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Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)

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Status

ESA Endangered - 4 "distinct population segments"

- (1) [New York Bight DPS](#)
- (2) [Chesapeake Bay DPS](#)
- (3) [Carolina DPS](#)
- (4) [South Atlantic DPS](#)

ESA Threatened - 1 "distinct population segment"

- (1) [Gulf of Maine DPS](#)

CITES Appendix II - throughout its range

Taxonomy

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Acipenseriformes
Family: Acipenseridae
Genus: *Acipenser*
Species: *oxyrinchus*
Subspecies: *oxyrinchus*

The [Gulf sturgeon](#) (*Acipenser oxyrinchus desotoi*) is another subspecies of *A. oxyrinchus*.

Species Description

Weight: up to 800 pounds (370 kg)

Length: 14 feet (4.3 m)

Appearance: bluish-black or olive brown with paler sides and a white belly; they have 5 major rows of "[scutes](#)"

Lifespan: 60 years

Diet: crustaceans, worms, and mollusks

Behavior: they migrate upriver in spring in spawn

The Atlantic sturgeon is a long-lived, estuarine dependent, anadromous fish. Atlantic sturgeon can grow to approximately 14 feet (4.3 m) long and can weigh up to 800 pounds (370 kg). They are bluish-black or olive brown dorsally (on their back) with paler sides and a white belly. They have five major rows of dermal "[scutes](#)".

Atlantic sturgeon are similar in appearance to shortnose sturgeon (*Acipenser brevirostrum*), but can be distinguished by their larger size, smaller mouth, different snout shape, and scutes.

Atlantic sturgeon have been aged to 60 years. There is generally faster growth and earlier age at maturation in more southern populations. For example, Atlantic



Atlantic sturgeon (top) and Shortnose sturgeon (bottom)
 (*Acipenser oxyrinchus* and *Acipenser brevirostrum*)
 Photo: Doug Cooke,
 South Carolina Department of
 Natural Resources

Did You Know?

- [Chat with Jason Kahn: recap of our live chat all about Atlantic sturgeon](#)
- [5 foreign sturgeon species were listed as endangered in June 2014.](#)
- Atlantic sturgeon are cartilaginous; their skeleton is mostly cartilage, not bone.

sturgeon mature in South Carolina rivers at 5-19 years of age, in the Hudson River at 11-21 years, and in the Saint Lawrence River at 22-34 years.

Spawning adults migrate upriver in spring, beginning in February-March in the south, April-May in the mid-Atlantic, and May-June in Canadian waters. In some areas, a small spawning migration may also occur in the fall. Spawning occurs in flowing water between the salt front and fall line of large rivers. Atlantic sturgeon spawning intervals range from 1 to 5 years for males and 2 to 5 years for females. "[Fecundity](#)" of female Atlantic sturgeon is correlated with age and body size and ranges from 400,000 to 8 million eggs. The average age at which 50% of maximum lifetime egg production is achieved is estimated to be 29 years, which is approximately 3-10 times older than for other bony fish species.

Following spawning, males may remain in the river or lower estuary until the fall; females typically exit the rivers within four to six weeks. Juveniles move downstream and inhabit brackish waters for a few months and when they reach a size of about 30-36 inches (76-92 cm) they move into nearshore coastal waters. Tagging data indicate that these immature Atlantic sturgeon travel widely once they emigrate from their natal (birth) rivers.

Atlantic sturgeon are benthic feeders and typically forage on "[benthic](#)" invertebrates (e.g. crustaceans, worms, mollusks).

Habitat

Atlantic sturgeon are "[anadromous](#)"; adults spawn in freshwater in the spring and early summer and migrate into "[estuarine](#)" and marine waters where they spend most of their lives. In some southern rivers a fall spawning migration may also occur. They spawn in moderately flowing water (46-76 cm/s) in deep parts of large rivers. Sturgeon eggs are highly adhesive and are deposited on bottom substrate, usually on hard surfaces (e.g., cobble). It is likely that cold, clean water is important for proper larval development. Once larvae begin migrating downstream they use benthic structure (especially gravel matrices) as refuges. Juveniles usually reside in estuarine waters for months to years.

Subadults and adults live in coastal waters and estuaries when not spawning, generally in shallow (10-50 m depth) nearshore areas dominated by gravel and sand substrates. Long distance migrations away from spawning rivers are common.

Distribution

Historically, Atlantic sturgeon were present in approximately 38 rivers in the United States from St. Croix, ME to the Saint Johns River, FL, of which 35 rivers have been confirmed to have had a historical spawning population. Atlantic sturgeon are currently present in approximately 32 of these rivers, and spawning occurs in at least 20 of them.

Population Trends

There are only two Atlantic sturgeon populations for which size estimates are available:

- Hudson River - about 4,600 wild juvenile sturgeon
- Altamaha River - over 2,000 subadult sturgeon

In 1995, sampling crews on the Hudson River estimated that there were 9,500 juvenile Atlantic sturgeon in the estuary. Since 4,900 of these were stocked hatchery-raised fish, about 4,600 fish were thought to be of wild origin. The mean annual spawning stock size (spawning adults) was estimated at 870 (600 males and 270 females).

The Altamaha River supports one of the healthiest Atlantic sturgeon populations in the Southeast, with over 2,000 subadults captured in research surveys in the past few years, 800 of which were 1-2 years of age. The population appears to be stable.

Studies have consistently found populations to be genetically diverse and indicate that there are about 10 populations that can be statistically differentiated. However, there is some disagreement among studies, and results do not include samples from all rivers inhabited by Atlantic sturgeon.

Threats

Historically:

- overharvest led to wide-spread declines in Atlantic sturgeon abundance
 - commercial fishing from the 1950s-1990s

Current threats include:

- ["bycatch"](#) of sturgeon in fisheries targeting other species
- habitat degradation and loss from various human activities such as dredging, dams, water withdrawals, and other development
- habitat impediments including locks and dams (e.g., Cape Fear and Santee-Cooper Rivers)
- ship strikes (e.g., Delaware and James Rivers).

Although there are no known diseases threatening Atlantic sturgeon populations, there is concern that non-indigenous sturgeon pathogens could be introduced through aquaculture operations.

Conservation Efforts

The [Atlantic sturgeon is managed under a Fishery Management Plan](#) implemented by the Atlantic States Marine Fisheries Commission (ASMFC). In 1998, the ASFMC instituted a coast-wide moratorium on the harvest of Atlantic sturgeon, which is to remain in effect until there are at least 20 protected age classes in each spawning stock (anticipated to take up to 40 or more years). NMFS followed the ASMFC moratorium with a similar moratorium for Federal waters. Amendment 1 to ASMFC's Atlantic sturgeon Fishery Management Plan also includes measures for preservation of existing habitat, habitat restoration and improvement, monitoring of bycatch and stock recovery, and breeding/stocking protocols.

Regulatory Overview

In 2009, the [Natural Resources Defense Council \(NRDC\) petitioned NMFS](#) to list the Atlantic sturgeon under the ESA. We listed five [distinct population segments](#) of Atlantic sturgeon in response to this petition: Chesapeake Bay, New York Bight, Carolina, and South Atlantic populations of Atlantic sturgeon are listed as endangered, while the Gulf of Maine population is listed as threatened.

An earlier petition to list the species was submitted in 1997. After a status review, it was determined that the species did not merit listing under the Endangered Species Act (ESA) at that time.

In 2003, a workshop sponsored by NMFS and U.S. Fish and Wildlife Service was held to review the status of Atlantic sturgeon. The workshop attendees concluded that some populations seemed to be recovering while other populations continued to be depressed. As a result, we initiated a status review in 2005 to reevaluate whether this species required protection under the ESA. That [status review](#) was completed in 2007.


Key Documents

(All documents are in PDF format.)

Title	Federal Register	Date
Interim 4(d) Rule for Protective Regulations for the Gulf of Maine DPS	78 FR 69310	11/19/2013

Final Listing Rule for South Atlantic and Carolina Distinct Population Segments of Atlantic Sturgeon in the Southeast Region	77 FR 5914	02/06/2012
Final Listing Rule for Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon in the Northeast Region	77 FR 5880	02/06/2012
NMFS proposes protective regulations under the ESA for Gulf of Maine DPS (Proposed 4(d) rule)	76 FR 34023	06/10/2011
Proposed Listings for Two Distinct Population Segments in the Southeast region	75 FR 61904	10/6/2010
Proposed Listings for Three Distinct Population Segments in the Northeast Region	75 FR 61872	10/6/2010
<u>Species of Concern Fact Sheet: Detailed</u>	n/a	02/23/2010
■ Fact Sheet Highlights	n/a	02/23/2010
NMFS Accepts NRDC Petition to List Atlantic Sturgeon under the Endangered Species Act (90-Day Finding on a Petition)	75 FR 838	01/06/2010
NRDC Petition to List Under the ESA	n/a	09/30/2009
Status Review (2007)	n/a	02/23/2007
■ 1998 Atlantic Sturgeon Status Review	n/a	07/24/1998
Notice of Addition to Candidate Species List	71 FR 61022	10/17/2006

More Information

- [Species Information from Fishbase](#) 

Updated: June 2, 2014

