

ATLANTIC STURGEON RESEARCH NEEDS

NOAA's National Marine Fisheries Service
Northeast Regional Office, Protected Resources Division

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WORKING MATRIX

Background

Atlantic sturgeon that originate from U.S. rivers are listed under the Endangered Species Act as five Distinct Population Segments. The Gulf of Maine Distinct Population Segment has been listed as threatened. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments have been listed as endangered. The requirements of the Endangered Species Act apply to Distinct Population Segments 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 Distinct Population Segment (e.g., genetic analyses, tagging) so that the research results inform the data needs and recovery of the relevant Distinct Population Segment.

NOAA's National Marine Fisheries Service has identified the following general high priority research needs categories for the Atlantic sturgeon Distinct Population Segments. Additional detailed information on research needs is also provided.

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 trend of Atlantic sturgeon Distinct Population Segments as well as estimates of the **number of spawning adults** for each Distinct Population Segment.

Information on Habitat for Each Distinct Population Segment. Such research might include **identification of essential habitat** (e.g., spawning grounds, nursery areas, foraging areas, and overwintering areas), **tagging and tracking studies** to inform habitat use, and research to address **passage issues** where access to essential habitat is obstructed or impeded by manmade barriers (e.g., dams, marine/tidal turbines).

Information on Threats to Each Distinct Population Segment. Such research might include studies to address **bycatch and bycatch mortality, vessel interactions and impacts, and contaminant and biotoxin impacts and thresholds**.

For further information or questions: Please visit the Atlantic Sturgeon Recovery Program website at www.nero.noaa.gov/prot_res/atlsturgeon/.

Atlantic Sturgeon Distinct Population Segments - ADDITIONAL INFORMATION FOR RESEARCH NEEDS

Research Topic	Research Activity	Need for Activity
Information on Abundance and Trends in Abundance for Each Distinct Population Segment		
Long-Term Population Monitoring Programs		
	Survey all extant Distinct Population Segments to better understand their status.	There are limited long-term monitoring programs in place to help determine the distribution, abundance, and trend of each Distinct Population Segment.
Spawning Population Abundance Estimates		
	Determine the average number of spawners per year for each Distinct Population Segment.	The available data for estimates of yearly spawning adults is limited, overall.
Information on Habitat for Each Distinct Population Segment		
Identification of Spawning, Nursery and Foraging Grounds, and Overwintering Areas		
	Identify important features of Atlantic sturgeon habitat as well as identify spawning, nursery, foraging, and overwintering habitats.	The key features of all parts of Atlantic sturgeon habitat should be identified to protect Atlantic sturgeon habitat from degradation and minimize the likelihood that they will be lost.
Tagging/Tracking		
	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.
Develop Fish Passage Devices for Sturgeon		
	Sturgeon fish passage devices are needed in areas where dams obstruct access to essential habitat and where passage is otherwise obstructed by equipment (e.g., turbines) that can injure and/or kill Atlantic sturgeon.	In some rivers, access to historical spawning habitat has been significantly reduced given the presence of dams (e.g., in the Merrimack, Cape Fear, Santee/Cooper, and St. Johns rivers). Additionally, given the interest in alternative energy and the development of tidal/marine turbine projects within the range of Atlantic sturgeon, safe passage of sturgeon to necessary habitat may be impaired.
Interactions and Intermixing of Atlantic Sturgeon Distinct Population Segements		
	Conduct further analyses (using nDNA in particular) of sturgeon samples collected from all rivers where Atlantic sturgeon are known to occur as well as in the marine environment.	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.

Research Topic	Research Activity	Need for Activity
Information on Threats to Each Distinct Population Segment		
Reducing Bycatch and Bycatch Mortality		
	Determine the impacts of bycatch and bycatch mortality on Atlantic sturgeon Distinct Population Segments, identify the spatial and temporal distribution of bycatch throughout the range of each Distinct Population Segment, 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.
Assessing the Effects of Vessel Activity		
	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 (e.g., Delaware and James Rivers). Data by which to assess the extent of the problem and factors related to the problem are very limited.
Toxic Contaminant Impacts and Thresholds		
	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.