

SHORTNOSE STURGEON RESEARCH NEEDS

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

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WORKING MATRIX

Background

Shortnose sturgeon (*Acipenser brevirostrum*) are currently listed as endangered throughout their range in the United States. Currently, they range from the Saint John River, New Brunswick, Canada, to the St. John's River, Florida. NOAA's National Marine Fisheries Service (NMFS) has identified the following research priorities for shortnose sturgeon.

Presence studies: In many river systems (e.g., Saco, Piscataqua, Housatonic, etc.), there are long standing records of shortnose sturgeon occurrence, but incomplete information exists on their distribution or abundance levels. Obtaining this information is a priority for such rivers. Likewise, there are sizable information gaps on the persistence of shortnose sturgeon in several rivers with historical reproducing populations. Currently managed as extirpated rivers, several of these rivers (e.g., Housatonic, Thames) have the potential for populations of shortnose sturgeon, and, accordingly, more research emphasis should be placed on presence/absence exploration in these rivers.

Interbasin movements and the potential for colonization: In light of the more recent information on shortnose sturgeon movement to saltwater environs surrounding their natal rivers, it is particularly important to accurately determine the current distribution of this species including occasional uses of adjacent rivers and estuaries.

Bycatch: Although directed harvest of shortnose sturgeon has been prohibited since 1967, incidental capture of shortnose sturgeon in fisheries targeting other species has been documented throughout its range. The 1998 Recovery Plan for shortnose sturgeon lists commercial and recreational shad fisheries as a source of shortnose sturgeon bycatch. Shortnose sturgeon are primarily captured in gillnets. The catch rates in drift gillnets are believed to be lower than for fixed nets and longer soak times appear to be correlated with higher rates of mortalities. In an American shad gillnet fishery in South Carolina, of 51 shortnose sturgeon caught, 16% resulted in bycatch mortality and another 20% were visibly injured. Bycatch data support the contention that adult shortnose sturgeon may be especially vulnerable to fishing gears for anadromous species (such as shad, striped bass, alewives and herring) during times of extensive migration - particularly the spawning migration upstream, followed by movement back downstream (Litwiler, 2001). Capture of shortnose sturgeon has been specifically documented in the following gears: pound nets, fyke/hoop nets, catfish traps, shrimp trawls and hook and line fisheries (recreational angling).

Distribution and abundance: Information on the distribution and abundance of all life stages is lacking for many riverine populations, particularly for early life stages and juveniles.

Habitat Use: In order to ensure proper conservation and management of shortnose sturgeon, it is critical to understand the habitat use of each life stage. Of particular importance are studies on foraging ecology, growth of various life stages, defining benthic habitat that support preferred prey items, and characterization of nursery habitat. Additionally, information on spawning habitat and overwintering sites is still missing for some riverine populations.

Stressors: There are a number of impacts identified in the 1998 Recovery Plan for shortnose sturgeon (e.g., dams, dredging, contaminants) that have a significant negative impact on the health and recovery of shortnose sturgeon rangewide.

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

Shortnose Sturgeon - RESEARCH NEEDS

Research Topic	Research Activity	Need for Activity	Corresponding ID Number from Document, <i>Shortnose Sturgeon Current Research Activities</i>
Presence studies			
	Sample for shortnose sturgeon in systems where they are suspected to occur and/or have occurred historically using accepted presence/absence protocol (Moser et al. 2000).	In many river systems (e.g., Saco, Piscataqua, Housatonic, etc.), there are long standing records of shortnose sturgeon occurrence, but incomplete information exists on their distribution or abundance levels. Obtaining this information is a priority for such rivers.	I, f
Interbasin movements and the potential for colonization			
	Evaluate coastal migrations and interbasin movements of shortnose sturgeon including the occasional use of smaller rivers near known spawning populations. Explore the potential for colonization across river systems. Note: the scale of this research objective may require the cooperative efforts of multiple researchers covering several states.	It is important to accurately determine the current distribution of this species including occasional uses of adjacent rivers and estuaries.	I, c, e, f, g, h
Bycatch			
	Further research is needed to determine the susceptibility and impacts of bycatch and related mortality on shortnose sturgeon populations.	Although directed harvest of shortnose sturgeon has been prohibited since 1967, incidental capture of shortnose sturgeon in fisheries targeting other species has been documented throughout its range. The 1998 Recovery Plan for shortnose sturgeon lists commercial and recreational shad fisheries as a source of shortnose bycatch. Although shortnose sturgeon are primarily captured in gillnets, they have also been documented in the following gears: pound nets, fyke/hoop nets, catfish traps, shrimp trawls and hook and line fisheries (recreational angling).	
Distribution and Abundance			
	Investigate new research techniques to facilitate the collection of distribution and abundance data for early life stages (ELS) and juveniles in particular. Continue and expand ongoing efforts to collect distribution and abundance data for all life stages of shortnose sturgeon.	Information on the distribution and abundance of all life stages of shortnose sturgeon is lacking for many riverine populations, and particularly for early life stages (ELS) and juveniles.	I, a, b, c, d, e, f, g, h
Habitat Use			
	Develop targeted research studies to collect data on shortnose sturgeon foraging ecology, growth of various life stages, defining benthic habitat that support preferred prey items, and characterization of nursery habitat. Continue and expand ongoing studies to identify spawning and overwintering habitats, particularly for riverine populations where data is limited or does not exist.	In order to ensure proper conservation and management of shortnose sturgeon, it is critical to understand the habitat use of each life stage. Of particular importance are studies on foraging ecology, growth of various life stages, defining benthic habitat that support preferred prey items, and characterization of nursery habitat. Although there has been great progress in identifying spawning habitat and overwintering sites, this information is still missing for some riverine populations.	I, a, b, c, d, e, f, g, h
Stressors			
	Studies targeting the effects of impacts on shortnose sturgeon and their habitat from environmental stressors (e.g., from dams, dredging, and contaminants) should be continued and expanded. Both short and long term effects should be assessed. Consideration should also be given to potential measures to minimize adverse impacts and novel technologies that may be implemented to avoid harmful effects (e.g., fish passage technology).	There are a number of impacts identified in the 1998 Recovery Plan for shortnose sturgeon (e.g., dams, dredging, contaminants) that have a significant negative impact on the health and recovery of shortnose sturgeon rangewide.	I, a, b, g and II, A