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 medirostris* 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

1.1_	Classis:	Actinopterygii	
1.2	Ordo:	Acipenseriformes	
1.3	Familia:	Acipenseridae	
1.4	Species:	*Acipenser medirostris* Ayres, 1854	
1.5	Common names:	English:	Green sturgeon
		French:	Esturgeon vert
		Finnish:	Vihersampi
		German:	
		Spanish:	

2. Biological data

2.1 Distribution

Acipenser medirostris is distributed along the Pacific coast of North America from the Aleutian Islands and the Gulf of Alaska to Ensenada, Mexico (Moyle, 1976; Morrow, 1980; Houston, 1988) and is usually found near the mouths estuaries of larger rivers.

Presumed spawning populations of *Acipenser medirostris* presently occur in the Fraser and Skeena Rivers in British Columbia (Canada), in the Rogue River (Oregon, U.S.A.), and in the Klamath, Sacramento and Trinity Rivers (California, U.S.A.) (Houston, 1988; NPSSC, 1993).

2.2 Population

Little is known of the status of the Green sturgeon populations and there are no estimates of the total size of the population.

In Canadian waters the species is considered to be rare and the adult populations are estimated to be in the low thousands, the estimation based on catch statistics, average weights and comparison to the partly sympatric White sturgeon, *Acipenser transmontanus* (Houston, 1988).

In the coastal waters and rivers of the U.S.A. the species seems to be more abundant as

reflected by the estimated amount of about 6,000 to 10,000 adult individuals (> 1.3 m) that were annually caught in the 1980s (Moyle et al., 1993). However, there is no information about the total size of the population in American waters. In California, the status of the populations of *Acipenser medirostris* should be classified as Endangered (Moyle, 1995 a/b).

The species is listed as Vulnerable by IUCN (1996).

In Canada, there are no indications of population trends for *Acipenser medirostris* because no reliable data exist neither on the abundance nor on the distribution of the species. At the end of the 1980s, there seemed to be no evidence for a general population decline (Houston, 1988). According to Houston (1988) some idea of numbers and trends may be gained from catch statistics: Green sturgeon made up 5 % of the total Columbia River sturgeon harvest in the period from 1941 to 1950, 21% in the period from 1951 to 1960 and 22% in the period from 1961 to 1971. Using average landing statistics and weights given by Parks (1978) this translates into roughly 200 to 500 fish per year for the period from 1941 to 1950 and 1,400 fish for the period from 1951 to 1971. However, increased catches of Green sturgeon over the period from 1940 to 1970, may reflect the imposition of maximum and minimum size restrictions which might mean the inclusion of more of the smaller individuals in catch statistics. Green sturgeon are mainly an incidental species in the salmon gill net fishery and increased catch of this species in salt or brackish waters over the period indicated could also reflect increased effort in the salmon fishery (Houston, 1988).

As for the U.S.A., there is little quantitative information about the population trends either. However, *Acipenser medirostris* is commercially harvested within its range in American waters with an estimated amount of 6,000 to 10,000 adults (> 1.3 m) that are caught every year. Moyle et al. (1993) indicate that the fisheries data are meagre but suggest a current overexploitation of a population of large, old fish. The authors further predict that *Acipenser medirostris* will rapidly approach threatened species status in the U.S.A.

2.3 Habitat

When compared with other sturgeon species, little is known about the biology of *Acipenser medirostris*. The preferred habitat of the species is not sufficiently investigated. Especially the knowledge about the location and structure of the spawning grounds is very scarce. Houston (1988) who made the latest published status report on the Green sturgeon indicates that the fish are seldom far from saltwater in contrast to the sympatric White sturgeon *Acipenser transmontanus* which is mainly found far inland.

2.4 Migrations

The Green Sturgeon is an anadromous (definition see on p.12: 2.4) species which spends much of its life cycle at Sea, and enters the rivers along the Pacific coast for spawning. In Californian waters, Green sturgeon adult spawners migrate into freshwater in the spring and are broadcast spawners. Klamath River adult sturgeon, presumed to be migrating to and from the ocean, are found in the river during the spring, summer and early fall months (NPSSC, 1993). In the lower Fraser River adult Green sturgeon appear

to migrate upstream in late summer and early fall, in advance of their spring spawning (Houston, 1988). The fish are usually found in the lower reaches of the rivers. The juveniles spend apparently less than two years in the rivers and estuaries before they emigrate to the ocean (Moyle et al., 1993).

Although *Acipenser medirostris* is known to migrate considerable distances in the ocean, little is known about the oceanic phase of its life history. According to NPSSC (1993) adult Green sturgeon tagged from the Sacramento River system have been recovered in Washington waters indicating that migratory stocks undertake long-distance migrations along the entire coastline from their northern range in Canada to the southern range in California (U.S.A.).

3. Threat data

3.1 Direct threat of the population

In Canadian waters, the main threat to *Acipenser medirostris* is considered to be the decreasing availability of large rivers with suitable estuaries (Houston, 1988) which provide the species with adequate spawning and feeding habitats (see 3.2).

Environmental pollution, especially of the river estuaries, is considered to be a further limiting factor for the populations of the Green sturgeon (Houston, 1987). The incidental catches of *Acipenser medirostris* by the salmon fishery and the very limited sport fishery in Canadian waters are considered to be insignificant.

In the U.S.A. the main threat to the species might be over-exploitation (see 3.5). Some authors state (NPSSC, 1993) that there are concerns that the Green sturgeon stocks are being over-harvested and that fisheries may be mining a population of large, old fish (Moyle, 1993).

3.2 Habitat destruction

The nature, rate and extent of habitat loss or degradation are not documented. There are no reliable data about the loss of critical habitat such as spawning grounds, because *Acipenser medirostris* has not been studied very intensively.

There is also no reliable information on the historical range. Reports about geographic trends are not published but it is believed, that the species was formerly present in some other rivers (besides the presently five known rivers where the fish are spawning) along the Pacific coast (Moyle et al., 1993). The extent of decrease in range area cannot be estimated, since no reliable data exist. However, habitat destruction is believed to be one of the major threats to the species in Canada (Houston, 1987 and 1988). Since the fish are depending on large unimpounded rivers for spawning, dam constructions on major rivers and other human activities such as mining which alter the aquatic environment are believed to be detrimental to this species.

3.3 Indirect threat

There is no information about the indirect threats to the survival of the Green sturgeon. The effect of pollution on the breeding success of *Acipenser medirostris* has not been studied so far.

3.4 Threat connected especially with migrations

The migration pattern of *Acipenser medirostris* is not sufficiently investigated but tagging studies revealed that the fish are highly migratory when living in the sea (NPSSC; 1993). They have been documented as travelling over 600 miles between freshwater and estuary environments. Green sturgeons are known to migrate and mix with other fish populations (not further specified). Thus, they are threatened to become a by-catch and in fact will be over-harvested. Moreover, NPSSC (1993) reports that the long-distance migration indicate that migratory stocks would be subject to harvest interception in multiple zones.

3.5 National and international utilization

In Canada, the Green sturgeon is not utilised commercially, as the flesh and roe has a disagreeable taste and odour (Houston, 1987 and 1988). However, individuals are incidentally taken as by-catch of the Salmon gill net fishery and the sturgeon sports fishery in the Fraser River may account for small numbers of fish each year which have apparently not been significant (Houston, 1987).

In the U.S.A., fishing data for *Acipenser medirostris* are meagre, but it is estimated that probably 6,000 to 10,000 adult Green sturgeon (>1.3 m) are harvested every year (Moyle et al., 1993). Presently, Green sturgeon are harvested in the Sacramento River system (San Francisco and San Pablo bays), in the Klamath River system, the mouth of the Columbia River and Willapa Bay and Grays Harbour, Washington (NPSSC, 1993). According to Moyle (1993), the few data suggest that fisheries may be "mining" a population of large, old fish. The author fears that the population of *Acipenser medirostris* in the U.S.A. will further decline due to overexploitation.

An international utilization of *Acipenser medirostris* and its products is not reported.

4. Protection status and needs

4.1 National protection status

In the U.S.A., *Acipenser medirostris* is not protected by law.

In Canada, the species has been listed as Vulnerable by the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Houston, 1987; Campbell, 1991). Currently, all commercial and recreational fisheries in Fraser River (upstream of river mouth) must release all caught sturgeon in accordance with the 1994 retention ban; while aboriginal fisheries in the Fraser River have agreed to a voluntary release of incidentally caught sturgeon (Echols et al., 1995).

4.2 International protection status

Acipenser medirostris 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

No information available.

5. Range States

Range States of the Green sturgeon are
- Canada
- U.S.A. and
- probably Mexico.

According to FAO-data these States are also the major fishing countries (countries reporting over 100,000 metric tons for 1996) in the Eastern Pacific.

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:

- **Canada** indicates that it is not a Party to CMS, However, Canada entirely shares the concern of the proposal to improve the protection status of the 18 sturgeon species which are already listed in CITES Appendix II.
- **U.S.A.** indicate that they are not a Party to CMS. However, they fully support measures that will conserve and protect sturgeon species, particularly in the Caspian Sea region. The proposal is a welcome and logical extension of the "1st Meeting of Representatives of the Range States on Developing Measures for the Conservation of Sturgeon Species under CITES Provisions" held in Moscow in 1998.
- **Mexico** has not submitted any comments until the end of May 1999.

7. Additional Remarks

The American Green sturgeon, *Acipenser medirostris*, was considered for a long time to be the same species as the Asian Sakhalin sturgeon, *Acipenser mikadoi* (Scott and Crossman, 1973; Houston 1988). Some authors regarded the Asiatic form as a distinct subspecies, *Acipenser medirostris mikadoi* (Lindberg and Legeza, 1965). Recent investigation of the DNA content of both forms show that the genome size of the American and Asian form differ considerably (Birstein et al, 1993; Blacklidge and Bidwell, 1993; Birstein et al., 1997). Birstein (1993a and 1993c) concluded that these two forms should be regarded as different species.

Acipenser medirostris is partly sympatric with the White sturgeon, *Acipenser transmontanus*, which is more abundant than the Green sturgeon (Houston, 1987). Both sturgeon species look very similar and apparently some interbreeds do occur in the Columbia River (Lane, 1989). Since it is difficult to distinguish the two species readily, provincial and federal fishing regulations and catch records do not differentiate between Green and White sturgeon. The most reliable method of separation to-date appears to be the position of the anus with respect to the insertion of the pelvic fins. In Green sturgeon the anus is in line with or anterior to the pelvic fin insertion, while in White sturgeon the anus is posterior to the pelvic insertion. The lateral scute count tends to be higher in White sturgeon (38-48) compared with Green sturgeon (23-30) (Scott and Crossman, 1973).

8. References

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