

## 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 mikadoi* 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:	<i>Acipenser mikadoi</i> Hilgendorf, 1892
1.5	Common names	English: Sakhalin sturgeon French: German: Japanese: Chôzame Polish: Jesiotr sachalinski Spanish:

#### 2. Biological data

##### 2.1 Distribution

*Acipenser mikadoi* occurs in the Sea of Japan, from Korea to Northern Japan, in the Tatar Strait, in the Sakhalin Island waters, in the Amur River, in the Sea of Okhotsk, in the sea areas of the Primorsky Region and in the Bering Sea (Masuda et al., 1984; Honma, 1988; Artyukhin and Andronov, 1990; Birstein, 1993; Shilin, 1995).

The Sakhalin sturgeon is an anadromous (definition see on p. 12: 2.4) species which historically spawned in a few short rivers flowing down from the Sikhote-Alin mountains in the Tatar Strait (Russian Far East) and in two rivers of Hokkaido Island (Japan) (Berg, 1948). The only current spawning site of the species is the Tumnin (or Datta) River in the Khabarovsk region in the Russian Far East (Artyukhin and Andronov, 1990; Shilin, 1995).

##### 2.2 Population

Artyukhin and Andronov (1990) and Shilin (1995) indicate that the abundance of *Acipenser mikadoi* is low. There is no estimate of the total size of the population. Artyukhin and Andronov (1990) report that approximately 100 individuals of *Acipenser mikadoi* annually entered the Tumnin River for spawning at the end of the 1980s, this river being the only recently known spawning site for the species. More Recent studies of Artyukhin and Romanov (1994) indicate that only a few dozen mature adults enter the Tumnin River for spawning annually. The data the authors obtained were from their own

experimental catching efforts and from authenticated anonymous records of local fishermen.

*Acipenser mikadoi* is listed as Endangered by IUCN (1996).

Berg (1948) already reported that the species has always been rare within its distribution range but according to Shilin (1995) the population size decreased during the last thirty years, and today only one spawning population is known from the Tumnin River. The abundance of *Acipenser mikadoi* is constantly decreasing and because of the low reproduction rate, the population cannot rapidly be restored. The only known spawning population is in a precarious situation and is most likely to disappear in 10-15 years without special protective measures. According to Shilin (1995) there is no evidence for an effective natural reproduction since the author failed to catch sturgeon larvae and yearlings during his investigations in 1990 and 1992. On the contrary, Artyukhin and Romanov (1994) report that they have been successful to catch large juveniles in the estuary of the Tumnin River which may testify the fact that reproduction of the Sakhalin sturgeon still occurs up to date. However, there is no recent record of juveniles occurring in the estuary of the Tumnin River.

### 2.3 Habitat

There is only scarce information about the habitat of the Sakhalin sturgeon since biology and ecology of the species have hardly been studied.

The preferred spawning grounds are located in the lower reaches of the river (not above 100 m from the estuary) and the underground consists mainly of pebbles (Shilin, 1995).

Young individuals spend from 3 to 5 years in the river near the estuary and then begin to migrate to the sea.

### 2.4 Migrations

*Acipenser mikadoi* is a typical anadromous sturgeon species which migrates from the sea to larger turbid rivers for spawning. The spawning migration to the Tumnin River has been observed in the month of June, with adults migrating only up to the lower reaches of the river and not being found above 100 km from the estuary.

It is supposed that young individuals spend 3-5 years in the Tumnin river near the estuary and then begin to migrate to the Tatar Strait and moving off the estuary to 150-200 km south- and northwards into the waters of the Russian Federation, Japan and China. If maturity is reached after a longer period in the sea (? about 5-11 years) adult Sakhalin sturgeon will again migrate from the open sea to the river for spawning. Thus, a cyclical migration of the species which includes the passage of national boundaries can be assessed.

## 3. Threat data

### 3.1 Direct threat of the population

According to Artyukhin and Andronov (1990) and Shilin (1995) poaching is one of the main threats to the survival of the species (see 3.5). Since the natural reproduction rate of the Sakhalin sturgeon is already very low and individuals do not spawn every year, the catch of the mature spawners by poachers will destroy the whole population within the near future.

Artyukhin and Andronov (1990) found that a further cause for the low abundance and decrease of the Sakhalin sturgeon populations is the lack of food in estuaries where young fish usually feed. The reason for this lack may be pollution but is not given by the authors. Shilin (1995) reports that the spawning population of the Sakhalin sturgeon is threatened by the pollution of the water through oil products in the lower reaches of the Tumnin River and waste products of gold-mining in the upper reaches of the Tumnin River. However the pollution level and the effect on sturgeons are not described.

Moreover, the Sakhalin sturgeon is threatened by the salmon fishery. Individuals of various ages are known to be the by-catch in gill nets used for salmon fishing at the Tumnin River (Shilin, 1995).

Furthermore, two parasites, *Polypodium* sp. and *Amphilina* sp., have been found in females of *Acipenser mikadoi* (Artyukhin and Romanov, 1994) infecting either the eggs (*Polypodium*) or the entire animal. However, the degree of infection of the population in the wild with both parasites has not been studied.

### 3.2 Habitat destruction

During the last decades, the species lost almost all of its spawning sites in the small rivers that enter the Sea in the Khabarovsk and Primorsky Region and in the Sakhalin Island as well as in the Hokkaido Island (Artyukhin and Andronov, 1990; Shilin, 1995).

The historically known spawning sites of the species were restricted to a few small rivers in Hokkaido Island and to several quite short rivers flowing down from the mountain range of Sikhote-Alin into the Tatar Strait in Russia, including the Tumnin and the Koppi River (Khabarovsk Region), the Viakhtu and the Tym River (Sakhalin Island) and possibly the Partisanskaya (or Suchan) River (Primorsky Region) (Artyukhin and Romanov, 1994). Currently, *Acipenser mikadoi* is only spawning in the Tumnin river in the Khabarovsk Region in Russia, and there are no recent records of the species for the formerly inhabited rivers.

### 3.3 Indirect threat

There is no information about an indirect threat of *Acipenser mikadoi* but the reported high pollution in the only spawning river Tumnin (see 3.1) as well as the infection of the fish eggs by two parasites (see 3.1) certainly have an influence on the natural reproduction which will be further reduced.

### 3.4 Threat connected especially with migrations

During its spawning migration to the river *Acipenser mikadoi* is threatened by poachers

who could easily take the ascending fish (see 3.1 and 3.5). The survival of the whole population of the species is strongly dependant on the success of the spawning migration of the mature individuals and the subsequent spawning success. Thus, the Sakhalin sturgeon is extremely vulnerable to poaching and the natural reproduction rate which is already very low for the species is further declining.

During the life period in the sea *Acipenser medirostris* is known to undertake long-distance migrations and evidently crosses the national boundaries of all range states. Since the fish are cyclically migrating from the open sea to the river, they obviously pass these national boundaries cyclically. It is not clear whether the Sakhalin sturgeon is caught (probably also as by-catch) in the open sea by any of the range state's fishery. The species would certainly benefit from a protection of the immature and young individuals living in the open sea.

### 3.5 National and international utilization

*Acipenser mikadoi* has been caught in the rivers where it ascended to spawn, mainly in Russia, but since 1983 it is listed in the Red Data Book of the Russian Federation, which comprises a complete ban on fishery.

The fish has been caught mainly for its meat. There is virtually no information on the production and quality of caviar produced from the roe of *Acipenser mikadoi*. The fish has only been caught for national utilization and there are no data indicating an international trade with *Acipenser mikadoi* and its derivatives.

In the past, 0.6-0.7 metric tons of Sakhalin sturgeon were caught annually (Berg et al., 1949). Besides this record from the early 1940s, there is no detailed information neither on the harvest and the used parts of the fish nor on the catch statistics.

Moreover, no data on the Open Sea fishery and on the fishery in Japan and adjacent waters, are available. Krykhtin and Svirskii (1996) report that more than 50 specimens of the Sakhalin sturgeon are captured annually near the river mouth or in the lower flow of the rivers flowing in the Sea of Okhotsk and Sea of Japan, including 5 to 10 individuals caught in the estuary of the Amur River.

Despite the ban on the fishery for *Acipenser mikadoi* Shilin (1995) indicates that poaching increased drastically at the Tumnin River in the beginning 1990s and that almost all mature fish (up to 100 specimens) that ascended the river for spawning has been caught by illegal fishermen.

Artyukhin and Andronov (1990), Pavlov et al. (1994) and Shilin (1995) state that the increase of the illegal fishery during the last years is due to a very rapid rise of domestic prices, the lack of this product in internal trade and cut down in financial and material support of fishing inspectors. Bearing in mind that only an estimated few dozen to one hundred specimens of *Acipenser mikadoi* ascend the Tumnin River (Artyukhin and Romanov, 1994), it seems likely that the fish will be extinct within the next couple of years if poaching is not completely stopped.

## 4. Protection status and needs

#### 4.1 National protection status

*Acipenser mikadoi* is listed as Endangered species in the Red Data Book of the Russian Federation (1983). This implements a total protection of the species and a complete ban on fishery.

However, Shilin (1995) points out that formally, the control of poachers is carried out continuously at the Tumnin River (Khabarovsk Region, Russia) and is conducted by fish inspectors aiming at protection of the entire fish fauna but the efficiency of this control is not sufficient, because poaching is still the main factor for a decrease of the populations of *Acipenser mikadoi*.

#### 4.2 International protection status

*Acipenser mikadoi* 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

A programme for the conservation of *Acipenser mikadoi* in the Russian Far East (Shilin, 1995) has been elaborated by the Department of Protection and Rational Use of Animals (Russian Federal Research Institute of Nature Conservation and Reserves) aiming at a long-term monitoring programme in order to determine the population dynamics, the spawning grounds and the natural reproduction.

One of the main management measures of this programme is the artificial propagation and reintroduction of the species. Concerning the broodstock in captivity Artyukhin and Romanov (1996) report that a total of ten specimens (hatched in 1987) exists at the hatchery "Osetr" in Konakovo near Moscow and a total of about eighty juvenile individuals (from developed eggs from Tumnin River delivered in 1991) is held at the Okhotsk hatchery in Sakhalin Island.

Shilin (1995) suggests that the artificial propagation may probably annually support the replenishment of the Sakhalin sturgeon population in the Tumnin River by some tens of thousands of fry which may prevent the extinction of this population, and will make it possible to initiate the restoration of the species in some other rivers where it occurred in the past. So far, no data about the annual production of Sakhalin sturgeon fry in the above mentioned hatcheries as well as about the success of the captive breeding programme is available. But like it is the case for many other sturgeons, artificial propagation is probably the last chance for the survival of *Acipenser mikadoi*.

### 5. **Range States**

The range states of *Acipenser mikadoi* are

- the Russian Federation
- China (?) and
- probably Japan, since there are few records of the species occurring in Japanese waters.

According to FAO-data the major fishing countries in the Northwest Pacific (reporting over 100,000 metric tons in 1996) and thus potential Range States are the countries bordering the

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area, e.g. China incl. the Province of Taiwan, Hongkong, Japan, the Russian Federation, North and South Korean Republics, as well as Poland as only country not bordering the area.

**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:

- **China** states that it is not a Party to CMS and has therefore difficulties in making any comments on the proposal.
- **Japan** gives no comments on the proposal because it is not a Party to CMS and no sturgeons live within the Japanese territory.
- 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.

**7. Additional Remarks**

The Sakhalin sturgeon, *Acipenser mikadoi*, was considered for a long time to be the same species as the American Green sturgeon, *Acipenser medirostris* (Scott and Crossman, 1973; Houston 1988). Other authors regarded the Asiatic form as a distinct subspecies, *Acipenser medirostris mikadoi* (Lindberg and Legeza, 1965; Shilin, 1995). Recent investigation of the DNA content of both forms show that the genome size of the Asian and American form differ considerably (Birstein et al, 1993; Blacklidge and Bidwell, 1993). Birstein (1993a and 1993c) concluded that these two forms should be regarded as different species (see discussion in Birstein and Bemis, 1997).

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