Nomination

Acipenser sturio, Common Sturgeon

Geographical extent

OSPAR Region; II, IV
Biogeographic zone: 6
Region & Biogeographic zones specified for decline and/or threat: as above

The common sturgeon. *A.sturio*, is a migratory species reproducing in fresh water and then moving into the sea until ready to spawn again.

At one time *A.sturio* was the widest distributed sturgeon species in Europe. Early in the last century it was found off all European coasts and migrated up most of the large rivers to spawn. This included the Rhine and the Elbe which were the most important west European rivers for the species. Today the Atlantic population in the OSPAR Maritime Area is centred on the River Gironde in France and, during the marine parts of its life history, in the Bay of Biscay the Bristol Channel and the North Sea (Castelnaud *et al.,* 1990).

Application of the Texel-Faial criteria

A.sturio was nominated for inclusion on the OSPAR list with particular reference to its global/regional importance, decline, sensitivity with information also provided on threat.

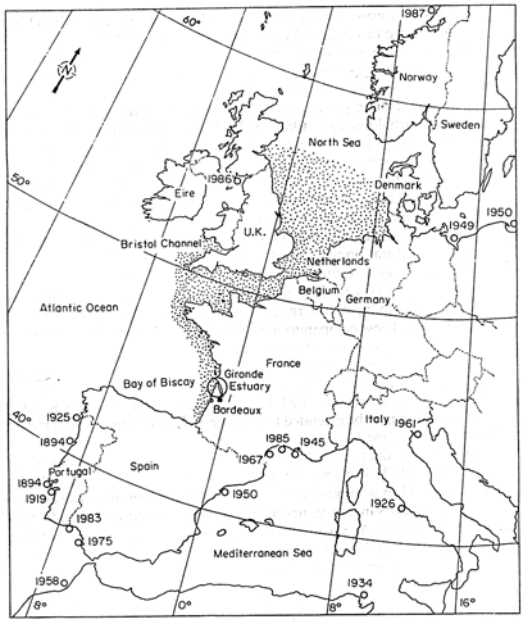
Global/regional importance

The common sturgeon is limited in its distribution to a population centred around the River Gironde in France and the River Rioni in Georgia, which drains into the Black Sea. As the remnants of a much more widespread and abundant population (see section on decline) this makes the OSPAR Maritime Area of global importance for this species.

Decline

The sturgeon was once widely distributed in European waters, from the Barents Sea to the Black Sea, and was abundant in rivers suitable for spawning. There is no total estimate of the population size but it is known to have been greatly reduced. Historically, this species inhabited nearly all the large tributaries of the European Atlantic, the Black, Adriatic, Mediterranean and North Seas. In the middle of the 20th century *A.sturio* occurred in south-west France, Portugal and Spain, in the Adriatic, and in Georgia. Since then the populations have declined in all parts of its range including within the OSPAR Maritime Area (e.g. Almaca, 1988: Elvira *et al*., 1991; Elvira & Almodovar, 1993). The common sturgeon is now extinct in a number of its former spawning rivers including the Elbe and the Rhine. Only two clusters remain centred on the Gironde-Garonne-Dordogne basin in France, and in the Rioni basin in Georgia (Rochard et al., 1990) (Figure A.).

FIGURE A: Distribution of the west European (Atlantic population. Shaded area shows known range in Atlantic & N.Sea. Small circles with dates indicate last observations for other localities (from Rochard *et al.,* 1990)



The sturgeon was originally exploited for its flesh and, more recently for caviar. In the early 1900's annual fish catches were of the order of 10,000 in western Europe (van Winden *et al*., 1999). In the Gironde, there was a fishery for caviar from the 1920s but the population decreased dramatically from 1970 and the fishery has now closed.

Sensitivity

Sturgeon require a relatively long time to reach sexual maturity. This varies between populations

but is about 8 years for males and 14 years for females. After spawning for the first time, males reproduce every 1-2 years and females every 3 or more years (Rochard *et al*., 1990). The species is vulnerable to physiological stresses each time they migrate between fresh and saline water and it is at this time that they are also vulnerable to fishing.

Threat

The main threats to sturgeon in the OSPAR Maritime Area are obstruction of migration routes, pollution of lower river reaches, targeted commercial fisheries, and damage to spawning grounds (e.g. Fernandez 1967). There is also occasionally a by-catch in other sea fisheries at the entrance to estuaries.

The majority of these threats take place on the inland waters used by the migrating fish. The construction of dams and artificial embankments prevent the fish migrating freely, while extraction of water for irrigation can also make spawning grounds inaccessible and create difficulties for the alevins and adult spawners returning downstream.

The spawning grounds themselves have been degraded by extraction of gravel and stones from the river bed, and modifications in water flow caused by channelling and fluctuating water levels below dams. Poor water quality is another concern affecting the fish directly and indirectly through effects on their food.

Relevant additional considerations

Sufficiency of data

Data on the threat and decline of the common sturgeon came through anecdotal reports in the first instance but this has subsequently been supported by the collapse of the fishery through most of its range and the fact that the species has become locally extinct in parts of its former range.

Changes in relation to natural variability

The dramatic decline in abundance of common sturgeon and reduction in its range following extensive exploitation by fisheries, points to changes beyond that which would be expected through natural variability.

Expert judgement

The collapse of the sturgeon catches and local extinctions have provided the data on which this species has been given international protection through the EC Habitats and Species Directive and a number of international conventions.

ICES Evaluation

The ICES review of this nomination by the Working Group on Fish Ecology (WGFE) reached the following conclusions (ICES, 2003).

The geographical distribution of the last known population of common sturgeon (spawning in the Gironde basin) is within the OSPAR area; the species is of particular importance in the Gironde system but can be encountered in most of the coastal zones. The decline in the OSPAR area, as well as in a number of other populations is clear. The last remaining population has been monitored and still exhibits evidence of a decrease and it may be that a viable population no longer exists

Threat and link to human activities

Cross-reference to checklist of human activities in OSPAR MPA Guidelines

Relevant human activity: Fishing, hunting, harvesting; extraction of sand, stone and gravel; constructions, land-based activities. *Category of effect of human activity:* Physical – substratum removal and change, water flow rate changes, Biological – removal of target species

The main threats to this species can be clearly linked to human activities as they are due to targeted fisheries and damage to critical habitat requirements of the sturgeon.

Only three single natural reproductions have been observed in the Gironde population since 1980 (Arne, 2002). The species therefore remains under serious threat in the OSPAR Maritime Area.

Management considerations

The main management measures that would assist the recovery of sturgeon populations in the OSPAR Maritime Area are improvement of water quality, habitat conditions, and access to suitable spawning grounds in the estuaries and rivers of Europe. Artificial breeding programmes with reintroduction of juveniles to the wild are currently underway in France, but these will only be successful in the long term if conditions that led to the decline in the first place have been tackled.

The sturgeon is listed on Annexes II & IV of the EC Habitats & Species Directive, the Bern Convention and the Bonn Convention. It was classified as

Critically Endangered by IUCN in 1996. It is also protected under Appendix I of CITES.

Further information

Nominated by:
Belgium, Germany, Portugal

Contact persons:

Fátima Brito, Direcção Geral do Ambiente, Rua Murgueira-Zambujal, 2720-865 Amadora, Portugal.

Ronald Fricke, Staatliches Museum fuer Naturkunde, Rosenstein 1, D-70191 Stuttgart, Germany

Jan Haelters & Francis Kerckhof, Management Unit of the North Sea Mathematical Models, 3e en 23e Linieregimentsplein, 8400 Oostende, Belgium.

Useful References:

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