

# Species Profile: Atlantic Sturgeon

## Ancient Species' Slow Road to Recovery

### Introduction

Once highly valued for their flesh and caviar, wild Atlantic sturgeon stocks are now protected for up to 40 years from harvest and possession through a coastwide moratorium.

### Life History

Atlantic sturgeon (*Acipenser oxyrinchus*) are ancient fish, dating back at least 70 million years, and can be found along the entire Atlantic coast from Labrador, Canada to Florida. They are anadromous, migrating from the ocean into coastal estuaries and rivers to spawn. Spawning occurs during the spring and individual fish only spawn once every two to six years. After spawning, males may remain in the river or lower estuary until the fall, while females typically leave within four to six weeks. Most juveniles remain in their natal river from one to six years before migrating to the ocean. Little is known about the movements of Atlantic sturgeon when they are in the ocean.

Atlantic sturgeon may live up to 60 years old, with females reaching sexual maturity between the ages of 7 to 30, and males between the ages of 5 to 24. Typically, fish in the northern part of the species range mature at a later age than those in the southern part of the range. Atlantic sturgeon are bottom feeders whose prey include mussels, worms, shrimp, and small bottom-dwelling fish.

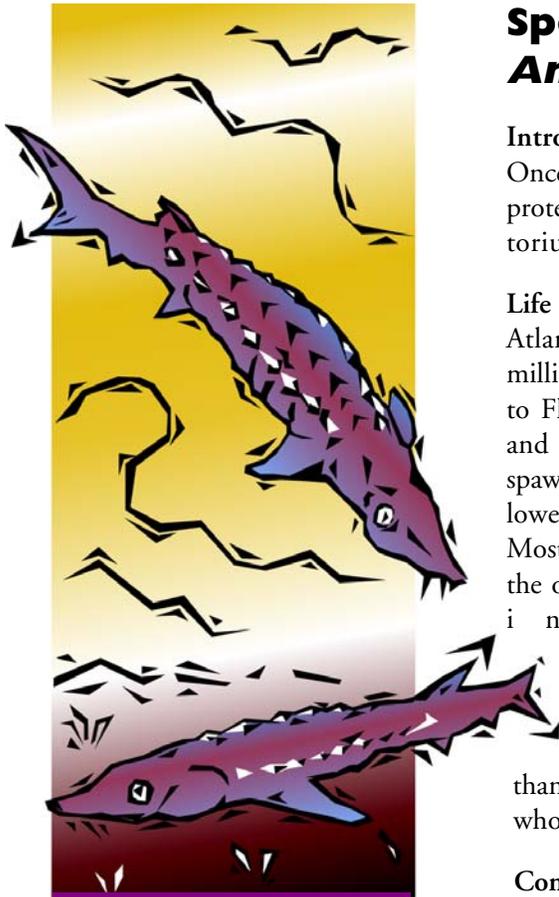
### Commercial Fisheries

Since colonial times, Atlantic sturgeon have supported commercial fisheries of varying magnitude. They were the primary "cash crop" of Jamestown, Virginia before tobacco. In the late 1800s, they were second only to lobster among important fisheries. Landings just prior to the turn of the century were estimated at seven million pounds per year. From 1950 through the mid-1990s, landings ranged between 100,000 and 250,000 pounds per year. While a coastwide moratorium on the harvest of wild Atlantic sturgeon stocks was implemented in late 1997/early 1998, cultured Atlantic sturgeon continue to be a valued commercial fish for both its flesh, which consistently brings a higher price per pound than most fish, and their eggs, or roe, which 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 easy to sample. In 1998, the Commission completed a peer-reviewed coastwide assessment of the population. The assessment was conducted for each river system where Atlantic sturgeon were found historically. All assessed systems held significantly less sturgeon than they did in the late 1800s and early 1900s, and very few signs of recovery were detected. Consequently, the assessment report recommended a moratorium for each stock until the spawning population includes at least 20 protected year classes of females. This translates into a minimum of about 38 years of no harvest for each system.

Undertaken concurrently with the Commission stock assessment in 1998, the federal government investi-



### Atlantic Sturgeon *Acipenser oxyrinchus*

#### Interesting Facts:

\* Sturgeon are an ancient fish, originating over 70 million years ago

\* A single female may produce up to 2.4 million eggs, which hatch 1 week after they are fertilized.

\* Sturgeon have been known for their occasional and inexplicable tendency to jump completely out of the water; colonial records report several incidents of giant sturgeon landing on ships' decks.

**Largest Recorded:** 15', 811 lbs

**Maximum Age:** 60 years

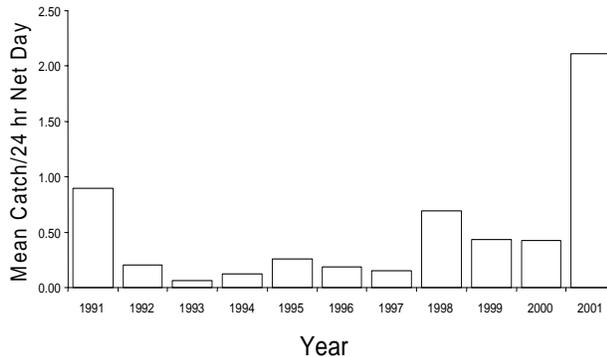
**Age & Length at 50% Maturity for Northeast Population:** 20 - 25 years/6.53'

**Stock Status:** Overfished and overfishing is not occurring.



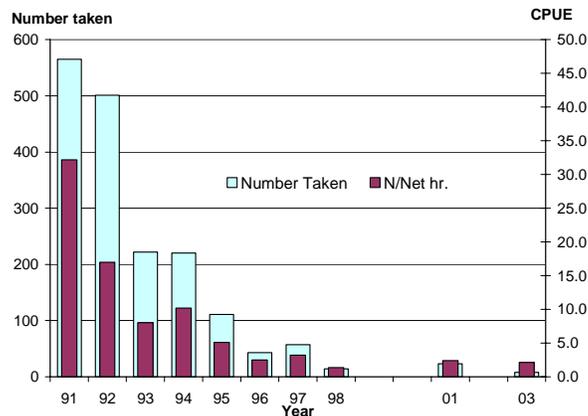
gated the status of the species with regard to listing under the Endangered Species Act (ESA). That status review concluded that listing was not warranted at the time. In 2003, the Commission and the federal government held a workshop to reestablish discussions about the status of the stock. Findings from the workshop ranged from possible signs of recovery beginning in Albemarle Sound (Figure 1) to signs of decreasing abundance in the Delaware River (Figure 2). It is thought that the biggest im-

**Figure 1. Fishery-independent gillnet survey catch rates of Atlantic sturgeon in the Albemarle Sound, NC. (NC DMF 2003)**



pediments to Atlantic sturgeon recovery are bycatch and insufficient habitat. A second workshop, scheduled for November 22 & 23, will build upon the find-

**Figure 2. Subadults taken in Delaware's tag-recapture program in the Delaware River. [Program was not administered in 1999, 2000 or 2002.] (DE DFW 2003)**



ings of the stock status workshop and address issues and strategies to achieve Atlantic sturgeon restoration along the Atlantic coast.

### Atlantic Coastal Management Considerations

The Commission adopted the Fishery Management Plan (FMP) for Atlantic Sturgeon in 1990. All of the 15 member states (Maine to Florida, including Pennsylvania) and two mem-

ber jurisdictions (District of Columbia and Potomac River Fisheries Commission) participate in the FMP. In 1998 the FMP was amended to implement the recommendation of the 1998 peer reviewed stock assessment to prohibit harvest and possession of Atlantic sturgeon and sturgeon parts, including roe, in all participating jurisdictions. In 1999, the federal government complemented state actions by banning the possession and harvest of Atlantic sturgeon in the exclusive economic zone. Amendment 1 also contains provisions to reduce Atlantic sturgeon bycatch in other fisheries.

The National Marine Fisheries Service (NMFS) recently received a request to conduct another status review of Atlantic sturgeon. NMFS is in the process of responding to the request and will likely begin a review to determine whether the species should be listed under the ESA. The results of the status review could lead the Commission to draft an addendum to specifically address issues such as bycatch and poor habitat. According to Stein et al., marine bycatch mortality is estimated on the continental shelf of the US Northeast and Mid-Atlantic regions at 1,500 fish per year from 1989 to 2000. For more information, please contact Braddock Spear, Fisheries Management Plan Coordinator, at (202)289-6400 or bspear@asmfc.org.

## New State Projects Seek to Increase Our Understanding of Atlantic Sturgeon

Over the years, several states have taken actions to improve our understanding of Atlantic sturgeon and explore ways to aid in its recovery. Following are two examples of recent measures taken by the States of Maryland and New York.

Maryland is currently developing a captive broodstock program for sturgeon restoration in its waters. It imported fertilized Atlantic sturgeon eggs from a Canadian supplier and will be rearing them to larval and juvenile sizes for use in marking and nutritional studies. Information gained from this program will help Maryland in future breeding programs and ultimately aid in restoration of the species in the Chesapeake Bay and its tributaries. For more information, please contact Brian Richardson at (410)643-6788.

New York recently obtained several year-classes of hatchery-raised Atlantic sturgeon for use in post-release behavioral studies. Approximately 325 fish were tagged and released in the Hudson River estuary this past year. Monitoring of these fish should provide further insight into habitat use and movement in the Hudson River. New York seeks assistance from fishermen, other states and the federal government to report tagged Atlantic sturgeon as they are encountered. For more information, please contact Andrew Kahnle at (845)256-3072.