Atlantic and Shortnose Sturgeons

by K. Friedland

The Atlantic, *Acipenser oxyrhynchus*, and shortnose, *Acipenser brevirostrum*, sturgeons have been utilized as a high-quality food fish and as a source of caviar since colonial days. Both species are distributed as far south as Florida, but the Atlantic sturgeon is found as far north as Labrador, Canada whereas the shortnose sturgeon ranges only to New Brunswick, Canada.

Sturgeon once supported a substantial commercial fishery, but like other anadromous species, their populations were adversely affected by industrial use of rivers beginning in the 1800s and by overfishing. Their decline has left only remnant populations of both species and has resulted in the enactment of state management measures to protect the Atlantic sturgeon and an endangered species listing of the shortnose sturgeon under the federal Endangered Species Act (ESA). Today, the lack of fish passage facilities at dams and poor habitat conditions continue to stand as impediments to the re-establishment of many sturgeon populations.

The basic life history patterns for the two species are very similar, but there are important differences in distribution and migration that serve to minimize habitat overlap. Juveniles and adults of both species are benthic (or bottom) feeders, consuming a variety of crustaceans, bivalves, and worms. Sturgeons are relatively slow growing fish. As adults, shortnose sturgeon reach body lengths of approximately 100 cm (40 in.) whereas Atlantic sturgeon can attain more than twice that length. Both species begin spawning migrations to freshwater during late winter to early summer.

Shortnose Sturgeon

Summary Status

Long-term potential catch	=	Unknown
SSB for long-term potential catch	=	Unknown
Importance of recreational fishery	=	Insignificant
Management	=	ESA Recovery Plan
Status of exploitation	=	Protected
Age at 50% maturity	=	10 years
Size at 50% maturity	=	60.0 cm (24.0 in.)
Assessment level	=	Index
Overfishing definition	=	None
Fishing mortality rate corresponding to overfishing definition	=	N/A

M = 0.12 $F_{0.1}$ = Unknown F_{max} = Unknown F_{1996} = Unknown

Atlantic Sturgeon

Summary Status

Long-term potential catch	=	Unknown
SSB for long-term potential catch	=	Unknown
Importance of recreational fishery	=	Insignificant
Management	=	Interstate FMP for Atlantic Sturgeon
Status of exploitation	=	Overexploited
Age at 50% maturity	=	20 to 25 years
Size at 50% maturity	=	200.0 cm (79.0 in.)
Assessment level	=	Index
Overfishing definition	=	None
Fishing mortality rate corresponding to overfishing definition	=	N/A

M = 0.12 $F_{0.1}$ = Unknown F_{max} = Unknown F_{1996} = Unknown

The migrations occur later in the year at higher latitudes, and where the species co-occur, the shortnose sturgeon tends to begin its spawning migrations earlier than the Atlantic sturgeon. Both species are long lived (>15-20 years), mature late in life and are highly fecund, with their total egg

production increasing proportionally to body size. Juvenile sturgeon remain in freshwater for their first summer of life and then migrate to deeper, more brackish water in winter. The juveniles migrate to and from freshwater for a number of years before entering the marine environment and joining the adult migration pattern. Migrations out of freshwater are well known for the Atlantic sturgeon, but have only been recently documented for the rarer shortnose sturgeon. Tagging studies have demonstrated that Atlantic sturgeon can migrate extensively along the coast both north and south of their natal river systems.

A large commercial fishery for sturgeon once existed, but in recent years the fishery has been limited and directed specifically at Atlantic sturgeon. Around the turn of the century, landings of sturgeon, believed to be a mix of the two species, were in excess of 3,000 mt (7 million lb) a year. As these populations became overexploited, catches declined dramatically, and only incidental landings were reported during the period 1900 to 1950. Some fishing activity began during the 1960s in the Carolinas, which sustained annual landings of perhaps 100 tons through the 1980s. These fisheries are now closed. Increases in landings in the early 1990s were due to increased catches in ocean fisheries off New York and New Jersey. Landings have since declined precipitously to only 3 mt in 1996. There is no significant sport fishery for sturgeon.

The Atlantic sturgeon is managed under an Atlantic States Marine Fisheries Commission (ASMFC) plan in coordination with state regulations. The ASMFC plan seeks to restore the commercial fishery to levels of 10 percent of 1890 landings (700,000 lb), while at the same time protecting stressed populations of Atlantic sturgeon. The plan proposes a minimum size limit (7 ft.) or other equally effective conservation measures as deemed appropriate. The plan also provides for a research program to evaluate stock status of Atlantic sturgeon. Atlantic sturgeon populations have declined to precariously low levels

Atlantic Coast Sturgeons

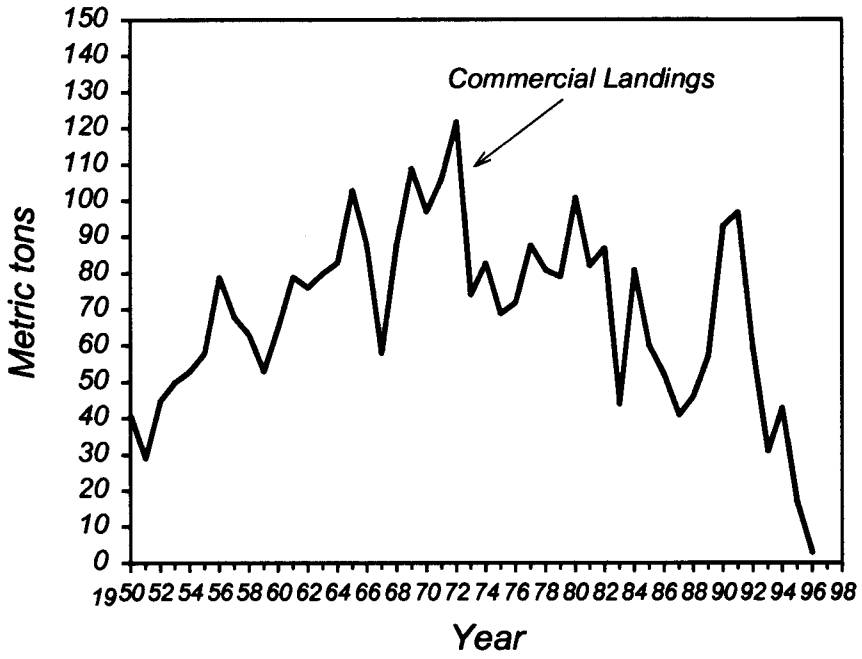

Table 38.1 Recreational catches and commercial landings (metric tons)

Category	Year										
	1977-86 Average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
U.S. recreational	-	-	-	-	-	-	-	-	-	-	-
Commercial											
United States	75	41	46	57	93	97	59	31	43	17	3
Canada	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	75	41	46	57	93	97	59	31	43	17	3

prompting a call for a voluntary fishing moratorium and consideration of a plan amendment. The National Marine Fisheries Service and U.S. Fish and Wildlife Service have received a petition to list Atlantic sturgeon as endangered; a decision is pending.

Shortnose sturgeon management is guided by a recovery plan under the Endangered Species Act. The recovery plan is being revised to reflect the increased knowledge accumulated on shortnose sturgeon populations and ecology in recent years. The endangered status of some shortnose sturgeon populations has been reviewed; a number of populations may be large enough to allow reclassification of their status.

For further information

Dadswell, M.J., B.D. Taubert, T.S. Squires. D. Marchette, J. Buckley. 1984. Synopsis of biological data on shortnose sturgeon, *Acipenser brevirostrum* LeSueur 1818. *NOAA/ NMFS Tech. Rep.* 14.

Gilbert, C.R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-Atlantic Bight) Atlantic and shortnose sturgeons. *U.S. Fish. Wildl. Serv., Biol. Rept.* 82(11.122); *U.S. Army Corps of Engineers TR EL*-82-4.