA establishes the Danube Migratory Fish Monitoring Station (**DMFMS**), situated at Isaccea (Danube River Km 100).

2) The objective presented in align. (1) will be realized until the end of the first semester of year 2007 and the annual budget needed for functioning of DMFMS will be provided by the central public authority for environment and water management.

(3) DMFMS will be operated with participation of specialists from Lower Danube River countries managing jointly under CITES the sturgeon populations of the N-W Black Sea and Lower Danube region.

Art. 12 – The results of DMFMS monitoring will be presented in an annual report sent to interested authorities and institutes and to the CITES Secretariat.

Art. 13 – The Danube Delta National Institute Tulcea is the CITES Scientific Authority for Acipenseriformes of Romania.

Art. 14 – Non-compliance with the present order will be sanctioned according to Law No. 192 / 2001 on fish fund, fishing and aquaculture, with later modifications and additions and the Government Urgency Ordinance No. 236 / 2000 on the status of natural protected areas, the conservation of natural habitats, wild flora and fauna, approved with modifications and additions by Law No. 462 / 2001.

Art. 15 – Annexes 1 – 3 are part of this Order.

Art. 16 – The present order is published in the Official Monitor of Romania Part I.

The Minister of Agriculture, Forests
and Rural Development,

Gheorghe FLUTUR

The Minister of Environment
and Water Management,

Sulfina BARBU

Annex 2.1

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 $\Delta F \text{ max} = 0,50 \%$)
 (after ASMFC, 1996⁴)

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 propagation
Beluga sturgeon	14	100	7	5 / 2 2 / 5 3 / 4 4 / 3
Russian sturgeon	12	100	12	6 / 6 8 / 5 5 / 8
Stellate sturgeon	8	100	14	7 / 7 9 / 6 6 / 9
Sterlet	5	100	20	10 / 10 11 / 9 9 / 11
Ship sturgeon	12	100	8	4 / 4 3 / 6 6 / 3

- Sperm from multiple male donors should not be mixed for artificial fertilization. The eggs of each female will be divided in a number of portions equal to the number of males and will be each separately fertilized with sperm of one male.

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 = effective number of males and N_f = effective number of females

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

GI = generation interval

⁴ Atlantic Sturgeon Aquaculture and Stocking Committee (1996). ASMFC Breeding and Stocking Protocol for Cultured Atlantic Sturgeon. NOAA

Series No. 000001

Hatchery.....

Manager

Sanctioned by Fishery Inspector Name and surname
Badge No.....
Signature

**CAPTURE RECORDING FILE
FOR STURGEON BROOD STOCK**

No. Date.....

Name and surname of fisher	Permit No.	Authorization No.	External marking of fishing boat	Fishing gear

Fishing zone / site were it was captured

Characteristics of specimen captured:

Specification	Unit	
Species		
Sex	M / F	
Standard Length	Cm	
Total Weight	Kg	
Tag. No.		

Signatures of fishermen:

- 1.....
- 2.....
- 3.....

Signature of Hatchery representative

Name and Surname:

.....

Signature:

Hatchery
Name of hatchery manager.....

REGISTER FOR THE ARTIFICIAL PROPAGATION OF STURGEON

Crt. No.	Specification			Date of capture / No. of capture rec. file	Amount of eggs [Kg]/ milt obtained [ml]	Date of stripping / amount of eggs obtained [Kg]	Hatching date / Number of larvae	Date / Number of fingerlings	Date / site of releasing the broodfish into natural environment	Remarks
	Species / Tag No.	Weight [Kg]	Sex							
1										
2										
3										

Name and Surname of Hatchery manager

.....

Signature

.....

Annex 3.

**Recommendations
of the Expert Meeting on
coordination and implementation of sturgeon stocking programmes
for the Lower Danube River
and of the North-West Black Sea Region**

Sărulești, Romania (21–22 June 2006)

1. The experts agreed that regional coordination of the sturgeon stocking activities in the Lower Danube River with hatchery produced young sturgeons is essential for effectively conserving and restoring wild sturgeon populations in the region.
2. The regional coordination should concern, *inter alia*: tagging systems, monitoring of stocking efficiency, size of sturgeons to be used for stocking, releasing sites, numbers of sturgeons to be released, sturgeon species concerned, timing of stocking activities and accompanying management measures.
3. The countries should develop and implement a common sturgeon stocking programme, based on existing experiences in the region and the best available up-to-date scientific knowledge and practices.
4. Sturgeon stocking programmes need to be complementary to and supportive of conservation and management efforts for wild sturgeons in the region.
5. The agreed regional approach concerning stocking activities has to be implemented at national level, in accordance with local needs and capacities.
6. The Romanian proposal on “Management plan for hatchery activities in support of the conservation of wild sturgeon populations of the Danube River” should be taken into consideration for developing and coordinating future regional and national stocking activities.
7. The Black Sea Sturgeon Management Action Group (BSSMAG) needs to be reinforced to improve its capacity and regional representation.
8. BSSMAG should prepare for submission by the countries a project proposal for FAO on “Capacity building for the recovery and management of the sturgeon fisheries of the Lower Danube River and N-W Black Sea”.
9. The coordinated regional sturgeon stocking programmes have to include activities and management practices to combat poaching of wild sturgeons and released broodstock.
10. The countries are recommended to initiate in 2006 a two-year programme to conduct coordinated medium-scale trials on the objectives referred to in point (2) above.
11. The countries should make a first evaluation of the trials referred to in point (10) during a regional expert meeting organized after the two-year programme.
10. CITES MA’s and Fisheries Authorities of countries of the region should explore possibilities to raise the necessary resources (national, EU, TACIS, etc) to implement the coordinated regional sturgeon stocking programmes.

11. CITES MA's and Fisheries Authorities of countries of the region should ensure political support and commitment to implement effectively the coordinated regional and national sturgeon stocking programmes.

Signing Experts:

Bulgaria: Dr. Angel Tsekov

Romania: Dr. Neculai Patriche

Dr. Radu Suciu

Serbia: Dr. Mirjana Lenhardt

Ukraine: Dr. Serhiy Bushuev

[In the presence of Thomas De Meulenaer, Scientific Support Unit, CITES Secretariat, Geneva, Switzerland]

Status and management of sturgeon populations of N-W Black Sea and Lower Danube River during 2000 - 2004 in Romania

Species	Year	Fishery independent data	Fishery dependent data			Status of spawning stock of the year	Catch quota proposal for the next year
		JPI * [CPUE]	Sex ratio** ♀ / ♂ [%]	First -/ second -/ third time / fourth time/ ... spawners [%]***	Fishery management & Other information****		
<i>Acipenser gueldenstaedti</i>	2000	0.75	-	-	Poor reporting of catches	Good recruitment ▼	No adaptive management
	2001	0.167	-	-	Poor reporting of catches Catches assessed by RRA*****	Low recruitment	Reduced with 8 %
	2002	0.302	73 / 23	4.5% - I ; 14% II - III ; 57% IV ; 24,5 % V & > V	Incomplete & biased reporting of catches	Moderate recruitment	Reduced with 15 %
	2003	0	83 / 17	0 % I ; 24 % II ; 52 % III / 16 % IV ; 8 % V & > V	In May - July catches upstream of rKm 141 not reported	Low % of males. Lack of first time spawners. Low / No recruitment	Reduced to only 13 % of year 2003
	2004	0.073	71 / 29	Mostly old fish (N = 6) (15 – 21 years old)	Very probably there were fish not reported by fishermen. Improved, medium scale supportive stocking program planned for 2005.	Low natural recruitment.	Unchanged
<i>Acipenser ruthenus</i>	2000	3.125	Species disregarded by fishery management authorities. No reporting of catches required	Lack of fishery dependent data .	Species captured but not reported in the catch statistics; 2001 - catches assessed by RRA 2003 & 2004- species captured but not reported due to management fault.	Very good recruitment	No adaptive management
	2001	0.208				Existing recruitment	First time catch quota established at 0.5 t
	2002	1,279				Good recruitment	Increased with 38%
	2003	1.743	Very good recruitment			Increased with 120 %	

	2004	2.244	Still no fishery dependent data available.			Very good recruitment	Unchanged
<i>Acipenser stellatus</i>	2000	1.375	-	-	Poor reporting of catches	Very good recruitment.	No adaptive management
	2001	0.625	-	-	Poor reporting of catches; Catches assessed by RRA*****	Moderate recruitment.	Reduced with 6 %
	2002	0.069	37 / 63	Males: (N = 116) 17% I ; 49% II ; 26% III ; 10 % IV ; 7 % V & > V Females: (N= 19) 52% I ; 37 % II ; 11 % III	Incomplete & biased***** reporting of catches	Low recruitment. Balanced age class distribution in both sexes.	Reduced with 18 %
	2003	0.166	31 / 69	Males (N = 137) 23 % I ; 58 % II ; 14 % III ; 5 % IV & > IV Females: (N = 166) 15 % I ; 27 % II ; 32 % III ; 16 % IV / 10 % V & >V	In May - July catches upstream of r Km 141 not reported	Moderate recruitment. Unbalanced sex ratio. Balanced age class distribution in both sexes.	Reduced with 10 %. Need for improved enforcement of regulations & quota.
	2004	0.185	31 / 69	Males (N=82) 46% I; 47% II; 4 % III; 3 % IV & > IV Females (N=37) 38% I; 39% II; 15 % III; 8 % IV & > IV	Very probably there were fish not reported by fishermen. Improved, medium scale supportive stocking program planned for 2005.	Moderate natural recruitment. Unbalanced sex ratio. Balanced age class distribution in both sexes.	Unchanged
<i>Acipenser nudiiventris</i>	2000	-	-	-	No information	Species highly endangered. Need for urgent	-
	2001	-	-	-	RRA by DDNI Tulcea revealed at least 13 specimens captured during 1993 - 2001		Proposed catch for captive breeding

	2002	-	-	-	At least one specimen (male) captured in RO	regional captive breeding & reintroduction programme.	Proposed catch for captive breeding
	2003 & 2004	-	-	-	No information on catches		Proposed catch for captive breeding
<i>Huso huso</i>	2000	7.375	-	-	Poor reporting of catches	Exceptional natural recruitment.	No adaptive management
	2001	1.625	-	-	Poor reporting of catches; Catches assessed by RRA*****	Good natural recruitment.	Reduced with 13 %
	2002	1.744	53 / 47	Age class distribution not assessed. Normal length distribution in both sexes, suggesting balanced age class distribution	Reporting of catches much better than in other species (due to large size of fishes).	Good natural recruitment. Balanced sex ratio. Balanced age class distribution in both sexes.	Increased with 13 %
	2003	0.143	47 / 53	Both sexes (N = 25) 16 % I; 32 % II; 34 % III; 8 % IV & > IV	In February - July catches upstream of rKm 141 not reported.	Low recruitment (due to unfavourable temperature and water level conditions). Balanced sex ratio. Balanced age class distribution.	Unchanged
	2004	1.683	61 / 39	Both sexes (N = 27) 8 % I; 47 % II; 28 % III; 17 % IV & > IV	<i>Reporting of catches much better than in other species</i> (due to large size and high value of fishes).	Good natural recruitment. Balanced sex ratio. Almost balanced age class distribution.	Reduction of 15 % requested by Bulgaria

* Juvenile Production Index (**Fig. 7**) is expressed in CPUE [No of YOY sturgeon captured in a 96 ml long trammel net drifting over a surface of about 8 ha of Danube River bottom at river Km 119]

▼ Recruitment is assessed based on the JPI (assuming that 1.5 - 2 month old YOY sturgeons form the recruits of the current year class)

** (% females / % males)

*** First time spawning individuals (I), second time spawning individuals (II), ... Fifth and more than fifth time spawning individuals (V & > V)

****2000 - No. of fishermen not controlled; poor law enforcement; Poor catch statistics. DDNI Tulcea started monitoring of Juvenile Production Index

2001 - First annual national workshop on management of sturgeon stocks under CITES (Dec.)

Poor law & regulation enforcement outside the Danube Delta Biosphere Reserve (DDBR) (upstream of rKm 141)

2002 - Compulsory tagging (Fig. 8) and reporting of all sturgeons landed in Romania implemented for the first time. Law enforcement still problematic.

National workshop on management of sturgeon stocks under CITES organised twice / year (Sept. & Dec.)

Catch quota expressed only in [Kg] resulted in under-reporting of weight of fish.

Age determined in 127 specimens of *A. stellatus*

2003 - All fishing zones concessioned to private companies (by end of April downstream river Km 141 and only by 1 August upstream rKm 141).

Law enforcement increasingly improved during the second half of the year.

July 5, 2003 - launching of web page "Sturgeons of Romania and CITES" (<http://rosturgeons.danubedelta.org>)

On line reporting of catches is functional still only in DDBR.

National workshop on management of sturgeon stocks under CITES organised twice / year (26 Aug. & 8 Dec.)

Catch quota expressed in [Kg] and in [No of specimens] > practice of under-reporting of weight of fish visibly reduced / abandoned

Age determined in 12 specimens of *A. gueldenstaedti*; 25 specimens of *Huso huso* and 194 specimens of *A. stellatus* (N_{Total} = 231 specimens)

2004 – Web page "Sturgeons of Romania and CITES" (<http://rosturgeons.danubedelta.org>) was visited over 900 times (230 visitors of 14 countries, 700 visitors of Romania).

National workshops on management of sturgeon stocks under CITES held in Tulcea on August 25 and November 4. National Action Plan on implementation of Regional Conservation Strategy was adopted during the first workshop.

Fishing companies having concession of fishing zones for sturgeons improved guarding of fishing sites.

Lack of export quotas during the first 8 month of the year disrupted normal fishery management practices (fishermen were not paid; local black market was thriving).

On line reporting of catches was functional at both fishery management authorities (DDBR - Tulcea and NCFM - Bucharest).

Age determined in 6 specimens of *A. gueldenstaedti*; 27 specimens of *Huso huso* and 119 specimens of *A. stellatus* (N_{Total} = 152 specimens)

Experimental supportive stocking of Danube River with fingerlings (one month old) of beluga (10 000) and Russian sturgeon (10 000)

***** Rapid Rural Appraisals (based on interviews with fishermen)

***** Biased reporting of biometrical characteristics in stellate sturgeon (*A. stellatus*) during 2002 was corrected in 2003 by introducing expression of catch quota in [Kg] and [No. of specimens].

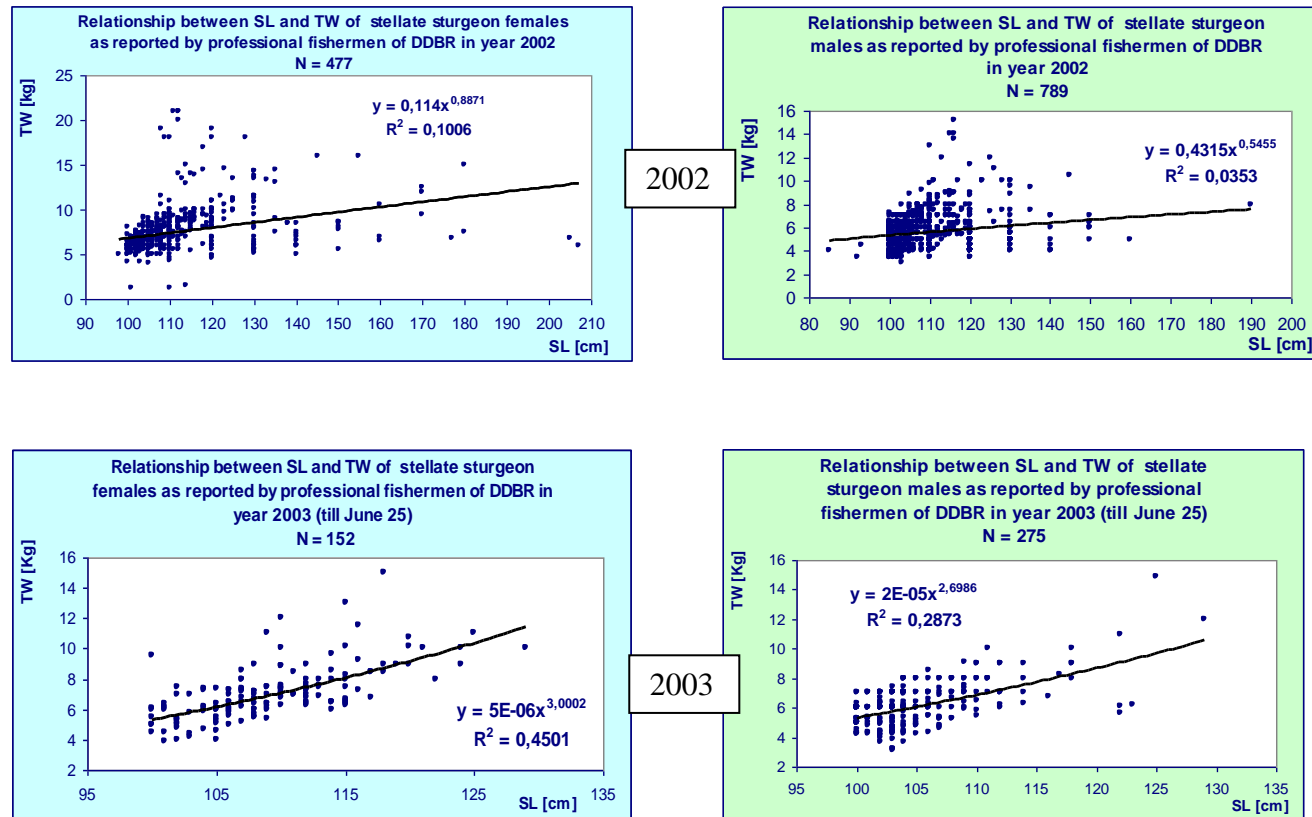


Fig. 1: Length (SL) - weight (TW) distribution in males (right) and females (left) of stellate sturgeon captured and reported in DDBR in year 2002 (up) and 2003 (down). Note in 2002 biased under- reporting of most length, as between 100 - 110 cm (minimal length), and TW, as between 5 - 6 Kg.

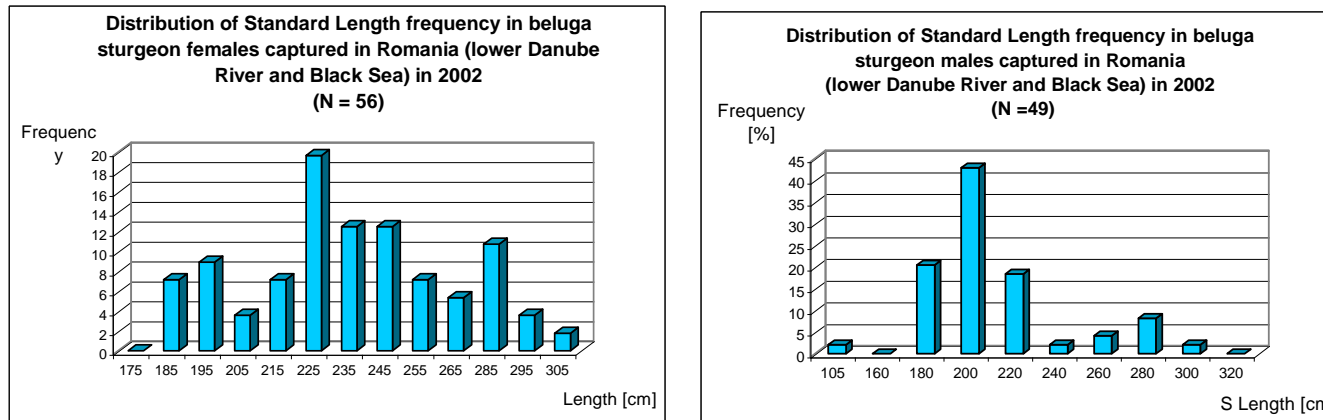


Fig. 2: Distributions of Standard Length classes in beluga surgeons captured in Romania in 2002.

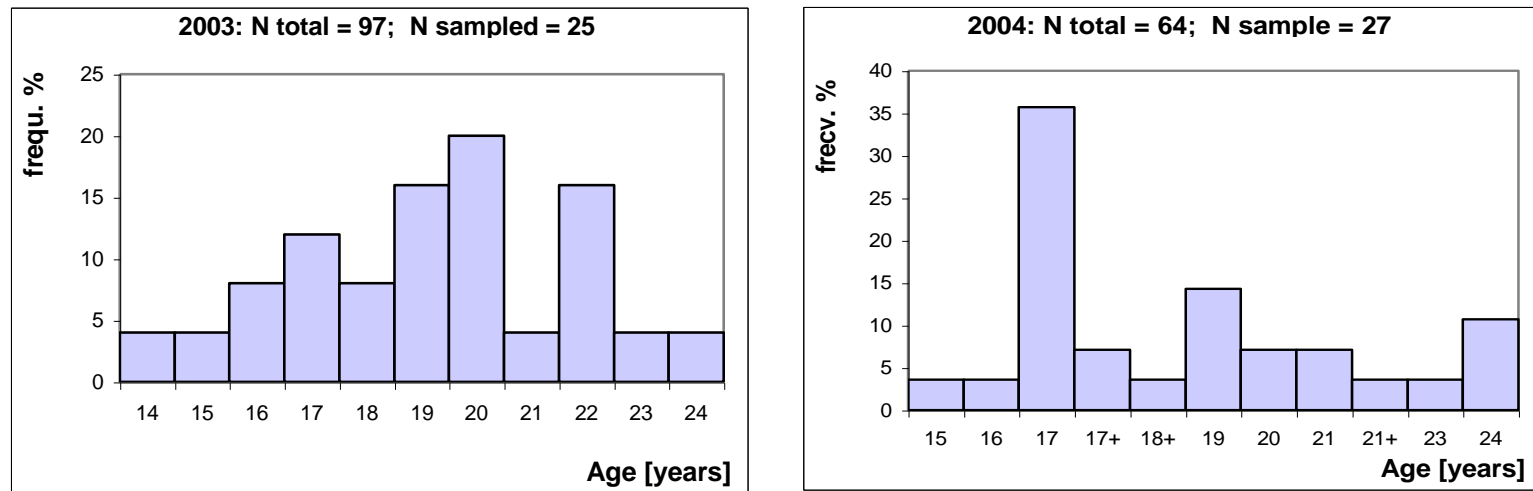


Fig. 3: Age class structure in beluga surgeons (mixed sexes) captured in Romania in 2003 & 2004

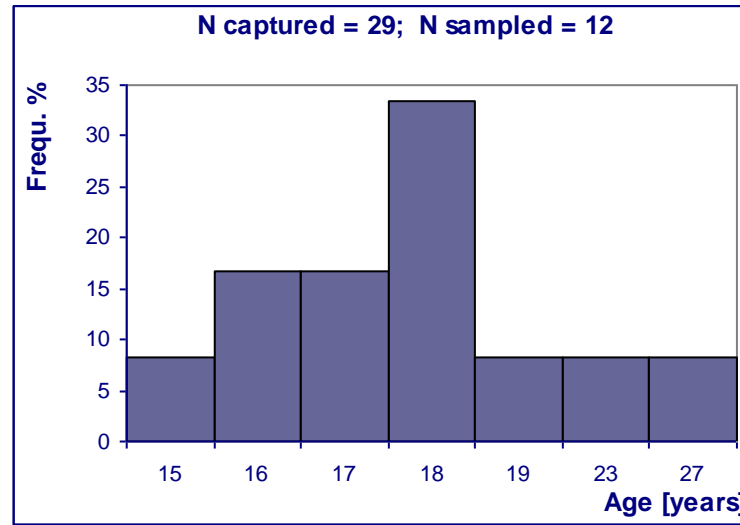


Fig. 4: Age class structure in Russian surgeons (mixed sexes) captured in Romania in 2003.

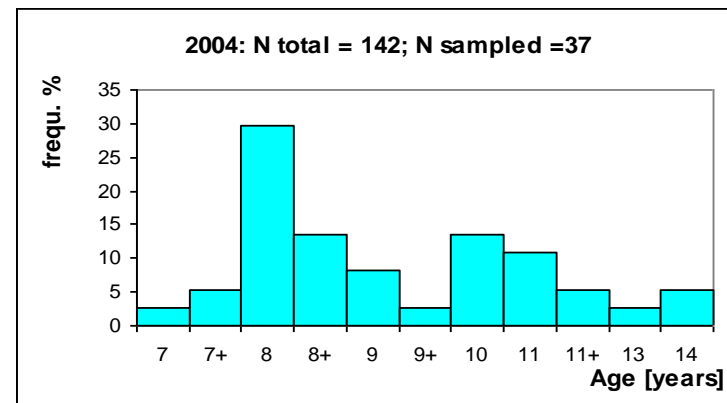
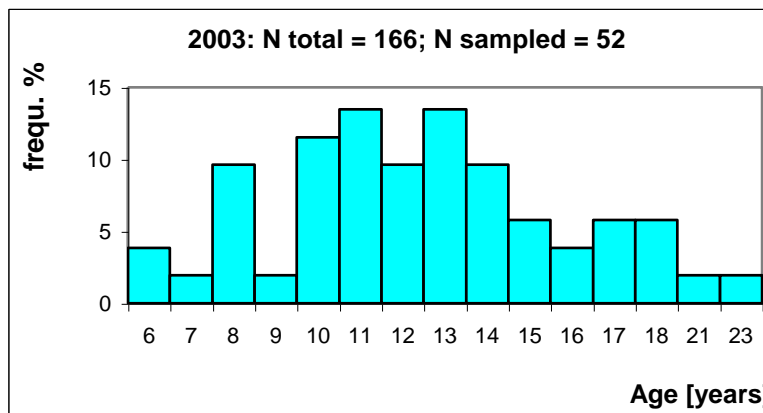


Fig. 5: Age class structure in female stellate surgeons captured in Romania in years 2003 & 2004

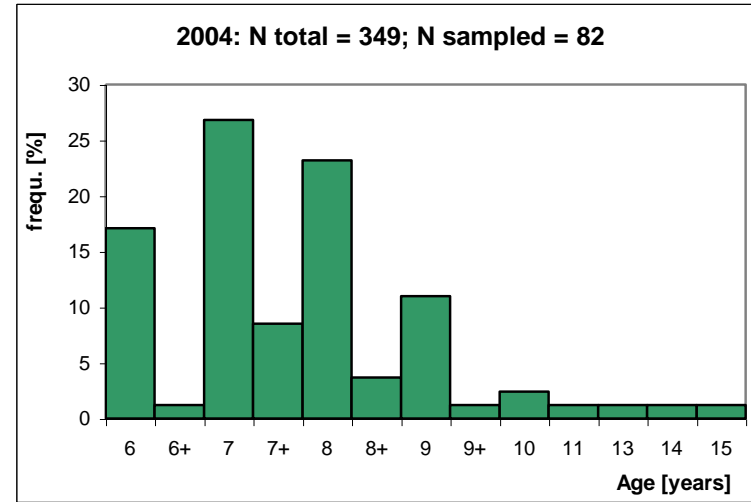
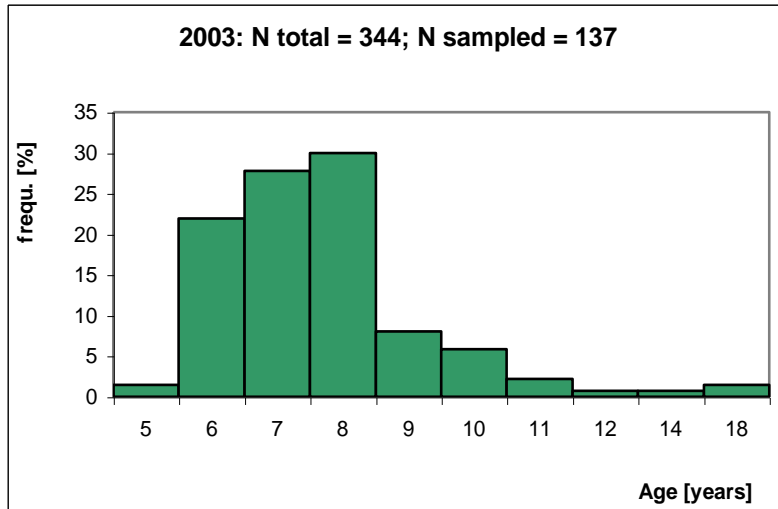
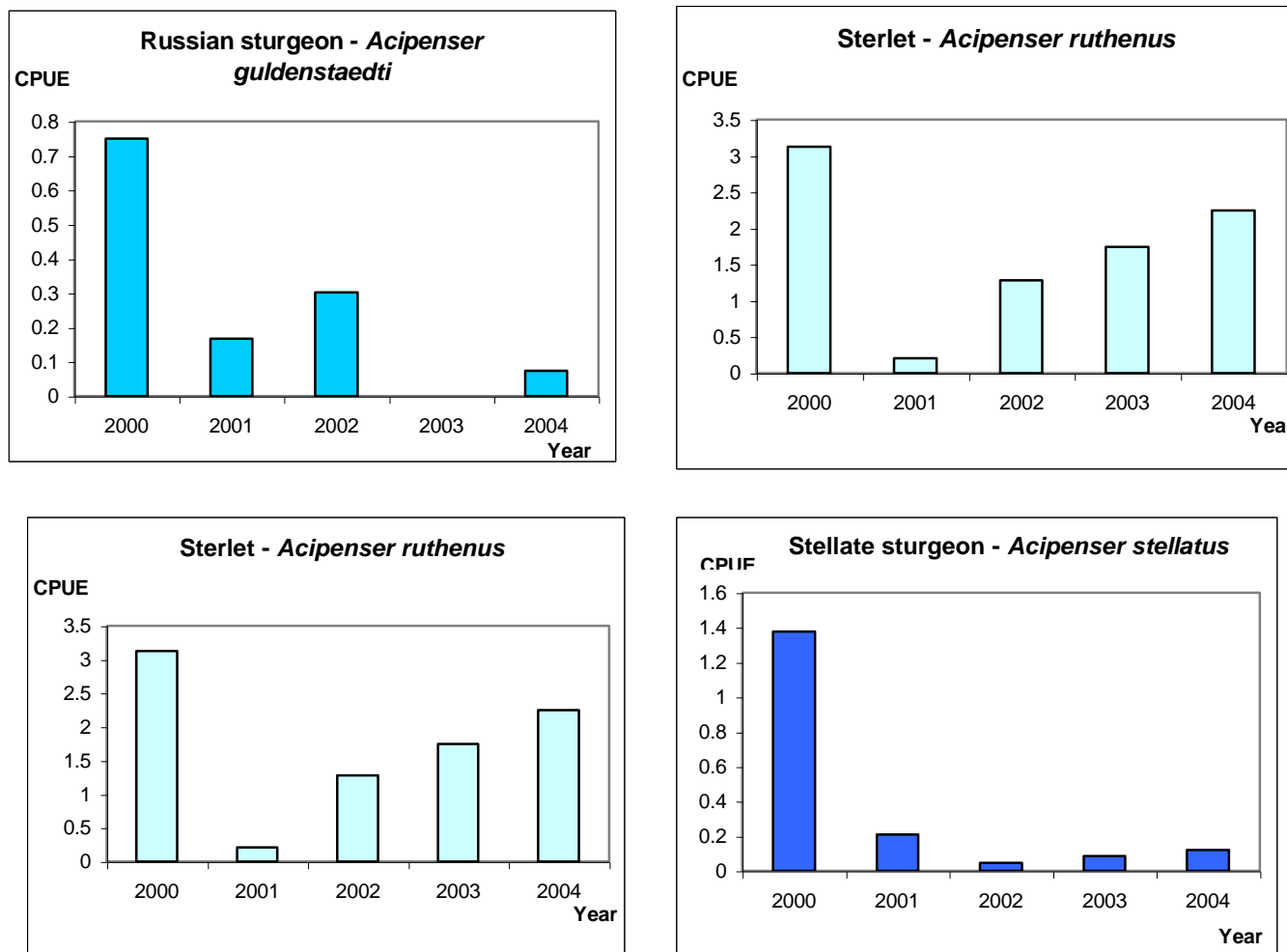


Fig. 6: Age class structure in male stellate surgeons captured in Romania in years 2003 & 2004

Fig. 7 : Natural recruitment of different sturgeon species in the lower Danube River during 2000 – 2004 assessed by monitoring downstream migration of YOY at river Km 119 [represented as Juvenile Production Index (JPI) graphs]



CPUE – catch per unit of fishing effort [No of YOY captured by fishing with a 96 m long, 20 mm mesh sized trommel net drifted over 850 m stretch of the Danube River at river km 119]



Fig. 8: The two types of tags used by Romanian Fisheries Authorities since 2002 and a specimen of Russian sturgeon tagged after landing