

ATLANTIC STURGEON RESEARCH NEEDS

NOAA Fisheries Southeast Regional Office Protected Resources Division

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BACKGROUND

Atlantic sturgeon that originate from U.S. rivers are listed under the Endangered Species Act (ESA) as five Distinct Population Segments (DPS). The Gulf of Maine DPS has been listed as threatened. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs have been listed as endangered. The requirements of the ESA apply to DPSs as if each was a separate taxonomic species. Therefore, research involving capture and sampling of Atlantic sturgeon should include at least one method for accurately assigning each sampled Atlantic sturgeon to its DPS (e.g., genetic analyses, tagging) so that the research results inform the data needs and recovery of the relevant DPS.

We identified the following general high priority research needs for the Atlantic sturgeon DPSs. Additional detailed information on these research needs is also provided. This document is intended as a resource for our partners to clarify what we believe our current research priorities are for Atlantic sturgeon. We hope identifying these needs will assist our partners in developing future research proposals. Many of the identified research priorities could apply to one or more DPS but these focus on the Carolina and South Atlantic DPSs. If you would like to engage in scientific research on or conduct activities to enhance the propagation or survival of Atlantic sturgeon, an ESA Section 10(a)(1)(A) permit is required; this document is not a Federal Funding Opportunity.¹

Information on Abundance and Trends in Abundance for Each Distinct Population Segment. Such research might include **long-term monitoring programs** to help determine the distribution, abundance, and trends of Atlantic sturgeon DPSs, as well as estimates of the **number of spawning adults** for each DPS. These data help us monitor the status of each DPS and their progress toward recovery.

Information on Habitat Use for Each Distinct Population Segment. This research might include **identification of important habitat** (e.g., spawning grounds, nursery areas, foraging areas, and overwintering areas), **tagging and tracking studies** to inform habitat use and intermingling of DPSs in the marine environment, as well as research to address **passage issues** where access to essential habitat is obstructed or impeded by manmade barriers (e.g., dams). Identifying these areas of important habitat, how they are used, and re-establishing access to them are important steps in recovering Atlantic sturgeon.

Information on Threats to Each DPS. Such research might include studies to address **bycatch and bycatch mortality, vessel interactions and impacts, and contaminant and biotoxin impacts and thresholds**. With a better understanding of the threats facing each DPS we can more effectively manage and minimize them.

Further information on Atlantic sturgeon can be found at our website:
http://sero.nmfs.noaa.gov/protected_resources/sturgeon/index.html.

¹ Please note, researching one of these priorities does not guarantee an award of federal funds. Conversely, proposals to investigate something other than the priorities outlined here do not make them ineligible for federal funds.

ATLANTIC STURGEON DISTINCT POPULATION SEGMENTS - ADDITIONAL INFORMATION FOR RESEARCH NEEDS

RESEARCH ACTIVITY	NEED FOR ACTIVITY
INFORMATION ON ABUNDANCE AND TRENDS IN ABUNDANCE FOR EACH DPS	
RESEARCH TOPIC: <i>Long-Term Population Monitoring Programs</i>	
Survey all extant DPS to better understand their status.	There are limited long-term monitoring programs in place to help determine the distribution, abundance, and trend of each DPS. This information is necessary to assess the status of each DPS and their progress towards recovery.
RESEARCH TOPIC: <i>Spawning Population Abundance Estimates</i>	
Determine the average number of spawners per year by river and DPS.	The available data for estimates of yearly spawning adults is limited. Without these data we cannot establish a baseline upon which we can judge progress towards recovery.
INFORMATION ON HABITAT USE FOR EACH DPS	
RESEARCH TOPIC: <i>Identification of Spawning, Nursery and Foraging Grounds, and Overwintering Areas</i>	
Identify important features of Atlantic sturgeon habitat as well as identify spawning, nursery, foraging, and overwintering habitats.	The existing information on the specific habitat features important to each specific life stage of Atlantic sturgeon is limited. Additional information on these features and where they occur will help us protect those habitats from degradation and minimize the likelihood that they will be lost.
RESEARCH TOPIC: <i>Tagging/Tracking</i>	
Identify movement patterns of Atlantic sturgeon that originate from U.S rivers across all life stages and both sexes.	The number of fish that have been tracked through various tracking studies is relatively small and focused primarily on later life stages. Knowing where and when Atlantic sturgeon occur is necessary to inform management decisions to recover the species.
RESEARCH TOPIC: <i>Develop Fish Passage Devices for Sturgeon</i>	
Sturgeon fish passage is needed in areas where dams obstruct access to essential habitat.	In some rivers, access to historical spawning habitat has been significantly reduced given the presence of dams (e.g., Cape Fear, Santee/Cooper, and Savannah rivers). Without access to these areas recovery of these river populations is unlikely.
RESEARCH TOPIC: <i>Interactions and Intermixing of Atlantic Sturgeon DPSs</i>	
Continue to collect Atlantic sturgeon samples from all rivers where Atlantic sturgeon are known to occur as well as in the marine environment and conduct genetic analyses on those collected samples.	Although several genetic studies have been performed on Atlantic sturgeon using both mtDNA and nDNA, there are limited samples for some rivers to inform the baseline. In addition, Atlantic sturgeon that originate from different rivers are believed to mix in the marine environment and the extent of this mixing needs further investigation. Collecting this information will improve our ability to assign an individual to a particular DPS, as well as improve our understanding of the degree to which DPSs intermix in the marine environment.

RESEARCH ACTIVITY	NEED FOR ACTIVITY
INFORMATION ON THREATS TO EACH DPS	
RESEARCH TOPIC: <i>Reducing Bycatch and Bycatch Mortality</i>	
Determine the impacts of bycatch and bycatch mortality on Atlantic sturgeon DPSs, identify the spatial and temporal distribution of bycatch throughout the range of each DPS, and identify measures that can be implemented to reduce bycatch and/or bycatch mortality.	The current level of bycatch mortality is most likely retarding or curtailing recovery of Atlantic sturgeon subpopulations. Without a better understanding of this source of mortality, and potential ways to reduce it, recovery will be delayed.
RESEARCH TOPIC: <i>Assessing the Effects of Vessel Activity</i>	
Address data gaps, including estimates of the number of vessel struck sturgeon, identify critical areas where vessel strikes occur, identify sturgeon behavior in proximity to vessels (all vessel sizes), assess the effectiveness of reduced vessel speeds for reducing sturgeon interactions with vessels, design and carry-out studies to better enumerate Atlantic sturgeon vessel strikes, and the reporting rates of vessel struck sturgeon.	Atlantic sturgeon that occur in locations that support large ports and have relatively narrow waterways seem to be more prone to vessel strikes. Data by which to assess the extent of the problem and factors related to the problem are very limited. Without those data it is difficult to understand how great a threat vessel strikes pose to Atlantic sturgeon in the Southeast.
RESEARCH TOPIC: <i>Toxic Contaminant Impacts and Thresholds</i>	
Determine the impact of naturally occurring and introduced toxins to all Atlantic sturgeon life stages.	The contaminant levels of Atlantic sturgeon have been examined in only a few systems. The presence of dioxins, PCBs, and mercury could have impacts on reproductive capabilities and growth, and could lead to death. Without further study we will be unable to determine how great a threat toxic contaminants pose.