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

PROPOSAL: Inclusion of the following species of *Acipenser nudiventris* in **Appendix II** of the Convention on the Conservation of Migratory Species of Wild Animals (CMS):

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

C. SUPPORTING STATEMENT

1. Taxon

1.1_	Classis:	Actinopterygii	
1.2	Ordo:	Acipenseriformes	
1.3	Familia:	Acipenseridae	
1.4	Species:	*Acipenser nudiventris* Lovetzky, 1828	
1.5	Common names	Bulgarian:	Ship
		English:	Ship sturgeon, Spiny sturgeon, Fringebarbel sturgeon, Thorn sturgeon, Bastard sturgeon
		French:	Esturgeon à barbillons frangés
		German:	Glattdick
		Hungarian:	Szintok
		Polish:	Szypr
		Russian:	Ship
		Romanian:	Viza
		Serbo-Croat:	Sim
		Slovak:	Jeseter hladký
		Spanish:	Esturión barba de flecos, Esturión de flancos

2. Biological data

2.1 Distribution

Acipenser nudiventris inhabits the Caspian Sea, the Black Sea and Sea of Azov (Sokolov and Vasil´ev, 1989). The species is anadromous (definition see on p. 12: 2.4) and mature adults ascend the large rivers which enter these basins for spawning.

Historically, in the Caspian Sea basin two reproductively isolated groups of *Acipenser nudiventris* occurred, one in the northern Caspian Sea which ascended the Ural River (Kazakhstan) and probably the Volga for spawning, and one in the southern Caspian Sea which migrated into the Kura River (Azerbaijan), the Sefidrud River (Iran) and probably in smaller numbers the Lenkoranka and Astara Rivers (Caucasian shore) (Sokolov and Vasil´ev, 1989, Makarova et al., 1991). Currently, only the Ural River population occurs in the Caspian Sea basin (Avetisov, 1992).

In the Black Sea and the Sea of Azov, the ship sturgeon was only rarely found (Sokolov

and Vasil´ev, 1989). The main spawning sites were located in the Rioni River (Georgia) and very rarely individuals entered the Don and Kuban Rivers. In the Danube, where a resident population of *Acipenser nudiventris* was reported to spawn in the past, there is no current report of any individual and the population in this river is believed to be critically endangered or extinct (Pinter, 1991; Banarescu, 1994; Bacalbasa-Dobrovici, 1997; Hensel and Holcik, 1997). In Hungary, the former few records are mostly in the Upper-Tisza region. The last record is from the river Drava in 1991 (A. Demeter – personal communication).

On the southern coast of the Black Sea in Turkey, there were only few records of some individuals and it is presumed that *Acipenser nudiventris* does not spawn in rivers along the Black Sea coast of Turkey (FAO, 1989).

In the Aral Sea, *Acipenser nudiventris* formerly ascended the Amu Darya River and the Syr Darya River. Currently, this population which was morphological distinct from the others, is believed to be Extinct (Zholdasova, 1997).

In 1933 and 1934 specimens of the Aral Sea population of *Acipenser nudiventris* have been introduced into the Ili River, which flows into the Lake Balkash in Kazakhstan. The fishes acclimatized there and formed a new population which is believed to be extinct today (Sokolov and Vasil´ev, 1989).

2.2 Population

Published data which give information on the total size of the population are largely unavailable.

In the Caspian Sea, where historically the most numerous population of *Acipenser nudiventris* occurred, the main abundance of the species was south of the mouth of the Kura River (Azerbaijan) (Makarova et al., 1991). The largest spawning population ascended the Kura River whereas the spawning populations ascending the Sefidrud River (Iran) in the southern Caspian Sea and the Ural River (Kazakhstan) in the northern Caspian Sea are believed to be smaller (Makarova et al., 1991). During their investigations on the Kura River in the period from 1983-1987, Makarova et al. (1991) found that at the end of the 1980s only a small number of ship sturgeon adults ascended the Kura River for spawning and they estimated the migrating spawning stock to consist of 66 to 112 individuals. Since then no population estimates have been made but Avetisov (1992) indicates that currently stocks of *Acipenser nudiventris* in all rivers entering the Caspian Sea with the exception of the Ural River are on the verge of extinction. In the Ural River, an estimated 1,500 to 18,600 individuals of the ship sturgeon annually spawned during the period from 1978-1990 (Avetisov, 1992). There is no recent estimate of the population size of the Ural River spawning population.

There are no size estimates for the Black and Azov Seas population of *Acipenser nudiventris* either. The populations in both seas are believed to be on the verge of extinction (Avetisov, 1992). In the Danube River system *Acipenser nudiventris* is considered to be Extinct (Pinter, 1991; Banarescu, 1994; Birstein, 1996).

The Aral Sea population of *Acipenser nudiventris* is believed to be Extinct (Birstein, 1993; Zholdasova, 1996). Findings of the species in the Aral Sea and the Amu Darya River are not reported since 1989 except the oral communication of one specimen (4 kg)

found in 1990 in the region of Il´dzhik and one specimen (2 kg) found in 1991 35 km upstream from Chardzhou (Zholdasova, 1997).

The population in the Lake Balkash basin, where the species has been introduced, seems to be extinct because of the drying out of this lake (Bond et al., 1992).

IUCN (1996) classifies the status of the different populations of *Acipenser nudiventris* as follows:

- the Aral Sea population in Uzbekistan and Kazakhstan is Extinct,
- the Black Sea population in Russia and Ukraine is listed as Endangered,
- the Danube River population in Romania and Hungary is listed as Critically Endangered and
- the Caspian Sea population in Kazakhstan, Azerbaijan and Iran is listed as Endangered.

The stocks of *Acipenser nudiventris*, in comparison with other sturgeons have always been less abundant and the species only contributed to about 1% of the total sturgeon catches in the entire Caspian Sea (Sokolov and Vasil´ev, 1989). Because of the lower commercial importance due to its scarcity, there is only little quantitative information about population trends. In general, all populations are believed to be Endangered or even on the verge of Extinction (Birstein, 1993; Avetisov, 1992 in Birstein, 1993b).

In the Caspian Sea basin, Makarova et al. (1991) indicate that the abundance of *Acipenser nudiventris* within its main spawning river, the Kura, decreased drastically since 1954, when the Mingechaur Dam was built. This is reflected by the decreasing annual catch which amounted to 15-20% of the overall catches of sturgeons before the dam construction and decreased gradually to less than 2% at the end of the 1980s. The same authors report that the parental stock ascending the Kura has been almost entirely eliminated and that only one to four individuals passed through to the spawning sites at the end of the 1980s. Within that period, they estimated the rate of natural reproduction to be less than 10%, as concluded from the very low abundance of young ship sturgeons that migrate downstream the Kura. The entire still existing stock of *Acipenser nudiventris* is mainly maintained by artificial propagation which according to Makarova et al. (1991) failed to restore the former abundance of the species. There are no trends indicated for the remaining spawning rivers that enter the Caspian Sea, but it is believed that the size of the populations is decreasing in the entire Caspian Sea. Ship sturgeon stocks spawning in all rivers except the Ural River, which is the only river that is not dammed, are on the verge of extinction (Avetisov, 1992).

In the Black and Azov Seas *Acipenser nudiventris* has always been rare (Sokolov and Vasil´ev, 1989). The reduction of the populations within this region is not well documented by numbers. In the Danube River, the populations of *Acipenser nudiventris* in the upper and middle reaches are critically endangered, while the population in the lower reaches is extinct (Pinter, 1991; Jancovic, 1995; Guti, 1995; Birstein 1996; Hensel and, 1997). In the Azov Sea, in recent years summer asphyxiation led to a mass death of fish and in 1990 about 55,000 dead sturgeon specimens were found on the shore (Volovik et al., 1993). In both the Black Sea and the Sea of Azov the populations of *Acipenser nudiventris* are believed to further decline and to be on the verge of extinction (Avetisov,

1992 in Birstein, 1993b).

At the beginning 1930s, the Aral ship sturgeon population was relatively abundant and supported as an important commercial species a fishery of about 3,000 to 4,000 tons per year (Zholdasova, 1997). In 1936-1937 a mass death of ship sturgeon occurred which was caused by a mass infection with a specific marine parasite of sturgeons, *Nitzschia sturionis* (Monogenoidea). The parasite was brought in with the introduction of the Caspian stellate sturgeon, *Acipenser stellatus*, into the Aral Sea in 1933 and 1934. During 1936 and 1937 there were considerable losses among the Aral ship sturgeons, which had not developed immunity against the new parasite (Sokolov and Vasil´ev, 1989). The small remaining population was further destroyed by illegal fishery during spawning and by the effects of the Aral Sea ecological catastrophe, i.e. the drying of the Aral Sea (Birstein, 1993a; Zholdasova, 1997). Since the end of the 1970s no findings of *Acipenser nudiventris* in the lower flow of the main spawning river Amu Darya were reported and the population is believed to be extinct (Zholdasova, 1997).

2.3 Habitat

Acipenser nudiventris is an anadromous (definition see on p. 12: 2.4) sturgeon species (Sokolov and Vasil´ev, 1989) but shows a general predilection for freshwater. The ship is believed to stay longer in the rivers than other species of the family (Makarova et al., 1991). Some small populations are even known to be resident in the rivers (Sokolov and Vasil´ev, 1989).

The preferred habitat are relatively shallow waters with muddy ground. For this reason, the ship sturgeon is most abundant in the vicinity of river mouths (Berg, 1948).

2.4 Migrations

Acipenser nudiventris is a typical anadromous species which means that mature adults migrate from the sea to the rivers for spawning and return to their feeding grounds in the sea after spawning. The juveniles which are hatching in the freshwater environment also return to the sea for feeding.

According to the time of migration, there is a distinction between a spring race and a winter race (Sokolov and Vasil´ev, 1989). The spring race begins the spawning run into the rivers in early spring, in the mid or late summer the run reaches a peak and finally ceases in late autumn. The so-called winter race generally does not spawn the same year they enter the river. These fish hibernate in the rivers and reproduce the following year.

In the Kura River, both the spring race and winter race have occurred. Before the damming of the river, the ship migrated to spawning grounds located at 600 m from the river mouth.

In the Ural River, only the spring race of *Acipenser nudiventris* is encountered which starts migration during April and May (Sokolov and Vasil´ev, 1989). The majority of the mature fish travels to distances of 500 to 800 km upstream, and only few individuals are spawning at sites at 100 km from the river mouth.

The juvenile ship usually migrate to the sea during their first year of life. However, some of them may stay in the river for a longer period which may last between 2 to 5 years

(Sokolov and Vasil´ev, 1989).

Since *Acipenser nudiventris* feed primarily on fishes (especially gobiids), it seems probable that the fish undertake feeding migrations which are determined by the locations of the prey. Within the Caspian Sea there is a seasonal migration: in spring and summer most of the specimens are encountered in the northern part of the Sea on the main feeding grounds, while in autumn and winter a migration to the central and southern part of the sea has been observed (Barannikova et al., 1995).

Although such a seasonal migration is not reported for the Black Sea and Sea of Azov, it may be concluded that the ship populations within these basins also undertake feeding migrations throughout the whole basin.

Besides the anadromous form also a non-migratory resident form exists which may probably still inhabit the Ural River (Sokolov and Vasil´ev, 1989) and which is the only form that still occurs in the Danube River and some Ukrainian rivers (Banarescu, 1964; Manea, 1966; Pavlov, 1980; Hensel and Holcik 1997).

3. Threat data

3.1 Direct threat of the population

The main threats to the species are the loss of critical habitat such as spawning grounds due to dam constructions (see 3.2), the high level of pollution in almost all rivers within its range, and the legal and illegal fishing during the spawning season.

During the last 15-18 years, the level of pollution increased drastically in almost all rivers entering the Caspian Sea basin and the Black and Azov Sea basin, the main sources being oil and other industrial sewage as well as chemicals used in agriculture such as mineral fertilisers and pesticides (Vlasenko, 1990; Volovik, 1993). Oil pollution will in the near future undoubtedly be the main threat to the whole area of the Northern Caspian Sea basin, including the Ural River in Kazakhstan where the ship sturgeon is still spawning. The oil production in the area of Emba field and especially the development of Tengiz field (both fields are located in Kazakhstan) will cause an enormous pollution (Sagers, 1994) which will threaten the survival of all sturgeons in that region. Additionally to the oil production, the shipping of oil will inevitably result in water pollution of the Northern Caspian Sea area. In 1996, for example,. 20,000 metric tons of oil have been shipped from Tengiz to Baku (Azerbaijan) by Chevron Overseas Petroleum Corporation (Williams, 1996). Although the effects of pollution on *Acipenser nudiventris* have not been subject to recent investigations, the ship is known to be very sensitive to water contamination (Sokolov and Vasil´ev, 1989). Several authors (Altuf´yev et al., 1992; Romanov and Altuf´yev, 1991 and 1993; Romanov and Sheveleva, 1993; Kuz´mina et al. 1993; Altuf´yev, 1994; Shagaeva et al., 1993; Shagaeva et al., 1995) have investigated the influence of the very high level of pollution in the Caspian Sea and studied the effect of the various toxins on sturgeons. The studies revealed that environmental pollution caused considerable changes in hormonal balance, in the blood system, and in protein and carbohydrate metabolism, marked disturbances in the genesis of organs (liver, gonads) and tissues (skeletal muscles, heart) and the appearance of neoplasm in liver, gonads and sex cells. General weakening of the fish as a result of toxins, disturbed metabolism and hormonal imbalance led to a number of disturbances in sturgeon gonadogenesis, e.g. the increase in number of hermaphroditic specimens, ovotestis and

tumours, and to the appearance of new differentiation such as striated muscle tissue and fascicles of dense connective tissue formations which are normally absent in healthy fishes.

Besides the impact of water pollution, the exploitation by the fishery gives still reason for concern. Makarova et al. (1991) report that fishing is only allowed in the rivers and mainly mature individuals at a pre-spawning state were caught. The same authors indicate that illegal catching of *Acipenser nudiventris* in the Kura River occurred during the spawning migration and further reduces the size of the already reduced spawning stock.

The fact that the ship sturgeon is still commercially caught was proved by De Salle and Birstein (1996) and Birstein (1997). These authors examined commercially available lots of caviar purchased in reputable New York gourmet shops and found several mislabellings. In two cases, caviar which was declared as Russian sturgeon (*Acipenser gueldenstaedtii*) and stellate sturgeon (*Acipenser stellatus*) caviar was in fact replaced by caviar of *Acipenser nudiventris*.

Despite the critical situation of the species which currently only spawns in the Ural River, the Kazakh authorities planned for 1996 a production of 2 metric tons of ship sturgeon caviar processed from the roe of female *Acipenser nudiventris* caught in the Ural River (according to data provided by S. Taylor, Dieckmann & Hansen GmbH, Hansen). In case this plan will be fulfilled, a considerable part of the ship sturgeon spawning population will be destroyed.

3.2 Habitat destruction

Since the beginning of the 1950s almost all rivers in which *Acipenser nudiventris* used to spawn, e.g. the Volga, the Danube, the Don, the Kuban and the Kura, with exception of the Ural River, have been dammed by hydroelectric power facilities. This resulted in a loss of almost all spawning grounds in the Caspian and Black-Azov Seas.

Nowadays, the species is believed to be Extinct in the Danube River (Pinter, 1991; Birstein, 1996) in which it was formerly most abundant within the Black Sea area and ascended as far as the city of Bratislava at a distance of 1,869 km from the mouth (Sokolov and Vasil´ev, 1989).

In the Caspian Sea basin, specimens of *Acipenser nudiventris* used to ascend the main spawning river, the Kura, up to a distance of 650 km from the mouth and farther, but the Mingechaur Dam constructed in 1954 blocked the way to the spawning grounds. In the early 1990s, only an estimated number of 1-4 individuals reached the spawning grounds below the dam and the natural reproduction rate is believed to be less than 10% (Makarova et al., 1991).

In the Aral Sea basin, the waters of both tributaries, the Amu Darya and Syr Darya, have been used for an enormous irrigation system for the cotton industries and since the beginning 1950s the water regimes of both rivers have been completely destroyed. As a consequence, the Aral Sea which depends on these two tributaries is drying and lost up to 60-70% of its former volume (Ellis, 1990). The Aral Sea population of *Acipenser nudiventris* is believed to be Extinct because there is no practically no record of the species since the end of the 1970s (Zholdasova, 1997).

3.3 Indirect threat

Although there is no information about an indirect threat of the species, it may be concluded that the high pollution level (as described above 3.1) also affects the natural reproduction of the ship sturgeon. Several authors (Altuf´yev et al., 1992; Romanov and Altuf´yev, 1991 and 1993; Romanov and Sheveleva, 1993; Kuz´mina et al. 1993; Altuf´yev, 1994; Shagaeva et al., 1993; Shagaeva et al., 1995) have investigated the influence of the very high level of pollution in the Caspian Sea on the reproduction system of sturgeons. Their studies revealed that environmental pollution caused considerable changes in hormonal balance, marked disturbances in the genesis of organs (liver, gonads) and tissues (skeletal muscles, heart) and the appearance of neoplasm in gonads and sex cells. Especially a number of disturbances in sturgeon gonadogenesis has been observed. In 1990, 100% of mature eggs taken from various sturgeon females showed various pathological anomalies suggesting the loss of viability. Moreover, in 1989 and 1990, a mass death of sturgeon larvae was observed caused by hatching aberrations and anomalous development such as defects in the fin fold and underdevelopment of the heart, both leading inevitably to death at early stages of development. In 1990, 100% of all investigated larvae (*Acipenser gueldenstaedtii*, *Acipenser stellatus*) showed such anomalous development which was caused by environmental toxins. The anomalies in larval structure took place both in nature and in the hatchery.

During the last years, the water quality especially in the Volga-Caspian region has improved and some signs of degeneration disappeared. However, there is a threat of increasing pollution in the whole Caspian Sea basin in the near future with the sea level still raising and the oil industry especially in Kazakhstan and Azerbaijan developing.

3.4 Threat connected especially with migrations

The migration pattern of *Acipenser nudiventris* (anadromous spawning migration and seasonal migration in the sea basins) makes the species especially vulnerable to overfishing because several national boundaries are cyclically passed and several range states are fishing for sturgeons in the Caspian and Black Sea basin. Only international agreements between the range states concerning the sturgeon fishery, a ban on the fishery in the open sea (protection for juveniles and immature fish) and a setting of sustainable quotas can help to stop the further decline of the species.

Especially in the Caspian Sea where the species is most abundant and the commercial exploitation is highest such an agreement between Azerbaijan, the Russian Federation, Kazakhstan, Turkmenistan and Iran is strongly needed. Although the international trade of all sturgeon products, especially of the highly priced caviar, is controlled by CITES regulations since April 1998 and poaching is consequently hoped to cease, further action for the conservation of the ship sturgeon is required.

Despite the fact that the five Range States of the Caspian Sea has set up a *Committee for the Conservation and Use of the Biological Resources in the Caspian Sea* during the last years, the proposed international agreement governing Caspian sturgeon catch and drawn up by this Committee has not been signed so far (till the end of 1998).

3.5 National and international utilization

Acipenser nudiventris is a commercial valuable fish: the refrigerated or frozen flesh was

used to prepare dried or smoked fish products, such as ´balyk´, and the value of its caviar is intermediate between that from the Russian sturgeon, *Acipenser gueldenstaedtii*, and stellate sturgeon, *Acipenser stellatus* (Sokolov and Vasil´ev, 1989). However, because of its relative scarcity, the ship sturgeon ranked lowest of all the migratory commercial sturgeon species accounting for not more than 1% of the sturgeon catch in the Caspian Sea in the past (Berdichevskii and Petrenko, 1979 in Sokolov and Vasil´ev, 1989).

Fishery. In the Caspian Sea, the annual catch during the 1950s to 1960s was about 7,700 individuals. One of the main catching area was the lower Kura River where the annual catch amounted to about 2,500 to 3,000 ship sturgeon in the period from 1922 to 1927 and reached 5,000 to 6,000 specimens in the 1930s (Berg, 1948). Before the regulation of the Kura River in 1954, the catches of *Acipenser nudiventris* composed 15-20% of the overall catches of sturgeon. After the regulation of the river, the catches began gradually to decrease and amounted to about 6% during the period from 1972-1975, 4% during the period from 1976-1979, 3% during the period from 1980-1983 and at the end of the 1980s the annual catch of the species did not reach 2% of the overall total sturgeon catch (Makarova et al., 1991). No further up-to-date information about the annual catch of the species and caviar production in the Kura River region is available.

As *Acipenser nudiventris* was probably always rare in the Black and Azov Seas, the commercial catch of this species within the region was always small (Birstein, 1993b) and is not well documented. Birstein (1993b) indicates that nowadays the legal commercial fishery of the ship sturgeon has completely collapsed in this region.
The ship sturgeon also had an important commercial value in the Aral Sea. The total annual catch averaged 3,000 to 4,000 metric tons in the period from 1928-1935 (Zholdasova, 1997). After the mass death of the species in 1936-1937 caused by an introduced ectoparasite, the abundance of the ship sturgeon was markedly reduced. In 1940, the fishery for *Acipenser nudiventris* was completely closed within the Aral Sea basin with the exception of allowed bonus catch (Tleuov and Sagitov, 1973). The Aral Sea has lost its commercial fishery importance and the entire marine fishery was stopped in 1984.

While the flesh of the ship sturgeon is produced for the national market only, the highly priced caviar is mainly exported.

Caviar. Although the trade in ship sturgeon caviar is not registered in any statistics, De Salle and Birstein (1996) and Birstein (1997) proved the fact that *Acipenser nudiventris* is still commercially caught, most probably in the Ural River in Kazakhstan where the species still spawns. The authors, examining commercially available caviar lots purchased in New York gourmet shops, found two cases of a replacement of declared Russian sturgeon (*Acipenser gueldenstaedtii*) and stellate sturgeon (*Acipenser stellatus*) caviar by ship sturgeon caviar. Additionally and despite the critical situation of the species, the Kazakh authorities planned for 1996 a total production of 2 metric tons of ship sturgeon caviar from females caught in the Ural River (according to data provided by S. Taylor, Dieckmann & Hansen GmbH, Hansen).

Artificial propagation. *Acipenser nudiventris* has been artificially propagated in some hatcheries in the period from 1965 to 1971 (Sokolov and Vasil´ev, 1989). However, these attempts have obviously been given up since the 1980s and there is no further information about a current propagation programme for the species.

Acipenser nudiventris has been artificially propagated in the Black-Azov Seas and in the Caspian Sea during the 1960s and 1970s in order to maintain the declining stocks for commercial harvest. Makarova et al. (1991) report that at the end of the 1980s an annual average of 0.8 million young ship sturgeon has been released into the southern Caspian Sea. At present, there is no artificial propagation of *Acipenser nudiventris* because mature breeders to create a broodstock are not available.

4. Protection status and needs

4.1 National protection status

According to the Convention of Fishery in the **Black Sea** (**Bulgaria, Romania, Russian Federation**) the catch of *Acipenser nudiventris* within that region is absolutely prohibited (Fischer et al., 1987).
In **Hungary**, the species is fully protected by national law.
In **Turkey**, the fishery for sturgeons has been prohibited since 1979 (FAO, 1989).
In the **Caspian Sea** region, the species is not protected by law.
The Aral Sea population is listed in the **Uzbek** SSR Red Data Book (1983).
The **Azov-Black Sea** and **Aral populations** are recommended for inclusion in the Red Data Book of the **Russian Federation** (Pavlov et al, 1994).

4.2 International protection status

Acipenser nudiventris 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

Detailed recommendations for the conservation of the Eurasian sturgeon species - worked out during the 1st Meeting of Representatives of the Range States on Developing Measures for the Conservation of Sturgeon Species under CITES Provisions (Moscow, Russia, 19-23 January 1998) -are attached in the Appendix at the end of the document.

5. Range States

The Range States of the **Aral Sea population** of *Acipenser nudiventris* are
_ Kazakhstan and
_ Uzbekistan.

The Range states of the **Black Sea population** of *Acipenser nudiventris* are
_ Austria (Ex)
_ Bulgaria
_ ? Croatia
_ ? Georgia
_ ? Hungary
_ ? Moldova
_ Romania
_ Russian Federation
_ Serbia
_ Slovakia and

- Ukraine.

The Range states of the **Caspian Sea population** of *Acipenser nudiventris* are

- Azerbaijan
- Iran
- Kazakhstan
- Russian Federation and
- Turkmenistan.

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:

- Aral Sea population:

- **Kazakhstan** expressed the opinion that it considers possible the inclusion of sturgeons in Appendix II of CMS with the aim of taking measures on their conservation in the Caspian Sea.
- **Uzbekistan** supports the proposal (verbal communication to the German Embassy in Tashkent).

- Black Sea – Sea of Azov population:

- **Austria** mentions that it is not a Party to CMS. However, Austria supports the proposal and its entire contents.
- **Bulgaria** has not submitted any comments until the end of May 1999.
- **Croatia** gives its full support to the proposal.
- **Georgia** fully agrees that the population status of almost all sturgeon species gives reason for major concern. It states that the conservation of sturgeon species would be even more facilitated in case of inclusion of these species into Appendix II of CMS. Furthermore, Georgia envisages the elaboration of a strategy for the conservation of sturgeon species and expresses its interest in the creation of a global network for the exchange of information on research, monitoring and conservation of all sturgeon species. Finally, it notes that the conservation of migratory species – including sturgeons – is only conceivable by the means of international conservation.
- **Hungary** considering the conservation status of these species supports the proposal. Hungary seconds the inclusion of the 18 species of Acipenseriformes in Appendix II, excluding the sterlet (*Acipenser ruthenus*), the status of the population of which does not give reason for major concern in the country.
- **Moldova** has not submitted any comments until the end of May 1999.
- **Romania** supports the proposal. Considering the population status, the migration tendencies and areas of the six sturgeon species living in Romania as well as in 4 other Range states, the proposal to list these species in Appendix II is justified. The inclusion in Appendix II of CMS creates the basis for the realisation of international conservation programmes in the Range states of the lower Danube and the Black Sea.
- The **Russian Federation** wishes to discuss its comments on the proposal with Germany

in a German-Russian working group „Nature Conservation and Biodiversity“ in Munich, Germany, in September 1999.

- **Slovakia** submitted „only“ a list of very appreciated scientific comments which are now integrated in the text.
- **Ukraine** has not submitted any comments until the end of May 1999.

- Caspian Sea population:

- **Azerbaijan** agrees to the proposed inclusion of 18 sturgeon species in Appendix II of CMS and considers that it is very important to protect sturgeons in the Caspian Sea.
- **Iran** has not submitted any comments until the end of May 1999.
- **Kazakhstan** expressed the opinion that it considers possible the inclusion of sturgeons in Appendix II of CMS with the aim of taking measures on their conservation in the Caspian Sea.
- The **Russian Federation** wishes to discuss its comments on the proposal with Germany in a German-Russian working group „Nature Conservation and Biodiversity“ in Munich, Germany, in September 1999.
- **Turkmenistan** has not submitted any comments until the end of May 1999.

7. Additional Remarks

Acipenser nudiventris is sympatric with *Acipenser gueldenstaedtii*, *Acipenser stellatus, Acipenser ruthenus* and *Huso huso* in the Caspian Sea and the Black-Azov Seas.

8. References

Avetisov, K. B. 1992. The present status of the ship sturgeon, *Acipenser nudiventris*, within its distribution area. In: Ivanov, A. P. (ed.) Reproduction of Acipenserids, Salmonids, and Some Less Valuable Fish. VNIRO, Moscow. Pp. 3-15 (in Russian).

Bacalbasa-Dobrovici, N. 1997. Endangered migratory sturgeons of the lower Danube River and its delta. In: V. Birstein, J. R. Waldman, and W. E. Bemis (eds.). Sturgeon Biodiversity and Conservation. Kluwer Academic Publication, Dordrecht. pp. 201-207.

Banarescu, P. M. 1964. Pisces – Osteichthyes. Fauna Republicii Populare Romine. 13. Editura Academiei Republici Populare Romine, Bucuresti.

Banarescu, P. M. 1994. The present-day conservation status of the fresh water fish fauna of Romania. Ocrot. nat. med. inconj., 38 :5-20.

Berg, L.S. 1948. [The Freshwater Fishes of the USSR and Adjacent Countries.]. Moscow and Leningrad, Nauka Publication, Vol. I, pp. 57-109. (Engl. translation published by National Science Foundation, Washington D.C., 1962).

Birstein, V.J. 1993a. Sturgeons and Paddlefishes: Threatened Fishes in Need of Conservation. Conservation Biology 7 (4):773-787.

Birstein, V.J. 1993b. Draft Application to CITES: Order Acipenseriformes. Unpublished.

Birstein, V.J. 1996. Sturgeons in the Lower Danube. The Sturgeon Quarterly, vol. 4, no. 1/2: 10-11.

Birstein, V. J., B. Sorkin, and R. DeSalle. 1997. Species identification of black caviar: a PCR based tool for sturgeon species conservation. Molecular Ecology (in press).

Bond, A. R., P. P. Micklin, and M. J. Sager. 1992. Lake Balkhash Dwindling, Becoming Increasingly Saline. Post-Soviet Geography, 33 (2) :131-134.

DeSalle, R., and V. J. Birstein. 1996. PCR identification of black caviar. Nature 381 :197-198.

Ellis, W.S. 1990. The Aral: A Soviet Sea Lies Dying. National Geographic 177 (2): 71-92.

FAO, 1989. Technical Cooperation Programme, Turkey. Appraisal of the Sturgeon and Seatrout Fisheries and Proposals for a Rehabilitation Programme. FI: TCP/TUR/8853.

Report prepared by D. Edwards and S. Doroshov for the project "Sturgeon and Seatrout Fisheries Development".

Fischer, W., M. Schneider and M.-L. Bauchot. 1987. Fiches FAO d´Identification des Especes pour les Besoins de la Pêche. Mediterranee et Mer Noir, Zone de Pêche 37 (Révision 1), Vol. II: Vertèbres. FAO, Rome. Pp. 944-952.

Guti, G. 1995. Conservation status of fishes in Hungary. Opuscula Zoologica Budapest, 27/28 :153-158.

Hensel, K., and J. Holcik. 1997. Past and current status of sturgeons in the upper and middle Danube. In: V. Birstein, J. R. Waldman, and W. E. Bemis (eds.). Sturgeon Biodiversity and Conservation. Kluwer Academic Publication, Dordrecht. pp. 185-200.

IUCN. 1996. IUCN Red List of Threatened Animals. IUCN, Gland, Switzerland.

Jankovic, D. 1995. Populations of Acipenseridae prior to and after the Construction of the HEPS "Djerdap I and II". Proceedings of the Second International Symposium on Sturgeons, September 6-11, 1993. Moscow-Kostroma-Moscow (Russia). VNIRO Publication. Pp. 235-238.

Lelek, A. 1987. Threatened Fishes of Europe. The Freshwater Fishes of Europe. Vol. 9. The European Committee for the Conservation of Nature and Natural Resources - Council of Europe (ed.). Wiesbaden, AULA-Verlag. Pp. 42-57.

Manea, Gh. 1966. Contributii la studiul sturionilur din apele Romanieisi al reproducerii ler in legaturea cu constructiile hidroenergetice pe Dunarea inferioara. I. Une aspecte ale biologiei sturionilor. Bul´. Inst. Cerc. Proiect. Pisciole 25: 62-86. (In Romanian with English summary).

Markarova, I.A., A.P. Alekperov and T.S. Zarbalina. 1991. Present Status of the Spawning Run of Sheap Sturgeon, *Acipenser nudiventris*, in the Kura River. Journal of Ichthyology 31 (5): 17-22.

Pavlov, P.I. 1980. Ribi. Fauna Ukrainy. 8/1 (fishes. The Fauna of Ukraine. Vol. 8, Part 1). Naukova Dunka, Kiiv. (In Ukrainian).

Pavlov, D. S., K. A. Savvaitova, L. I. Sokolov, and S. S. Alekseev. 1994. Rare and endangered animals. Fishes. Vysshaya Shkola, Moscow. 334 pp. (in Russian).

Pinter, K. 1991. Sturgeons in Hungary, Past and Present Situation. In: Williot, P. (ed.). 1991. Acipenser. Bordeaux, CEMAGREF Publication. Pp. 173-178.

Sagers, M. J. 1994. The Oil Industry in the Southern-Tier Former Soviet Republics. Post-Soviet Geography, 35 (5) :267-298.

Smith, D. R. 1994. Change and Variability in Climate and Ecosystem Decline in Aral Sea Basin Deltas. Post-Soviet Geography, 35 (3) :142-165.

Sokolov, L.I. and V.P. Vasil´ev. 1989. *Acipenser nudiventris* Lovetsky, 1828. Holcik, J. (ed). The Freshwater Fishes of Europe. Vol. 1/II: General Introduction of Fishes. Acipenseriformes. Wiesbaden, AULA-Verlag. Pp. 206-225.

Tleuov, R. T. and N. I. Sagitov. 1973. Acipenserid fishes of the Aral Sea. FAN Press, Tashkent. 155 pp. (in Russian).

Volovik, S.P., V.G. Dubinina and AQ.D. Semenov. 1993. Hydrobiology and Dynamics of Fisheries in the Azov Sea. Studies and Reviews. General Fisheries Council for the Mediterranean. No. 64. FAO, Rome. Pp. 1-58.

Williams, S. 1996. U.S.-Led Consortium Moves to Improve Flow of Landlocked Caspian Oil to West. The Wall Street Journal, Friday, October 11 :A8.

Zholdasova, I. 1997. Sturgeons and the Aral Sea ecological catastrophe. In: V. Birstein, J. R. Waldman, and W. E. Bemis (eds.). Sturgeon Biodiversity and Conservation. Kluwer Academic Publishers, Dordrecht. pp. 373-380.