

### Atlantic Sturgeon *Acipenser oxyrinchus* *oxyrinchus*

#### Interesting Facts:

- \* Sturgeon fossils date back >150 million years, making them among the oldest living vertebrates.
- \* There are 24 different species of sturgeon; all occur in the Northern Hemisphere.
- \* Sturgeon lack teeth and scales but are covered with bony plates called scutes.
- \* Sturgeon have been tagged off the NC coast as part of the Cooperative Winter Tagging Cruise for the past 23 years; a total of 265 have been caught. Sturgeon tagged with acoustic transmitters have turned up in NY's Hudson River.
- \* NEAMAP has caught 70 sturgeon since 2007.

**Age/length at Maturity: For the Northeast population, 50% are mature by 20-25 years/6.53'**

**Stock Status: Not overfished and overfishing is not occurring**

## Species Profile: Atlantic Sturgeon NMFS Proposes to Add Atlantic Sturgeon to the Endangered Species List

### Introduction

Atlantic sturgeon were once highly sought after by commercial fishermen in every major coastal river along the East Coast. Now, it's scientists that go in search of them. The overexploitation from major fisheries, centered in Delaware and Chesapeake Bay during the late 1800s and early 1900s, resulted in stock collapse and recruitment failure. As a result, in 1999 the Commission implemented a 40+ year coastwide moratorium on the harvest and possession of wild Atlantic sturgeon stocks. Today, scientists from Maine to Florida work to study the migration patterns, reproduction, and life history of Atlantic sturgeon to help restore wild populations.

### Life History

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are ancient fish, dating back at least 150 million years, and can be found along the entire Atlantic coast from Labrador, Canada to St. Johns River, Florida. They have been recorded to live up to 60 years, grow to lengths of 14 feet and weights of 800 pounds. Atlantic sturgeon are also known to undergo extensive coastal migrations, which take them from the ocean into coastal estuaries and rivers in the spring to spawn once every two to five years.

Typically sturgeon in the southern part of the species range mature faster and grow larger than those in the northern part of the range. Females reach sexual maturity between the ages of seven and 30, and males between the ages of five and 24. The number of eggs that a female produces increases with age and size, which means that older and larger females are more valuable to the population because they produce more eggs (up to eight millions eggs per spawning event) than younger, smaller females (estimated 400,000 eggs per spawning event).

Most juveniles remain in their natal river from one to six years before migrating back out to the ocean. Little is known about the movements of Atlantic sturgeon when they are at sea. As juveniles, Atlantic sturgeon feed on flies, worms, shrimps, and small mollusks and crustaceans. As adults, they are opportunistic feeders and prey mainly on mollusks, snails, worms, shrimps and benthic fish. Very little is known about their natural predators.

### Commercial Fisheries

Since colonial times, Atlantic sturgeon have supported commercial fisheries of varying magnitude. The fishery was once considered second in value only to lobster. There are reports from Maine and Massachusetts from as early as the 1600s that cite sturgeon as an important fishery in those states. While sturgeon were mainly being harvested for their flesh and eggs, other parts had commercial value



as well. Sturgeon skin was made into leather for clothes and bookbinding. The swim bladder was used to make a gelatin that served as a clarifying agent in jellies, wine, beer, or glue. Swim bladders were also fashioned into windows for carriages.

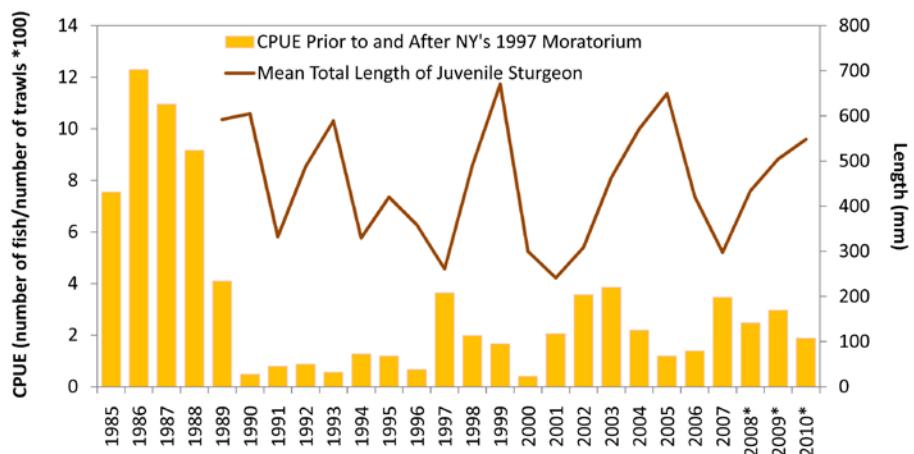
In 1888, the U.S. Fish Commission reported that there was 7.3 million pounds of sturgeon caught on the East Coast. From 1950 through the mid-1990s, landings had declined to between 100,000 and 250,000 pounds annually. By 1998, a coastwide moratorium on the harvest of wild Atlantic sturgeon stocks was implemented by the Commission, although many states had already closed their fisheries. Currently, cultured Atlantic sturgeon continue to be highly valued. Commercially, the flesh brings a consistently higher price per pound than most fish and the eggs (roe) are worth more than \$50 per pound to fishermen and are sold as caviar for more than \$250 per pound.

### Stock Status

Very little is known about the stock status of Atlantic sturgeon. Reliable data is difficult to obtain because many river systems have so few fish, and rivers with more fish are often not easily sampled. In 1998, the Commission completed a peer-reviewed coastwide assessment of the population, examining each river system where Atlantic sturgeon were historically found. The assessment concluded that all systems held significantly less sturgeon than they did in the late 1800s and early 1900s, and

### Catch Per Unit Effort (CPUE) of Juvenile Atlantic Sturgeon in the Hudson River Estuary

Source: New York State Dept. of Environmental Conservation Compliance Report, 2010



very few signs of recovery were detected. As a result of the assessment, the Commission established a 40+ year coastwide moratorium through Amendment 1 to the Atlantic Sturgeon Fishery Management Plan. The accompanying graphs depict catch per unit effort for two fishery-independent surveys conducted by New York and North Carolina. Both surveys have experienced significant fluctuations in recent years, with 2009 indices down from time series highs.

### Endangered Species Listing

Undertaken concurrently with the Commission stock assessment in 1998, the National Marine Fisheries Service (NMFS) investigated the status of the species with regard to listing under the Endangered Species Act (ESA). That status review concluded that listing was not warranted at the time. Then in 2005, NMFS initiated

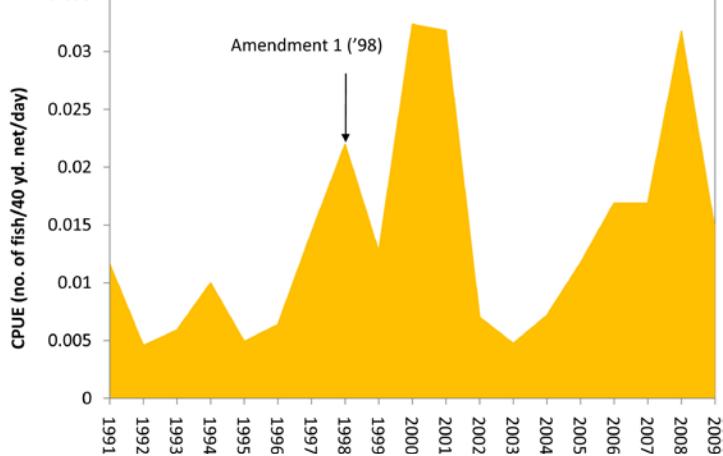
a second status review to re-evaluate whether this species required protection under the ESA. In 2007 the Status Review Team (SRT) determined that Atlantic sturgeon should be broken down into five distinct population segments (DPS): (1) Gulf of Maine, (2) New York

Bight, (3) Chesapeake Bay, (4) Carolina, and (5) South Atlantic. The SRT determined that the most significant threats to all of the DPSs are bycatch mortality, poor water quality, lack of adequate state and/or federal regulatory mechanisms, and dredging activities. Additional stressors that are unique to some DPSs include habitat impediments and ship strikes. The SRT found that the Carolina, Chesapeake Bay, and New York Bight DPSs were likely (>50% chance) to become endangered in the next 20 years and the South Atlantic and Gulf of Maine DPSs have a moderate risk (<50% chance) of becoming endangered in the next 20 years.

### What is an Endangered or Threatened Listing Based on under ESA?

The ESA designation of threatened or endangered is based on the following factors:

1. Present or threatened destruction, modification, or curtailment of habitat or range
2. Over-utilization for commercial, recreational, scientific, or educational purposes
3. Disease or predation
4. Inadequacy of existing regulatory mechanisms
5. Other natural or man-made factors affecting its continued existence



In 2009, the National Resources Defense Council petitioned NMFS to list Atlantic sturgeon on the ESA based on the recommendations from the 2007 Status Review. In January 2010, NMFS reported that the petition may be warranted. After further review NMFS published a proposed rule in October 2010 to list the Gulf of Maine DPS as threatened and the remaining DPSs as endangered. Over 400 public comments were submitted to NMFS on the proposed rule. NMFS is currently reviewing and responding to the submitted public comments is expected to make a final determination in Fall 2011.



For more information, please contact Kate Taylor, Fishery Management Plan Coordinator, at (703) 842-0741 or ktaylor@asmfc.org.

---

## What is a DPS?

Endangered and threatened listings under the ESA can be applied to (1) species, (2) subspecies (species that are capable of interbreeding and producing fertile offspring but do not as a result of geographic isolation or other factors) or (3) distinct population segments (DPS). Classification as a DPS is based on two factors. The first is "discreteness," which occurs when a population of a species is separated from other populations of the species as a result of physical, ecological, or behavioral factors. This can be proven through genetic testing. The second factor is "significance." A DPS is considered significant if a loss of the DPS would create a significant gap in the total range of the species. A DPS designation can only be applied to vertebral species. Five Atlantic sturgeon DPSs were determined in the 2007 Status Review based on the fact that (1) since Atlantic sturgeon return to their natal streams this has resulted in ecological separation throughout their range (distinctness) and (2) loss of any of the DPSs would result in a significant loss in the range (significance) of the species (e.g. loss of the Carolina DPS would result in a 475 mile gap between the northern DPS and the South Atlantic DPS).

