

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 227

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. 980806212-8212-01; I.D. 073098C]

Endangered and Threatened Wildlife and Plants; One-year Finding for a Petition To List the Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the United States as Endangered or Threatened

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce; Fish and Wildlife Service (FWS), Interior.

ACTION: Notice of 1-year petition finding.

SUMMARY: NMFS and the FWS (collectively, the Services), under the Endangered Species Act of 1973, as amended (ESA), announce a 1-year finding for a petition to add Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), in areas where it continues to exist in the United States, to the list of threatened and endangered wildlife and to designate critical habitat. After review of all available scientific and commercial information, the Services find that listing Atlantic sturgeon in the United States is not warranted at this time.

DATES: This finding becomes effective on September 15, 1998.

ADDRESSES: A complete list of references used in the preparation of this 12-month finding is contained in the status review, which is available upon request from the Protected Resources Division, National Marine Fisheries Service, One Blackburn Drive, Gloucester, MA 01930.

FOR FURTHER INFORMATION CONTACT: Mary Colligan, NMFS (978-281-9116), Ray Santos, NMFS (978-281-9103) or Anne Hecht, FWS (978-443-4325).

SUPPLEMENTARY INFORMATION:**Background**

Section 4(b)(3)(B) of the ESA (16 U.S.C. 1531 *et seq.*) requires that for any petition to revise the Lists of Endangered and Threatened Wildlife and Plants that contains substantial information, a finding be made within 12 months of the date of receipt of the

petition on whether the petitioned action is (1) not warranted, (2) warranted, or (3) warranted but precluded from immediate proposal by other pending proposals. Such 12-month findings are to be published promptly in the **Federal Register**.

On June 2, 1997, the Services received a petition dated May 29, 1997, from the Biodiversity Legal Foundation requesting the Services to list Atlantic sturgeon in the United States, where it continues to exist, as threatened or endangered and to designate critical habitat within a reasonable period of time following the listing. The petitioner acknowledged NMFS' lead for Atlantic sturgeon under the ESA, but cited the species' life history and joint FWS/NMFS responsibility for the species under the Fish and Wildlife Conservation Act to encourage the Services to work together in reviewing the petition. The Services agreed that to use each Service's respective expertise in cooperation would be in the best interest of the species and, therefore, conducted this review jointly. Threats to the species cited in the petition include the following: (1) environmental degradation and habitat loss, especially the presence of dams blocking access to former spawning habitat, and water pollution; (2) overfishing; and (3) inadequacy of existing regulatory mechanisms, especially the lack of Federal requirements to specifically consider Atlantic sturgeon when authorizing developments and the absence of centralized direction and funding for research that is essential to identification and arrest of factors contributing to the species' decline.

On October 17, 1997, the Services published a notice in the **Federal Register** of their October 2, 1997, finding that substantial information existed indicating that the petitioned action may be warranted (62 FR 54018). The **Federal Register** notice announced initiation of a status review to determine whether listing of the Atlantic sturgeon in its North American range, including Atlantic Canada, is warranted. The Services formed a team, comprising six Federal and three state agency biologists, to conduct the status review.

In the October 17, 1997, notice (62 FR 54018), the Services solicited information and data on Atlantic sturgeon to assure a comprehensive review of all available information. The Services received information and data from 13 sources. This information included relevant genetics research and information specific to Atlantic sturgeon in Rhode Island, Maine, New Hampshire, and Connecticut. A number of the comments identified the existing

regulatory framework under the Atlantic States Marine Fisheries Commission (ASMFC) as a more appropriate management mechanism than the ESA. The Services included this information and data in the status review.

The Services find that listing Atlantic sturgeon is not warranted at this time. This finding is based on the following: (1) evidence that the historic range of the species has not been substantially reduced and that its current range is not likely to be significantly reduced in the foreseeable future; (2) persistence of at least 14 spawning populations; (3) existing prohibitions on harvest and possession in all 15 states comprising the species' U.S. range; (4) detailed evaluation of current habitat conditions and threats to habitat showing that conditions are adequate to sustain the species and are likely to remain so in the foreseeable future; (5) lack of substantial information indicating that overutilization for commercial, recreational, scientific or educational purposes is currently significantly affecting the species; (6) lack of information indicating that disease or predation are causing significant losses of individuals of the species; (7) existing regulatory mechanisms which provide adequate protection and further the conservation of the species (8) lack of information indicating that artificial propagation is currently posing a threat to the species.

The petition and finding address the subspecies, *Acipenser oxyrinchus oxyrinchus*, one of two subspecies of Atlantic sturgeon. This subspecies, referenced hereafter in this notice as "Atlantic sturgeon," is distributed along the eastern coast of North America. Sightings have been reported from Hamilton Inlet, Labrador, south to the St. Lucie River, Florida.

Atlantic sturgeon are late-maturing, anadromous fish that may live up to 60 years, reach lengths up to 14 feet (4.3 m), and weigh over 800 pounds (364 kg). They are distinguished by armor-like plates and a long snout. Sturgeon are opportunistic benthic feeders, filtering quantities of mud along with their food. Spawning occurs in flowing fresh or estuarine waters with a hard bottom. After hatching, juveniles may remain in fresh/estuarine waters for several years, then head seaward to grow to maturity and join the sub-adult migration run, which can reach many miles from their home rivers. Age at maturity increases with increasing latitude along the Atlantic Coast; sexual maturity for males ranges from 5 to 24 years, and, for females, from 7 to 30 years.

The Services' status review addressed the status of the Atlantic sturgeon population in the U.S., which was the subject of the petition, but also considered whether there is evidence that U.S. and Canadian stocks interbreed and whether activities conducted in Canada threaten Atlantic sturgeon of U.S. origin. Review of currently available information failed to show that there is an interbreeding population segment spanning the U.S.-Canadian border or that Canadian fisheries pose a meaningful threat to U.S. Atlantic sturgeon stocks. Evaluation of the U.S. Atlantic sturgeon population regarding the Services' Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (61 FR 4722) showed that Atlantic sturgeon in the U.S. constitute a discrete and significant population segment and that consideration of its conservation status in relationship to the ESA's standards for listing is appropriate.

Historically, Atlantic sturgeon populations in the U.S. ranged from the Penobscot River, Maine, to the St. Johns River, Florida (although it is unclear whether spawning occurred in the latter river). The presence of Atlantic sturgeon was documented in 34 rivers; however, the number of historical spawning populations is unknown. Their range in the U.S. has contracted slightly, and now extends from the Kennebec River, Maine (and absence from the Penobscot River has not been conclusively determined), to the Satilla River, Georgia. Presence is documented in 32 rivers. Currently, 14 spawning populations are confirmed, and 5 others are suspected. Thus, current distributional information is inconsistent with the petitioner's claim, based on a 1996 ASMFC document, that reproducing populations are present in six or fewer rivers.

Historical records from the 1700s to 1800s document large numbers of sturgeon in many rivers along the Atlantic Coast. It is clear that Atlantic sturgeon underwent significant range-wide declines from historical abundance levels due to overfishing in the late 1800s. Sturgeon stocks may have been further impacted through environmental degradation, especially in the early to mid-1900s. However, the species persisted in many rivers, and populations rebounded to the point where commercial fisheries were active in many rivers during all or some of the years from 1962 to 1996. Many of these contemporary fisheries resulted in overfishing, depressing populations to the point where management authorities

have now closed all directed fisheries and prohibited retention of bycatch.

Recent quantitative estimates of species abundance and population trends derive from stock assessments conducted in conjunction with the now-closed directed fisheries in New York and New Jersey. Although these assessments show substantial declines in population numbers in both the Delaware and Hudson River populations, they also document the presence of multiple year-classes in both systems, as do more qualitative surveys conducted elsewhere in the species' range, including the Chesapeake Bay, Cape Fear River, and Edisto River.

The petition and other sources (i.e., ASMFC, 1990, Smith and Clugston, 1997) have cited habitat loss and degradation as contributors to the decline of Atlantic sturgeon, but none of these documents contains a comprehensive analysis of the overall effect of current habitat conditions on the species. A thorough review of the effects of three habitat-related factors—dams, dredging, and water quality on U.S. Atlantic sturgeon populations—demonstrates that, while habitat alterations have occurred historically and some deleterious conditions persist, the conclusion that current habitat conditions imperil the species is unsupported by the available information.

Dams for hydropower generation, flood control, and navigation have the potential to adversely modify Atlantic sturgeon habitat. However, a detailed analysis of the locations of dams and the proportion of historical habitat rendered inaccessible to specific Atlantic sturgeon populations indicates that dams have had a limited effect on Atlantic sturgeon populations. Many dams on rivers inhabited by Atlantic sturgeon are located at the fall line, where natural waterfalls and rapids limited pre-dam upstream access to all, but occasional, occurrences of mature Atlantic sturgeon. Of 25 rivers for which current habitat accessibility can be quantified, only 3 (the Merrimack, Housatonic, and Susquehanna) currently suffer loss of > 30 percent of their habitat to dams. Dams impede access to 10–30 percent of habitat on another three rivers (Kennebec, Penobscot, and Salmon Falls). Quantitative estimates of habitat accessibility are not available for the Roanoke, Tar-Pamlico, or Cape Fear rivers, but spawning continues to occur on these rivers. Qualitative information indicates that a substantial portion of habitat on the Santee River is blocked by Wilson Dam. With the exception of

Rodman Dam on a tributary of the St. Johns River (FL), all extant dams in Atlantic sturgeon habitat have been in place for more than 50 years. Several dams in the historical range of the Atlantic sturgeon have been removed or are in the process of being removed. The Services are not aware of any proposals to construct new dams within current or historical Atlantic sturgeon habitat.

Potential harm to Atlantic sturgeon from dredging includes the destruction of benthic feeding areas, disruption of spawning migrations, and deposition of resuspended fine sediments in spawning habitat. The most serious potential impacts are those that might affect spawning habitats during the actual spawning season, but a river-by-river review of dredging activity demonstrates that this potential is limited to a few specific rivers. No dredging has occurred within Atlantic sturgeon spawning habitats in 21 rivers during the last 20 to 25 years. Only six rivers with extant spawning populations where dredging might be on-going within spawning habitat in recent years were identified, and seasonal restrictions are in place to protect most sensitive spawning habitats on all but one of these.

While sturgeon are clearly susceptible to a variety of water quality problems, including changes in water temperature, decreases in levels of dissolved oxygen, additions in nutrients, and the presence of a variety of contaminants, available evidence shows that overall water quality in Atlantic sturgeon habitats is substantially better than it was through the 1970s and is continuing to improve, especially in the Northeast and Mid-Atlantic states. While acknowledging residual water quality issues, the status review noted substantial improvements in water quality in a number of rivers. Additionally, the Services examined long-term habitat trends in relation to the populations of the Atlantic sturgeon. Loss and degradation of habitat, especially the degradation of water quality that accompanied the rise of industry along much of the Eastern seaboard in the late 1800s through the 1970s, clearly contributed to past declines of Atlantic sturgeon populations. While current habitat conditions are not pristine, overall current spawning and nursery habitat conditions are substantially better than those under which this species recovered from collapse of stocks (due to overharvest) in the late 1800s and persisted during the first half of the 20th century. Important improvements in habitat quality have been effected through elimination of point and nonpoint sources of pollution, seasonal

restrictions on dredging operations in spawning and nursery habitats, and (in a few cases) dam removal. Recent increases in populations of the endangered shortnose sturgeon (*Acipenser brevirostrum*), which co-occurs with the Atlantic sturgeon over much of its range and shares many of its life history characteristics, also testify to the general capability of riverine sturgeon habitat to facilitate and support increasing populations of the latter species. Further habitat improvements could accelerate rebuilding of stocks, however, the Services conclude that current habitat conditions are above the threshold at which the Atlantic sturgeon is likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Commercial exploitation was the major cause of the early 20th century decline in Atlantic sturgeon abundance, as well as the primary cause of recent downward trends in the Hudson and Delaware River populations. The life history of Atlantic sturgeon (late age at maturity) and high commercial value make the species vulnerable to overexploitation. Many authors (i.e., Smith *et al.*, 1984, Smith and Clugston, 1997, Waldman and Wirgin, 1998) have cited past overharvesting by commercial fisheries as the major cause of the species' current low abundance.

By 1990, six jurisdictions within the Atlantic sturgeon's U.S. range (Pennsylvania, District of Columbia, Potomac River Fisheries Commission, Virginia, South Carolina, and Florida) had prohibited landings. The 1990 ASMFC Fisheries Management Plan (FMP) for Atlantic Sturgeon required all states to implement (1) a total closure on harvest, (2) a minimum length on harvestable fish of 7 feet (2.2 m) total length, or (3) alternative measures that could be submitted to the ASMFC for determination of conservation equivalency. All jurisdictions complied with this requirement, and, by 1995, the list of jurisdictions with total closures had expanded to include Maine, New Hampshire, Massachusetts, and North Carolina. Two states, New York and New Jersey that opted for conservation equivalency under the 1990 ASMFC plan closed their fisheries in 1995 and 1996, respectively (New Jersey by setting a quota of zero fish). Reported landings from the states that adopted the 7-foot (2.2-m) minimum (Georgia, Delaware, Connecticut, Maryland, and Rhode Island) were very low, and all of those states formally closed their fisheries between 1996 and 1998. The last state within the species' U.S. range to implement a complete prohibition on harvest and possession was Delaware,

which implemented regulations on May 1, 1998.

The current ban on harvest of Atlantic sturgeon in all 17 jurisdictions has also been formalized in Amendment 1 to the ASMFC's Atlantic Sturgeon FMP as a long-term moratorium, enforceable under the terms of the Atlantic Coastal Fisheries Cooperative Management Act. This ban requires a complete closure, through prohibition on possession of Atlantic sturgeon (including any and all parts thereof) that must be maintained until the FMP is formally modified. The FMP Amendment, adopted by the ASMFC on June 11, 1998, anticipates that the moratorium remains in place until there are at least 20 protected age classes of females in each spawning stock. For the Hudson River population, the duration of the moratorium is anticipated to be approximately 41 years from its initiation. The ASMFC ban on harvest and possession includes any current or future recreational fishing.

In addition to the ban on harvest and possession in all state jurisdictions, including state waters, the 1998 FMP Amendment contains a request to the Secretary of Commerce to ban harvest and possession of Atlantic sturgeon in the exclusive economic zone (EEZ). This would extend protected waters from the boundary of state waters, 3 miles (1.8 km) from the coast, to the 200-mile (120-km) limit. The Services support this additional measure of protection for Atlantic sturgeon stocks in coastal waters, and the NMFS has started preparing the necessary documents to effect this closure. However, in view of the fact that any fish taken in the EEZ could not be landed or sold in any state from Maine to Florida, the Services do not believe that the current lack of such a closure in the EEZ represents a meaningful threat to the species and are not relying on its future implementation in this finding.

Atlantic sturgeon are susceptible to capture in a wide range of gear types that target other species, particularly gill nets and trawls. Potential threats from bycatch, including variable effects due to area, season, and gear types and population/species level impacts were examined in detail in ASMFC (1998) and in the status review. The only available assessment of population impacts of bycatch derived for the Hudson River population, 1991 through 1996, shows bycatch mortality rates that are well below the threshold likely to preclude population increases. Bycatch rates (based on first-year recapture reports from tagged fish) also showed a declining trend over the period for which data are available. Furthermore, any incentives for retention of bycatch

have been eliminated through the range-wide prohibition on possession and sale of Atlantic sturgeon.

Several studies indicate that shortnose and Atlantic sturgeon, sympatric throughout most of their range, generally partition habitat spatially and demonstrate differences in dietary preferences. Little is known about natural predators of Atlantic sturgeon, but its bony scutes and large size are effective adaptations for minimizing predation of fish 2 or more years old. There is no evidence that current impacts of predation or competition are above "natural" levels.

While Atlantic sturgeon, like all organisms, are susceptible to disease, there is no evidence that disease currently poses an elevated or unnatural threat to this species. Although the recent widespread and devastating outbreaks of the toxic dinoflagellate, *Pfiesteria piscicida*, in North Carolina estuaries and in the Chesapeake Bay affected large numbers of fish, sturgeon were not affected; this may be attributable to the preference of Atlantic sturgeon for deep waters in swift currents and/or lack of susceptibility to this disease. In addition, anadromous species such as Atlantic sturgeon have a buffer against disease outbreaks that might be more catastrophic for fish populations that spend their entire life cycles in a single environment.

The major potential source of disease-related concern for Atlantic sturgeon is the possible introduction of non-indigenous sturgeon pathogens through the release to the wild of fish from aquaculture operations or aquarium fish. However, there are currently no commercial aquaculture operations for Atlantic sturgeon within the species' U.S. range, and the ban on possession of the species will preclude development of any such facilities unless and until an appropriate addendum to the ASMFC's FMP is adopted. The few public facilities working on development of propagation techniques maintain strict disease screening and management procedures. Although there is no range-wide ban on commercial aquaculture of non-indigenous sturgeons, no known commercial facilities are currently in existence.

The recently adopted amendment to the ASMFC Atlantic Sturgeon FMP formalizes a long-term coast-wide prohibition on harvest and possession of Atlantic sturgeon and any and all parts, including eggs. These prohibitions are already in effect via state regulations in every jurisdiction in the species' range. Under the provisions of 1993 amendments to the Atlantic Coastal Fisheries Cooperative Management Act

(P.L. 81-721), the Secretary of Commerce is empowered to enforce such mandatory compliance requirements in approved ASMFC plans by declaring a moratorium on the fishing of the applicable species. Under the terms of Amendment 1, the moratorium became mandatory on June 30, 1998, and will remain in place until the FMP is further amended through the formal procedures of the ASMFC. Even an addendum to the amended FMP (such as might be proposed to allow possession of imported or cultured Atlantic sturgeon) would require preparation of a written draft addendum, distribution to all states for review and comment, a public hearing in any state that requests one, and a 30-day review period prior to formal adoption by ASMFC's Sturgeon Management Board.

While the Services believe that the ASMFC moratorium on harvest and possession of Atlantic sturgeon is the critical component ensuring that this species is not likely to become endangered within the foreseeable future throughout all or a significant portion of its range, the FMP also contains other valuable recommendations for conservation (in its generic sense, not as defined in the ESA) and restoration of the species. These include measures for preservation of existing habitat, habitat restoration and improvement, monitoring and assessment of future bycatch, monitoring and assessment of stock recovery, and important protocols for any breeding and stocking activities. The FMP requires annual reporting from each jurisdiction on results of bycatch monitoring, monitoring of stock status, habitat protection efforts, and regulation (or oversight, if regulatory authority does not rest with the marine resources agency in a particular state) of any future aquaculture facilities. The ASMFC Sturgeon Management Board, which includes representatives from both Services, reviews the status of state compliance with the FMP at least annually.

A wide variety of Federal laws (including, but not limited to, the Federal Power Act, Fish and Wildlife Coordination Act, Federal Water Pollution Control Act, Rivers and Harbor Act, and National Environmental Policy Act), state laws, and local regulations affect activities with potential to destroy or degrade Atlantic sturgeon habitat. Although these laws do not require specific consideration of Atlantic sturgeon during project review and permitting processes, Atlantic sturgeon have frequently been the focus of such reviews and, more importantly,

the beneficiaries of project modifications or denials, even in many situations where the species' needs were not explicitly considered. Atlantic sturgeon are also the indirect beneficiaries of section 7 ESA requirements for Federal agency consultation for the endangered shortnose sturgeon, where their ranges and conservation needs coincide. Habitat improvements since the mid- to late-1970s is tangible proof of the efficacy of existing Federal, state, and local laws to protect and conserve Atlantic sturgeon habitat.

The Services also find that existing authorities provide for coordination and funding of Atlantic sturgeon research and conservation efforts. In particular, the 1998 ASMFC Atlantic Sturgeon FMP Amendment provides a comprehensive blueprint for biologically appropriate restoration of habitat, monitoring and evaluation of future bycatch, and safeguards to prevent adverse effects from aquaculture on wild stocks. Management research needs for Atlantic sturgeon are clearly identified and partially prioritized in section 6 of the amended FMP. Existing ASMFC management institutions also furnish review, coordination, and oversight for this long-term effort, and both Services are active participants on the Sturgeon Management Board, Atlantic Sturgeon Technical Committee, and Atlantic Sturgeon Plan Review Team.

Artificial propagation for use in restoration of extirpated populations or supplementation of severely depleted populations has the potential to be both a threat to the species and a tool for recovery. Potential risks include accidental transmission of disease to wild stocks and changes in intra-population and inter-population genetic structure. Disease risks can be avoided and minimized through the implementation of appropriate protocols, however. These have been provided through stringent disease screening and certification of all fish prior to transfer or release to the wild. Genetic risks have been addressed through the development of a breeding and stocking protocol, the salient provisions of which have been incorporated into the 1998 ASMFC FMP Amendment. This protocol includes standards for sources of brood stock, minimum effective population size, stocking numbers, tagging, monitoring, and reporting. The Services have reviewed this protocol and find that it provides for minimization of risks and maximization of potential benefits from artificial propagation for conservation purposes.

There is currently no known commercial aquaculture activity involving Atlantic sturgeon within the species' U.S. range. Furthermore, the current ban on possession of the species in all jurisdictions precludes establishment of such facilities unless, and until, an addendum to the 1998 ASMFC FMP Amendment is approved. Potential risks from such activities include confounding enforcement on the moratorium on harvest and possession of wild fish and accidental escapement to the wild with attendant concerns for disease transmission and/or genetic impacts. Future changes in regulations may be conditioned to avoid or minimize these risks through the use of appropriate requirements for marking of aquaculture-produced fish and record keeping, escapement prevention, and disease controls.

There is currently no commercial aquaculture of non-indigenous sturgeon in the U.S. Atlantic sturgeon range. Potential risks stem from escapement to the wild, with attendant concerns for possible hybridization with Atlantic (and shortnose) sturgeon and transmission of diseases to which Atlantic sturgeon might be susceptible. In the event that such activities are proposed and implemented in the future, these risks may be attenuated through appropriate regulation and management of facilities. However, these risks do not currently constitute a threat to Atlantic sturgeon.

The Services have reviewed the petition, status review, available literature, and public comments and have consulted with scientists and fishery resource managers familiar with Atlantic sturgeon. After reviewing the best scientific and commercial information available, the Services find that the Atlantic sturgeon in the U.S. is not likely to become endangered within the foreseeable future throughout all or a significant portion of its range and that listing as threatened or endangered is not warranted.

References Cited

A complete list of references used in the preparation of the 12-month finding for the Atlantic sturgeon is contained in the status review, available upon request from the Northeast Regional Office (see ADDRESSES section).

Authority

The authority for this section is the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 11, 1998.

Rolland A. Schmitten,

*Assistant Administrator for Fisheries,
National Marine Fisheries Service.*

Dated: September 15, 1998.

Jamie Rappaport Clark,

Director, U.S. Fish and Wildlife Service.

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