

PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

A. PROPOSAL: Inclusion of the following species of *Acipenser naccarii* in **Appendix II** of the Convention on the Conservation of Migratory Species of Wild Animals:

B. PROPONENT: **Federal Republic of Germany**

C. SUPPORTING STATEMENT

1. Taxon

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|------|---------------|---|
| 1.1_ | Classis: | Actinopterygii |
| 1.2 | Ordo: | Acipenseriformes |
| 1.3 | Familia: | Acipenseridae |
| 1.4 | Species: | <i>Acipenser naccarii</i> Bonaparte, 1836 |
| 1.5 | Common names: | Croat: Jesetra tuonoska English: Adriatic sturgeon, Italian sturgeon French: Esturgeon de l'Adriatique German: Italian: Storione cobice; Cobice Portuguese: Esturgiao Serbo-Croat: Jadranska jesetra Spanish: Esturión del Adriático |

2. **Biological data**

2.1 Distribution

Acipenser naccarii inhabits the coastal waters of the Adriatic Sea from Venice and Trieste to Greece and Corfu and enters the river Po and some of its northern tributaries in Italy for spawning (Lelek, 1987; Tortonese, 1989; Rossi et al., 1991; Bianco, 1995; Cataldi et al., 1995).

The historical distribution of the species comprised all the rivers of the Venetian basin including the rivers Adige, Brenta, Bacchiglione, Livenza, Piave and Tagliamento (Tortonese, 1989). At present, the spawning fish are only encountered in the river Po. Tortonese (1989) reports that the Adriatic sturgeon is still present on both sides of the Po dam near Caorso, between Cremona and Piacenza.

Detailed information on the distribution of *Acipenser naccarii* in former Yugoslavia is lacking.

In 1995, a so far unknown population of *Acipenser naccarii* has been found in Albania (Birstein et al., 1997).

2.2 Population

There are no estimates of the total size of the population in the wild. Tortonese (1989) indicates that this species is believed to be rare everywhere in Italy, even in areas where it had been abundant in the past. According to Bronzi et al. (1997) in 1993 only 19 specimens have been caught.

The status of the populations of *Acipenser naccarii* has been classified as Vulnerable by IUCN (1996).

During the last decades, the abundance of *Acipenser naccarii* has dramatically decreased as reflected by the annual catches of 2-3 metric tons per year in the beginning 1970s and 200 kg per year in 1990-1992 down to only 19 specimens in 1993 (Bronzi et al., 1997).

2.3 Habitat

Acipenser naccarii is a rather poorly studied species and its ecology is not known in detail (Lelek, 1987).

During its stay in the Sea, *Acipenser naccarii* does not enter pelagic waters but remains near the shore, at the mouths of the rivers. It prefers depths of 10 to 40 m over sandy or muddy bottoms (Paccagnella, 1948 in Tortonese, 1989).

2.4 Migrations

The anadromous (definition see on p. 12: 2.4) upstream migration into Italian rivers occurs during the first months of the year. The reproductive period of the Adriatic sturgeon starts in May and lasts till the end of June (Tortonese, 1989). The juveniles remain in freshwater for at least one year, but it is believed that for some specimens the whole life cycle may occur in freshwater.

As the biological features of the species have never been systematically investigated, virtually nothing is known about the migration of *Acipenser naccarii* in the open sea. However, it may be concluded that specimens migrate within the Adriatic Sea from the North (Italian coast) to the South (Croatian and Albanian coast, probably coast of Greece), passing the national boundaries of these countries.

3. Threat data

3.1 Direct threat of the population

The abundance of the population of *Acipenser naccarii* was heavily reduced by fishery (see 3.5): more than 80% of the specimens sold at the fish market during 1981-1988 had a weight of less than 3.5 kg and thus, were fished before the reproductive phase (Bronzi et al., 1997).

Besides the overexploitation, the reduction is also a consequence of continual pollution of the rivers (Bronzi et al., 1997) and the current pollution of the Po River threatens the existence of the species. However, detailed information about the level of pollution and the effect on sturgeons is not available.

A further threat to the species is represented by the dams and weirs that are built along the rivers and represent insurmountable barriers for the migration of the species (see 3.2 and 3.4).

Moreover, Dezfuli et al. (1990) and Bronzi et al. (1997) indicate that during their studies most of the examined Adriatic sturgeon were parasitized by *Leptorhynchoides plagicephalus* (Acanthocephala) which has a negative effect on the growth rate of the sturgeon.

3.2 Habitat destruction

Acipenser naccarii was once present in all the rivers of the Venetian basin including the rivers Adige, Brenta, Bacchiglione, Livenza, Piave and Tagliamento (Tortonese, 1989). At present, it inhabits mainly the Po River and some of its northern tributaries in the Lombardy Region (Rossi et al., 1991; Cataldi et al., 1995). The habitat degradation during the last decades is mainly due to continual environmental pollution and the construction of artificial dams and weirs along almost all rivers that the species formerly inhabited (Cataldi et al., 1995).

However, the quantity of loss of adequate spawning sites is not documented.

3.3 Indirect threat

Pollution may certainly represent an indirect threat to the survival of the Adriatic sturgeon, but the effects on sturgeons and their natural reproduction has not been investigated for this species.

3.4 Threat connected especially with migrations

Since the migration of *Acipenser naccarii* along the coastline of the Adriatic Sea is not sufficiently investigated up to date, the threats connected with migrations can only be concluded. In fact, it seems to be one of the major threats that the ecology of the species in the entire habitat is hardly understood. Although Italy makes strong efforts in restocking the species, the other range states do not participate in any conservation programme and may probably even reduce the actual population by legal or illegal fishing.

3.5 National and international utilization

According to Tortonese (1989) *Acipenser naccarii* has little commercial value. Only the flesh is used, the eggs are not consumed as caviar.

Fishery. In Northern Italy, particular nets for the capture of sturgeons were formerly used along the rivers when the fish were more abundant. Now the capture of the species has become only occasional in most places (Tortonese, 1989). The catches decreased drastically from approximately 2-3 metric tons per year at the beginning of the 1970s (Arlati and Rossi, 1995) to about 200 kg per year in the period from 1990 to 1992 and in 1993, only 19 specimens have been caught (Bronzi et al., 1997).

Artificial propagation and fish farming. Since 1988, *Acipenser naccarii* is artificially

propagated in Italy. The broodstock constitutes of about fifty individuals caught as juveniles at the age of 1-2 years in the wild in 1977, and kept in captivity in freshwater, and is now composed of animals aged between 10 and 20 years with a weight between 10 and 60 kg (Bronzi et al., 1997). The annual production is about 300,000 larvae and is utilised both for restocking and fattening purposes (Bronzi et al., 1997). Arlati and Bronzi (1995) report that the total annual production of sturgeon farming in Italy was about 380 metric tons in 1993, the Adriatic sturgeon accounting for approximately 9%. The production is obtained from a total of 15 farms including 3 hatcheries and 4 experimental plants.

The market is covered by 98% of fresh fish with a preference of large size from 6 to 14 kg of which about 17% are marketed live for release into private lakes for sport fishing, mainly in Northern and Central Italy (Arlati and Bronzi, 1995). The farm gate price of whole fresh fish is about 11-12 \$ per kg for small size and about 13 \$ per kg for medium to large size. The remaining 2% are sold as smoked fillets at 50 \$ per kg, or pre-cooked slices at about 33 \$ per kg (Arlati and Bronzi, 1995). All these market data are given for 1993 and the entire aquaculture production of sturgeons in Italy including several sturgeon species. The production of sturgeon is mainly for the domestic market.

4. Protection status and needs

4.1 National protection status

Albania: no information available.

Croatia: no information available.

Greece: see 4.2

Italy: see 4.2

The Venetian Region introduced a minimum legal size of more than 1 m (TL) in 1987 and the Lombardy Region permits the catch of specimens longer than 0.6 m (TL) (Bronzi et al., 1997).

Slovenia: no information available.

4.2 International protection status

Acipenser naccarii is listed in Appendix II of the Bern Convention (protected fauna).

The species is also listed in the Annexes II and IV of the EC Habitats Directive (92/43/EEC").

Acipenser naccarii is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

4.3 Additional protection needs

In Italy, a programme for the restoration of the Italian sturgeon, *Acipenser naccarii*, has been planned by the organisations of Regione Lombardia, ENEL S.p.A., University of Ferrara and CNR in the northern regions of Italy (Bronzi et al., 1997). This programme includes the monitoring of the population by tagging methodologies and radio tracking and the establishment of a bank of broodstock for restocking purposes (Bronzi et al., 1997).

Within this framework, the Regione Lombardia has since 1988 annually restocked several rivers of its territory with a total of 22,500 fingerlings and 7,500 juveniles (>1 year) produced by artificial propagation in fish farms from a broodstock of about 50 individuals caught in the wild. Further information about the ecological results of the programme is not available. However, artificial propagation is believed to be the major key for the survival and conservation of the endangered *Acipenser naccarii*, like it is the case for many other sturgeon species.

The knowledge about the only recently discovered population of *Acipenser naccarii* in Albania is very scarce and further investigation of that population as well as of migration patterns of the species along the Adriatic coast is strongly needed.

5. Range States

The range states of the species are

- Albania
 - Italy
- and probably also
- Croatia (?)
 - Greece (?) and
 - Slovenia (?)

According to FAO-data these countries are also the major fishing countries in the range area of the species.

6. Comments from Range States

The Range states of the species have been provided with a copy of a draft proposal (Inclusion of 18 species of Acipenseriformes in Appendix II of CMS) and were asked for their comments. The appreciated scientific comments and corrections are integrated in the text. The position of each Range state on the proposal are as follows:

- **Albania** manifests its interest in the proposal and wishes to be involved in the realisation.
- **Croatia** gives its full support to the proposal.
- **Greece** informs that there have been only sporadically reported sturgeon species in the Greek territory.
- **Italy** supports the proposal (verbal communication in the EC Habitat Committee, 28.04.1999).

7. Additional Remarks

Acipenser naccarii has been sympatric with *Huso huso* and *Acipenser sturio* (Appendix I of CITES) in the past, but both species have not been recorded in the range area since 1975 (Rossi et al., 1991; Bronzi et al., 1997). According to Tortonese (1989) the Adriatic sturgeon has often been confused with *Acipenser sturio* by fisherman, a fact that influences most of the fishery statistics.

8. References

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