

# Atlantic Sturgeon Workshop

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US Army Corps of Engineers  
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# Introduction

- The **Atlantic sturgeon** (*Acipenser oxyrinchus*; means "sharp snout") are found along the Atlantic coast from New Brunswick, Canada to the Saint Johns River, Florida.
- The general life history pattern of Atlantic sturgeon is that of a long lived, late maturing, estuarine dependent, anadromous species.
- Behavior: spend the majority of their life at sea and only enter freshwater in spring in spawn.
- It was in great abundance when the first settlers came to America, but has since declined due to overfishing and water pollution.
- Listed as endangered under ESA effective April 6, 2012; catch or possession is now prohibited.



# Fun Fish Facts

- Is among one of the oldest fish species in the world; been on earth since the Cretaceous period more than 120 million years ago.
- Lifespan: 60 years (accounts of sturgeon over the age of 100 were not uncommon in colonial times)
- Weight: typically 300 lbs.; up to 800 lbs
- Length: typically 6 feet; up to 14 feet
- Diet: Bottom-feeders; crustaceans, worms, small fish and mollusks
- Habitat: Each major river along the Atlantic coast appears to have a discrete spawning stock and adults return to their natal river to spawn.



# Physical Appearance



Bluish-black or olive brown with paler sides and a white belly; they have 5 major rows of scutes (bony plates) on their bodies (instead of scales), and four barbels or whiskers on the bottom side of their snouts



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# Atlantic vs. Shortnose

- Not to be confused with its cousin, *Acipenser brevirostrum*
- Smallest of 3 sturgeon species found in eastern N. America
- Same habitat, distribution range and life cycle
- Been listed as an endangered species since March 11, 1967 (32 FR 4001); NMFS assumed jurisdiction for it in 1974.



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# Life Cycle

- Atlantic sturgeon under six years of age stay in the brackish water (i.e. Brunswick River, Sturgeon Creek) where they were born before moving into the ocean. They may be 3–5 feet long at this stage.
- May take anywhere from 7-23 years to become sexually mature then travel upstream to spawn. Spawning typically occurs in mid-river between February and July.
- Females may lay 800,000 to 3.75 million eggs in a single year, doing so every 2-6 years.
- After laying their eggs females will travel back downstream, but males may remain upstream after spawning until forced to return downstream by the increasingly cold water. They may even return to the ocean, where they stay near the coastline.



# Distribution

- There are 5 distinct population segments (DPS) of Atlantic sturgeon listed under the ESA:
  - ▶ Gulf of Maine (threatened)
  - ▶ New York Bight
  - ▶ Chesapeake Bay
  - ▶ **Carolina (see Fig. 2 map)**
  - ▶ South Atlantic
- The Carolina DPS includes all Atlantic sturgeon that spawn or are spawned in the watersheds (including all rivers and tributaries) from Albemarle Sound southward along the southern Virginia, North Carolina, and South Carolina coastal areas to Charleston Harbor.



# Local Distribution

- The riverine spawning populations in the Carolina DPS are estimated to be at less than 3% of their historic levels.
- Prior to 1890, there were an estimated 7,000 – 10,500 adult female Atlantic sturgeon in North Carolina and approximately 8,000 adult females in South Carolina.
- Currently, the existing spawning populations in each of the rivers in the Carolina DPS have less than 300 adults spawning each year.



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# Threats

Historically: overharvest led to wide-spread declines in Atlantic sturgeon abundance

- ▶ A large U.S. commercial fishery (100,000-250,000 lbs/yr) existed for Atlantic sturgeon from the 1950s-1990s
- ▶ Demand for sturgeon caviar in early to late 1900s depleted populations in Chesapeake Bay area



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# Threats

## Current threats include:

- Bycatch: sturgeon are primarily caught in waters less than 50 meters deep by commercial and recreational fisheries using trawl and gill net gear.
- Habitat degradation and loss from various human activities such as dredging, dams, water withdrawals, and other development.
- The presence of dams has resulted in the loss of access to over 60 percent of the historical sturgeon habitat on the Cape Fear River.
- Climate change is also predicted to elevate water temperatures and exacerbate nutrient-loading, pollution inputs, and lower DO, all of which are current threats to the Carolina populations.



# Conservation Status/Efforts

- 1990 Atlantic Sturgeon Fishery Management Plan (FMP) that imposed a 20-40 year moratorium on all Atlantic sturgeon fisheries.
- 1999 NMFS followed this action by closing the Exclusive Economic Zone (EEZ) to Atlantic sturgeon takes.
- In 2003, a workshop sponsored by NMFS and U.S. Fish and Wildlife Service was held to review the status of Atlantic sturgeon → mixed reviews.
- As a result, NMFS initiated a second status review of Atlantic sturgeon in 2005 to reevaluate whether this species required protection under the ESA.



# Conservation Status/Efforts

Title	Federal Register	Date
Notice of Addition to Candidate Species List	<a href="#">71 FR 61022</a>	10/17/2006
<a href="#">NRDC Petition to List Under the ESA</a>	n/a	09/30/2009
NMFS Accepts NRDC Petition to List Atlantic Sturgeon under the Endangered Species Act (90-Day Finding on a Petition)	<a href="#">75 FR 838</a>	01/06/2010
<a href="#">Species of Concern Fact Sheet: Detailed</a>	n/a	02/23/2010
Proposed Listings for Two Distinct Population Segments in the Southeast Region	<a href="#">75 FR 61904</a>	10/6/2010
<a href="#">Final Listing Rule</a> for South Atlantic and Carolina DPSs of Atlantic Sturgeon in the Southeast Region	<a href="#">77 FR 5914</a>	02/06/2012



# Local Management

- In 1991, the N.C. Marine Fisheries Commission made it illegal to possess sturgeon in North Carolina.
- Currently there is a total coastline moratorium.
- Management of the species is largely based on the restriction of fishing of the species. This helps limit fishing mortalities of sturgeon to bycatch.
- Current sturgeon population rebuilding plans are in place as goals and guidelines, but the growth of sturgeon population to a sustainable amount will be a long time coming.



# Local Management

- Lock & Dam #1 is the current extent of Atlantic sturgeon migration in the Cape Fear River.
- Recent completion of Arch Rock Rapids fish passage at L&D 1, and Cape Fear River Watch looking to replicate fish passage at L&D 2.
- Need for better tagging efforts to monitor the species (SOP created for safer tagging process).



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# What Does This All Mean To Me??



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# Section 7 Consultation

- Section 7(a)(2) of the ESA requires Federal agencies to consult with NMFS to ensure that activities authorized, funded, or carried out by those agencies are not likely to jeopardize the species or destroy or adversely modify critical habitat.
- The division is exploring all avenues to address this issue, and plans to draft a request for an incidental take permit under Section 10 of the ESA. These permits allow for takes of endangered species that occur incidentally to an otherwise lawful activity under limitations specified in each permit.





# Role of NMFS

- One of the functional assignments of the Division is Species Conservation:
  - ▶ Creation of proactive conservation programs
  - ▶ ESA listing, critical habitat and 5 year reviews
  - ▶ Recovery plan development and implementation
  - ▶ Advise states and HQ on ESA Section 10 Incidental Take Permits (ITPs)



# Where we are...

- Federal Register / Vol. 77, No. 24 / Monday, February 6, 2012 / Rules and Regulations
- NMFS has not yet designated critical habitat for this species due to the extensive range of the Carolina and South Atlantic DPSs and extremely complex biological and physical requirements of Atlantic sturgeon.
- No available list of activities that have been determined to be 'no effect'
- NMFS moratorium dates February 1 – September 30
- To protect, restrictions are placed on dredging to avoid sensitive seasons and locations, such as potential spawning habitat (February 1 through June 30) and suspected nursery grounds (April 1 through September 30).



# Biological Assessment/Eval.

- **What threatened or endangered species, or critical habitat, may occur in the project area?**
- **Have you surveyed for species that are known to occur or have potential habitat in the proposed project area?**
- **How will the project affect the threatened or endangered species or critical habitat that occur in the project area?**
- **What is your decision? The Federal action agency must make a determination of effect.**
  - ▶ “No effect”
  - ▶ “May affect - is not likely to adversely affect” (MANLAA)
  - ▶ “May affect - is likely to adversely affect”
  - ▶ “Is likely to jeopardize/destroy or adversely modify proposed species/critical habitat”



# Gulf Sturgeon 2010 Rationale

<b>Activity</b>	<b>Effect on Species</b>	<b>Effect on Critical Habitat</b>
Seawall/riprap	MANLAA	Is Not Likely to Destroy or Adversely Modify
Seawall/riprap	No Effect	No Effect
Living Shoreline	No Effect	Is Not Likely to Destroy or Adversely Modify
Boat Ramps	MANLAA	Is Not Likely to Destroy or Adversely Modify
Minor Dredging	MANLAA	Is Not Likely to Destroy or Adversely Modify
Maintenance Dredge	MANLAA	Is Not Likely to Destroy or Adversely Modify
Commercial Piers	MANLAA	Is Not Likely to Destroy or Adversely Modify
Maintenance of Existing Dams, Boat Ramps, Oil & Gas Pipelines, & Oil Rigs	MANLAA	Not within critical habitat

# What Can I do?

- Detailed information on the locations of Atlantic sturgeon spawning and nursery sites is sparse in North Carolina.

If you encounter a wild sturgeon, please contact the Commission's Division of Inland Fisheries at (919) 707-0220. Include the time, date, and location of the encounter, approximate length of the fish, and a good quality photograph.



# Contacts

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## Local Atlantic Sturgeon Status Review Team Members:

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## Regional Expert:

- Fritz Rohde, NCDMF – Wilmington, NC



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