BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 224

RIN 0648-XJ00

[Docket No. 100903414-1762-02]

Endangered and Threatened Wildlife and Plants; Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: We, NMFS, are issuing a final determination to list the Gulf of Maine (GOM) Distinct Population Segment (DPS) of Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) as a threatened species under the Endangered Species Act (ESA), and the New York Bight (NYB) and Chesapeake Bay (CB) DPSs of Atlantic sturgeon as endangered species under the ESA. We have proposed protective regulations for the GOM DPS in accordance with ESA section 4(d) in a separate rulemaking published in the Federal Register on June 10, 2011. We are currently considering the available information in order to designate critical habitat. With this rule, we are also soliciting information that may be relevant to the designation of critical habitat for all three DPSs in the Northeast Region. Details of our analyses, their outcome, and a request for public comment on our proposed critical habitat designations will be published in subsequent Federal Register notices.

DATES: This final rule is effective on [INSERT DATE 60 DAYS AFTER DATE OF PUBLI_ CATION IN THE FEDERAL REGISTER.]

ADDRESSES: Information concerning this final rule may be obtained by contacting NMFS, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. The final rule, list of references and other materials relating to this determination can be found on our website at www.nero.noaa.gov./prot_res/atlsturgeon/.

FOR FURTHER INFORMATION CONTACT: Kimberly Damon-Randall, (978) 282-8485; Lynn Lankshear, (978) 282-8473; or Lisa Manning, (301) 427-8466.

SUPPLEMENTARY INFORMATION:

Background

We first identified Atlantic sturgeon as a candidate species under the ESA in 1991; at that time, the candidate species list served to notify the public that we had concerns regarding these species that may warrant listing in the future, and it facilitated voluntary conservation efforts. On June 2, 1997, the U.S. Fish and Wildlife Service (USFWS) and NMFS (collectively, the Services) received a petition from the Biodiversity Legal Foundation requesting that we list Atlantic sturgeon in the United States as threatened or endangered and designate critical habitat within a reasonable period of time following the listing. A notice was published in the Federal Register on October 17, 1997, stating that the Services had determined substantial information existed indicating the petitioned action may be warranted (62 FR 54018). In 1998, after completing a comprehensive status review, the Services published a 12-month determination in the Federal Register, announcing that listing was not warranted at that time (63 FR 50187; September 21, 1998). We retained Atlantic sturgeon on the candidate species list (subsequently

changed to the Species of Concern List (69 FR 19975; April 15, 2004)). Concurrently, the Atlantic States Marine Fisheries Commission (ASMFC) completed Amendment 1 to the 1990 Atlantic Sturgeon Fishery Management Plan (FMP), which imposed a 20-40 year moratorium on all Atlantic sturgeon fisheries until the Atlantic Coast spawning stocks could be restored to a level where 20 subsequent year classes of adult females were protected (ASMFC, 1998). In 1999, pursuant to section 804(b) of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) (16 U.S.C. 5101 et seq.), we followed this action by closing the Exclusive Economic Zone (EEZ) to Atlantic sturgeon retention.

In 2003, we sponsored a workshop with USFWS and the ASMFC titled "Status and Management of Atlantic Sturgeon," to discuss the status of Atlantic sturgeon along the Atlantic Coast and determine what obstacles, if any, were impeding their recovery (Kahnle et al., 2005). The results of the workshop indicated that some riverine populations seemed to be recovering while others were declining. Bycatch and habitat degradation were noted as possible causes for continued declines.

Based on the information gathered from the 2003 workshop on Atlantic sturgeon, we decided that a second review of Atlantic sturgeon status was needed to determine if listing as endangered or threatened under the ESA was warranted. We therefore established an Atlantic sturgeon status review team (ASSRT) consisting of NMFS, USFWS, and U.S. Geological Survey (USGS) scientists with relevant expertise to assist us in assessing the viability of the species throughout all or a significant portion of its range. The ASSRT was asked to consider the best scientific and commercial information available, including the technical information and comments from state and regional experts. The draft status review report prepared by the

ASSRT was peer reviewed by experts from academia, and their comments were incorporated. A Notice of Availability of this report was published in the Federal Register on April 3, 2007 (72 FR 15865).

On October 6, 2009, we received a petition from the Natural Resources Defense Council to list Atlantic sturgeon throughout its range as endangered under the ESA. As an alternative, the petitioner requested that the species be listed as the five DPSs described in the 2007 Atlantic sturgeon status review (ASSRT, 2007; i.e., GOM, NYB, CB, Carolina, and South Atlantic DPSs), with the GOM and South Atlantic DPSs listed as threatened, and the remaining three DPSs listed as endangered. The petitioner also requested that critical habitat be designated for Atlantic sturgeon under the ESA. We published a Notice of 90-Day Finding on January 6, 2010 (75 FR 838; January 6, 2010), stating that the petition presented substantial scientific or commercial information indicating that the petitioned actions may be warranted.

We considered the information provided in the status review report, the petition, other new information available since completion of the status review report, and information submitted in response to the Federal Register announcement of the 90-day finding (75 FR 838; January 6, 2010). Based on this information, we determined that there are five DPSs of Atlantic sturgeon that qualify as species under the ESA. We also determined that, for those DPSs that are located within the jurisdiction of NMFS' Northeast Region, the GOM DPS is likely to become endangered within the foreseeable future, and the NYB and CB DPSs are in danger of extinction. Therefore, on October 6, 2010, we published a proposed rule to list the GOM DPS of Atlantic sturgeon as threatened under the ESA, and the NYB and CB DPSs as endangered (75 FR 61872).

After publication of the proposed rule, new tagging and tracking data as a result of on-

going studies were provided to us indicating that Atlantic sturgeon tagged in the United States range in the marine environment from as far north as the St. Lawrence River, Canada (D. Fox, DSU, pers. comm.) to as far south as Cape Canaveral, FL (T. Savoy, CTDEP, pers. comm.). The description of the northern and southern extent of the marine range for the GOM, NYB, and CB DPSs was extended to include these areas. Based on information provided in the proposed rule and this new information, the GOM, NYB, and CB DPSs are defined as follows. The GOM DPS includes all Atlantic sturgeons that are spawned in the watersheds from the Maine/Canadian border and extending southward to include all associated watersheds draining into the Gulf of Maine as far south as Chatham, MA. The NYB DPS includes all Atlantic sturgeons that are spawned in the watersheds that drain into coastal waters from Chatham, MA to the Delaware-Maryland border on Fenwick Island. The CB DPS includes all Atlantic sturgeons that are spawned in the watersheds that drain into the Chesapeake Bay and into coastal waters from the Delaware-Maryland border on Fenwick Island to Cape Henry, VA. The marine range for the three DPSs is the same; all marine waters, including coastal bays and estuaries, from Labrador Inlet, Labrador, Canada to Cape Canaveral, FL. Each DPS also includes Atlantic sturgeon held in captivity (e.g., hatcheries, scientific institutions) that are identified as fish belonging to either the GOM, NYB, or CB DPS, respectively, based on genetic analyses, previously applied tags, previously applied marks, or documentation to verify that the fish originated from (was spawned in) a river within the range of that DPS, or is the progeny of any fish that originated from that DPS.

Listing Species under the Endangered Species Act

The ESA defines an endangered species as “any species which is in danger of extinction

throughout all or a significant portion of its range" and a threatened species as one "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." As provided in section 4(a) of the ESA, the statute requires us to determine whether any species is endangered or threatened because of any of the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence (section 4(a)(1)(A)(E)).

Recent case law (In Re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation, D.D.C WL 2601604 (June 30, 2011 Order); 748 F.Supp.2d 19 (D.D.C. 2010)) regarding USFWS's listing of the polar bear as threatened provides a discussion of the ESA definitions of the terms threatened and endangered in the context of the Services' broad discretion and expertise to determine on a case by case basis whether a species is in danger of extinction. The Court found that Congress did not intend to make any single factor controlling when drawing the distinction between endangered and threatened species, nor did it seek to limit the applicability of the endangered category to only those species facing imminent extinction, and that Congress delegated responsibility to the Services to determine whether a species is 'in danger of extinction' in light of the ESA section 4(a)(1) factors and the best available science for that species.

To be considered for listing under the ESA, a group of organisms must constitute a "species." A "species" is defined in section 3 of the ESA to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or

wildlife which interbreeds when mature." On February 7, 1996, the Services adopted a policy to clarify our interpretation of the phrase "distinct population segment of any species of vertebrate fish or wildlife" (61 FR 4722). The joint DPS policy identified two elements that must be considered when identifying a DPS: (1) the discreteness of the population segment in relation to the remainder of the species (or subspecies) to which it belongs; and (2) the significance of the population segment to the remainder of the species (or subspecies) to which it belongs. As stated in the joint DPS policy, Congress expressed its expectation that the Services would exercise authority with regard to DPSs sparingly and only when the biological evidence indicates such action is warranted.

We evaluated whether Atlantic sturgeon population segments met the DPS Policy criteria and described the delineation of five Atlantic sturgeon DPSs in detail in the proposed rule. Comments regarding the delineation are addressed in the section below, "Summary of Peer Review and Public Comments Received."

Section 4(b)(1)(A) of the ESA requires that listing determinations be based solely on the best scientific and commercial data available after taking into account efforts being made to protect the species. In judging the efficacy of protective efforts, we rely on the Service's joint "Policy for Evaluation of Conservation Efforts When Making Listing Decisions" ("PECE"; 68 FR 15100; March 28, 2003). The PECE provides direction for consideration of conservation efforts that have not yet been implemented, or have been implemented but not yet demonstrated their effectiveness.

Summary of Peer Review and Public Comments Received

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Bulletin, implemented under the Information Quality Act (Public Law 106–554), is intended to enhance the quality and credibility of the Federal government's scientific information, and applies to influential scientific information disseminated on or after June 16, 2005. Pursuant to our 1994 policy on peer review (59 FR 34270; July 1, 1994), we solicited peer review of the proposed listing determination from three independent sturgeon experts. One of the three reviewers submitted comments as part of his state agency's response to the proposed listing. Those comments and our responses are included in the response to public comments. The remaining two solicitations for review went unanswered. The independent expert review under the joint NMFS/USFWS peer review policy collectively satisfies the requirements of the OMB Peer Review Bulletin and the joint NMFS/USFWS peer review policy.

We solicited comments on the proposed rule from all interested parties including the public, and other governmental agencies. Fifty-five respondents provided comments during the 120-day comment period and four public hearings. We also received comments from 111 respondents from a solicitation for information in the Notice of 90-Day Finding on the petition to list Atlantic sturgeon and designate critical habitat (75 FR 838; January 6, 2010). We have addressed all public comments received on the action, including comments received during the 120-day public comment period, comments received at the four public hearings, and comments and information received in response to the solicitation for information in the Notice of 90-Day Finding.

Public comments supporting and opposing listing were submitted by interested individuals; state and Federal agencies; fishing groups; environmental organizations; and industry groups. Some submissions provided information for our consideration, including additional information on Atlantic sturgeon distribution, information on tidal turbines in the East River, and management of Atlantic sturgeon in Canada. Many comments were complex and had multiple inferences, and thus individual statements are addressed in multiple comments and responses below. The comments addressed five general topics: (1) The 2007 Atlantic Sturgeon Status Review; (2) delineation of the GOM, NYB, and CB DPSs; (3) identification and consideration of specific threats; (4) conservation efforts for the GOM, NYB, and CB DPSs; and (5) additional comments.

The 2007 Atlantic Sturgeon Status Review

Comment 1: Several commenters expressed concern over the divergence of the proposed listing rule from the status review team's (ASSRT, 2007) listing classification recommendations that the CB DPS and the NYB DPS should be listed as threatened, and that there was not enough information for the GOM DPS to make a listing recommendation. Additionally, some commenters felt that there was insufficient information available to support a divergence from the 1998 negative listing determination for Atlantic sturgeon (63 FR 50187; September 21, 1998), and that the eight reasons given for the negative finding are still applicable today. One commenter stated that the only differences between the 1998 determination and today are increased prevalence of sturgeon and decreased levels of bycatch as compared with 1989-2000 (based on ASMFC, 2007 and Daniel, 2010).

Response: NMFS must rely on the definition of "endangered" and "threatened" species provided in section 3 of the ESA, the implementing regulations, and case law in applying the definitions to marine and anadromous species. Section 3 of the ESA defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range, and a threatened species as one that is likely to become endangered within the foreseeable future. Recent case law (*In Re Polar Bear Endangered Species Act Listing and § 4(d) Rule Litigation*, D.D.C WL 2601604 (June 30, 2011 Order); 748 F.Supp.2d 19 (D.D.C. 2010)) regarding USFWS's listing of the polar bear as threatened provides a discussion of the ESA's definitions of the terms threatened and endangered in the context of the Services' broad discretion and expertise to determine on a case by case basis whether a species is in danger of extinction. Upon listing the polar bear as threatened, USFWS's rule was challenged by a number of parties who claimed that the polar bear was in danger of extinction and should have been listed as endangered, and by others who conversely argued that the bear did not warrant listing even as threatened. The Court determined that neither the ESA nor its legislative history compels the interpretation of "endangered" as a species being in "imminent" risk of extinction, finding instead that the phrase "in danger of extinction" is ambiguous. The Court held that there is a temporal distinction between endangered and threatened species in terms of the proximity of the "danger" of extinction, noting that the definition of "endangered species" is phrased in the present tense, whereas a threatened species is "likely to become" so in the future. Thus, in the context of the ESA, the Services interpret an "endangered species" to be one that is presently at risk of extinction. A "threatened species," on the other hand, is not currently at risk of extinction, but is likely to become so. In other words, a key statutory difference between a

threatened and endangered species is the timing of when a species may be in danger of extinction, either now (endangered) or in the foreseeable future (threatened). The Court concluded, however, that the distinction is not based "solely and unambiguously" on the imminence of the species' anticipated extinction," and that Congress delegated responsibility to the Services to determine whether a species is presently 'in danger of extinction' in light of the five statutory listing factors and the best available science for that species. The Court ruled that although imminence of harm is clearly one factor that the Services weigh in their decision-making process, it is not necessarily a limiting factor. In many cases, the Services might appropriately find that the imminence of a particular threat is the dispositive factor that warrants listing a species as 'threatened' rather than 'endangered,' or vice versa. The Services have broad discretion to decide that other factors outweigh the imminence of the threat. In conclusion, the Court confirmed that the Services have flexibility to determine "endangerment" on a case-by-case basis. Congress did not intend to make any single factor controlling when drawing the distinction between endangered and threatened species, nor did it seek to limit the applicability of the endangered category to only those species facing imminent extinction.

Thus, there is no per se requirement that a species be experiencing current or imminent significant downward trends, or that there are no single historical spawning riverine populations within the DPSs that are relatively abundant and simultaneously regularly-reproducing, in order to be listed as endangered. Our determination that the NYB and CB DPSs are endangered species and the GOM DPS is a threatened species is based on the exercise of our expert professional judgment on the basis of the best available information for each DPS, as was held appropriate in the polar bear listing litigation discussed above. In addition, we agree with the

USFWS' judgment, discussed in its supplemental explanation filed in the polar bear litigation, that to be listed as endangered does not require that extinction be certain, and that it is possible for a species validly listed as "endangered" to actually persist indefinitely.

We determined that the NYB and CB DPSs of Atlantic sturgeon are currently in danger of extinction throughout their range, and the GOM DPS of Atlantic sturgeon is likely to become endangered within the foreseeable future throughout its range, on the basis of low population size and the level of impacts and number of threats such as continued degraded water quality, habitat impacts from dredging, continued bycatch in state and federally-managed fisheries, and vessel strikes to each DPS. Historically, each of the DPSs likely supported more than 10,000 spawning adults (Kennebec River Resource Management Plan 1993; Secor 2002; ASSRT, 2007). The best available data support that current numbers of spawning adults for each DPS are one to two orders of magnitude smaller than historical levels (e.g., hundreds to low thousands (ASSRT, 2007; Kahnle et al., 2007)). A long life-span allows multiple opportunities for Atlantic sturgeon to contribute to future generations, but it increases the timeframe over which exposure to the multitude of threats facing the DPSs can occur. Atlantic sturgeons also demonstrate clinal variation in growth associated with water temperature. For example, Atlantic sturgeons mature in South Carolina river systems at 5 to 19 years (Smith et al., 1982), in the Hudson River at 11 to 21 years (Young et al., 1998), and in the Saint Lawrence River at 22 to 34 years (Scott and Crossman, 1973). Thus, their late age at maturity also provides more opportunities for individual Atlantic sturgeon to be removed from the population before reproducing.

We have determined that for the long-term persistence of Atlantic sturgeon, it is important to have multiple stable riverine spawning populations within each DPS and suitable

habitat to support the various life functions (spawning, feeding, growth) of Atlantic sturgeon. This is best supported by looking at the concept of metapopulations. Generally, each Atlantic sturgeon DPS should be comprised of multiple riverine populations, which is analogous to a metapopulation (i.e., a "population of populations") (Levins, 1969). A metapopulation is a group of spatially separated populations of the same species which interact at some level. Separation into metapopulations is expected by sturgeon and other anadromous fishes, given their likely stepping-stone sequential model of recolonization of northern rivers following post-Pleistocene deglaciation (Waldman et al. 2002).

Metapopulation persistence depends on the balance of extinction and colonization in a static environment (Hanski, 1996). If habitat remains suitable following local extirpation, recolonization via immigrants into now-empty habitat may replace at least some of those losses (Thomas, 1994). However, if the cause of extinction is a deterministic population response to unsuitable conditions (e.g., lack of suitable spawning habitat, poor water quality, or disturbance of substrates through repeated dredging), the local habitat is likely to remain unsuitable after extinction and be unavailable for effective recolonization (Thomas, 1994). Therefore, recolonization is dependent upon both immigration from adjacent, healthy populations and habitat suitability. Because these DPSs are groups of populations, the stability, viability, and persistence of individual populations affects the persistence and viability of the larger DPS. The loss of any population within a DPS will result in: (1) a long-term gap in the range of the DPS that is unlikely to be recolonized, or recolonized only very slowly; (2) loss of reproducing individuals; (3) loss of genetic biodiversity; (4) potential loss of unique haplotypes; (5) potential loss of adaptive traits; and (6) reduction in total number.

In the NYB DPS, there are two known spawning populations – the Hudson and Delaware Rivers. While the Hudson is presumably the largest extant reproducing Atlantic sturgeon population, the Delaware is presumably very small and extremely vulnerable to any sources of anthropogenic mortality. There are no indications of increasing abundance for the NYB DPS (ASSRT, 2009; 2010). There are anecdotal reports of increased sightings and captures of Atlantic sturgeon in the James River, which comprises the only known spawning river for the CB DPS. However, this information has not been comprehensive enough to develop a population estimate for the James River or to provide sufficient evidence to confirm increased abundance. Some of the impact from the threats that facilitated the decline of these two DPSs have been removed (e.g., directed fishing) or reduced as a result of improvements in water quality since passage of the Clean Water Act (CWA). In addition, there have been reductions in fishing effort in state and Federal waters, which most likely would result in a reduction in bycatch mortality of Atlantic sturgeon. Nevertheless, areas with persistent, degraded water quality, habitat impacts from dredging, continued bycatch in state and federally-managed fisheries, and vessel strikes remain significant threats to both the NYB and CB DPSs.

Mixed stock analysis of Atlantic sturgeon collected along the U.S. coast indicates that Atlantic sturgeon occur most prominently in the vicinity of their natal river(s). This means that Atlantic sturgeon of the NYB and CB DPSs will occur most frequently in the coastal environment of the Mid-Atlantic. Bycatch mortality for Atlantic sturgeon is known to occur predominantly in sink gillnet gear (Stein et al., 2004; ASMFC, 2007), and this gear type is used in the monkfish and spiny dogfish fisheries that occur in the Mid-Atlantic. Based on the mixed stock analysis results, a significant number of bycatch interactions occur in the Mid Atlantic

Bight region (see Figure 1), and over 40 percent of these interactions were with fish from the NYB DPS and 20 percent were with fish from the CB DPS. Given that fish from these two DPSs are most likely to occur in the Mid Atlantic Bight region (e.g., in close proximity to their rivers of origin), they are highly susceptible to take as bycatch in fisheries. In accordance with the Magnuson Stevens Fishery Conservation and Management Act (MSA), effort control measures were implemented to address rebuilding of monkfish and spiny dogfish stocks via fishery management plans developed in the late 1990's. Fish from the NYB and CB DPSs likely benefited from these effort control measures, because the amount of sink gillnets in Mid-Atlantic waters was reduced. However, monkfish is no longer overfished, and quota allocations for spiny dogfish have been increased. Therefore, as fish stocks are rebuilt, we anticipate that sink gillnet fishing effort will increase in the Mid-Atlantic. In addition, individual-based assignment and mixed stock analysis of samples collected from sturgeon captured in Canadian fisheries in the Bay of Fundy indicated that approximately 1-2% were from the NYB DPS, and perhaps 1% from the Chesapeake DPS (Wirgin et al., in draft). There are no current regulatory measures to address the bycatch threat to the NYB and CB DPSs of Atlantic sturgeon posed by U.S. Federal fisheries or fisheries that occur in Canadian waters.

Studies have shown that Atlantic sturgeon can only sustain low levels of bycatch mortality (Boreman, 1997; ASMFC, 2007; Kahnle et al., 2007). A recent study also indicated that the loss of only a few adult female Atlantic sturgeon from the Delaware River riverine population as a result of vessel strikes would hinder recovery of that riverine population (Brown and Murphy, 2010). We have concluded that the NYB and CB DPSs are currently at risk of extinction (i.e., are endangered) given the following: (1) both the NYB and CB DPSs are at low

levels of abundance with a limited number of spawning populations within each DPS; (2) both continue to be significantly affected by threats to habitat from continued degraded water quality and dredging in some areas as well as threats from bycatch and vessel strikes; (3) these threats are considered to be unsustainable at present and the threat posed by bycatch is likely to increase in magnitude in the future; and, (4) the lack of existing regulatory mechanisms to adequately address these threats.

While there is only one known spawning population within the GOM DPS (i.e., the Kennebec River), there is possible spawning in the Penobscot River. Additionally, there are indications of increasing abundance of Atlantic sturgeon belonging to the GOM DPS. Atlantic sturgeon continue to be present in the Kennebec River; in addition, they are captured in directed research projects in the Penobscot River, and are observed in rivers where they were unknown to occur or had not been observed to occur for many years (e.g., the Saco River and the Presumpscot River). These observations suggest that abundance of the GOM DPS of Atlantic sturgeon is sufficient such that recolonization to rivers historically suitable for spawning may be occurring.

As is the case for other DPSs, the GOM DPS was significantly affected by a directed fishery in the 1800's (Bigelow and Schroeder, 1953; Kennebec River Resource Management Plan 1993). Industrialization and population expansion during the same time period contributed to the decline in water quality and habitat availability (e.g., construction of dams, contamination of river systems) that likely impacted the GOM DPS as well. Despite these past impacts, the DPS has persisted and is now showing signs of potential recovery (e.g., increased abundance and/or expansion into its historical range). The level of impact from the threats which facilitated

its decline have been removed (e.g., directed fishing) or reduced as a result of improvements in water quality since passage of the CWA; removal of dams (e.g., the Edwards Dam on the Kennebec River in 1999); reductions in fishing effort in state and Federal waters, which may have resulted in a reduction in overall bycatch mortality; and the implementation of strict regulations on the use of fishing gear in Maine state waters that incidentally catch sturgeon. Additionally, when completed, the Penobscot River Restoration Project will provide Atlantic sturgeon with access to all of historical spawning habitat in the Penobscot River.

As indicated by the mixed stock analysis results, fish from the Gulf of Maine DPS are not commonly taken as bycatch in areas south of Chatham, MA (see Figure 1), with only 8 percent (e.g., 7 of the 84 fish) of interactions observed in the Mid Atlantic/Carolina region being assigned to the GOM DPS. Tagging results also indicate that GOM DPS fish tend to remain within the waters of the Gulf of Maine and only occasionally venture to points south.

While still present and still affecting the long term persistence of the fish from the GOM DPS, threats from bycatch and habitat impacts from areas of continued degraded water quality and dredging are not as significant in the Gulf of Maine as in other areas occupied by Atlantic sturgeon. Water quality within the Gulf of Maine has improved significantly over time and unlike in areas farther south, it is very rare to have issues with low dissolved oxygen concentrations (that negatively affect Atlantic sturgeon) in the Gulf of Maine. A significant amount of fishing in the Gulf of Maine is conducted using trawl gear, which is known to have a much lower mortality rate for Atlantic sturgeon. Given the reduced level of threat to the GOM DPS, the anticipated distribution of GOM DPS fish predominantly in the Gulf of Maine, and the positive signs regarding distribution and abundance within the DPS, we concluded that the GOM

DPS is not currently endangered. Effort control measures were implemented to achieve rebuilding of groundfish, monkfish, and spiny dogfish and may have provided some indirect benefit to Atlantic sturgeon from the GOM DPS. However, as fish stocks are rebuilt, we anticipate that sink gillnet fishing effort will increase in the Gulf of Maine. In addition, individual-based assignment and mixed stock analysis of samples collected from sturgeon captured in Canadian fisheries in the Bay of Fundy indicated that approximately 35 percent were from the GOM DPS (Wirgin et al., in draft). There are no current regulatory measures to address the bycatch threat to GOM DPS Atlantic sturgeon posed by U.S. Federal fisheries or fisheries that occur in Canadian waters. As noted previously, studies have shown that Atlantic sturgeon can only sustain low levels of bycatch and other anthropogenic mortality (e.g., vessel strikes) (Boreman, 1997; ASMFC, 2007; Kahnle et al., 2007; Brown and Murphy, 2010). Therefore, despite some management efforts and improvements, we concluded that the GOM DPS is at risk of becoming endangered in the foreseeable future throughout all of its range (i.e., is a threatened species) based on the following: (1) the persistence of some degree of threat from bycatch and habitat impacts from continued degraded water quality and dredging in some areas; (2) the likelihood of increased impact from existing threats; and, (3) the lack of measures to address these threats.

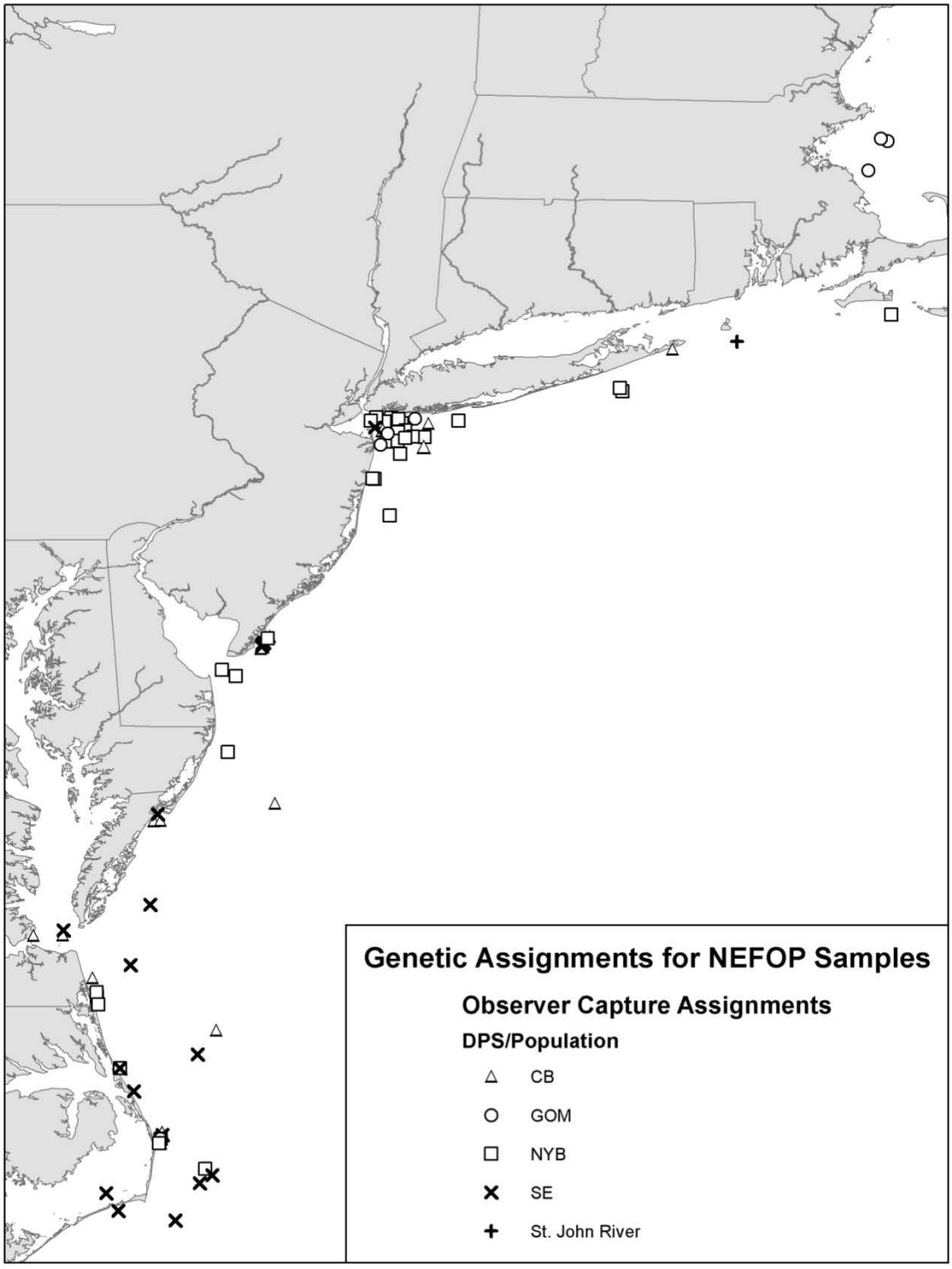

Figure 1: Map of Atlantic Sturgeon, by DPS, Genetically Sampled Through the NEFOP

In response to comments about divergence from the status review's listing recommendations for the NYB, CB, and GOM DPSs, NMFS' Protected Resources Divisions have the responsibility to make listing recommendations to the Assistant Administrator. Status review reports are an important part of the information base for such recommendations, but NMFS must independently review the information in status review reports and apply the ESA's listing determination requirements in accordance with regulations, case law, and agency guidance. The Atlantic Sturgeon Status Review Report states that "risks of extinction assessments are performed to help summarize the status of the species, and do not represent a decision by the Status Review Team on whether the species should be proposed for listing as endangered or threatened under the ESA" (page 106; ASSRT, 2007). Subsequent to the status review report, we conducted a comprehensive assessment of the combined impact of the five ESA section 4(a)(1) factors across each entire DPS in classifying extinction risk. We focused on evaluating whether the DPSs are presently in danger of extinction, or whether the danger of extinction is likely to develop in the future. In our proposed rules to list 5 DPSs of Atlantic sturgeon, we determined that each DPS was at greater risk of extinction than concluded in the 2007 status review report. In addition, because of the lapse in time between the development of the status review report (ASSRT, 2007) and the publication of the proposed listing rule (75 FR 61904, October 6, 2010), new information on bycatch (ASMFC, 2007) and water quality (USEPA, 2008) became available to us, and we incorporated this information into our listing determinations.

Since publication of the proposed rules, a Federal District Court has considered the definitions of threatened and endangered species in the ESA and issued an opinion regarding

their interpretation, as discussed above (*In re. Polar Bear Endangered Species Act Litigation*). Prompted by this decision and the comments received requesting further explanation of the divergence of our proposed listing statuses and the conclusions of the ASSRT, we have reviewed our determinations and concluded that all of the proposed listings of specific DPS's as "threatened species" or "endangered species", respectively, satisfy the requirements of the relevant ESA definitions. Thus, we have not changed these classifications in the final rules. We found that four DPSs of Atlantic sturgeon meet the definition of an endangered species because they are presently in danger of extinction, and thus, listing them as endangered is warranted. These DPSs are the NYB, CB, Carolina, and South Atlantic DPSs. We further determined that the GOM DPS meets the ESA's definition of a threatened species, because while it is not currently in danger of extinction, it is likely to become so in the foreseeable future.

In 1998, the Services determined that an ESA listing of Atlantic sturgeon was not warranted (63 FR 50187; September 21, 1998). The Services cited eight reasons for the negative determination at that time: (1) evidence that the historical 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 mortality; (7) existing regulatory

mechanisms that provide adequate protection and further the conservation of the species; and (8) lack of information indicating that artificial propagation is currently posing a threat to the species.

The proposed listing rule (75 FR 61872; October 6, 2010) discussed that bycatch, which was identified as the primary risk to the persistence of Atlantic sturgeon in the Northeast Region, is not adequately regulated and is contributing to the lack of recovery of Atlantic sturgeon populations. Furthermore, at the time of the 1998 determination, the ASMFC moratorium on retention of Atlantic sturgeon had recently gone into effect. Because this eliminated directed fishing for Atlantic sturgeon, which was the primary known threat to the existence of the species at that time, the Services weighed this heavily in the decision not to list the species in 1998. NMFS followed this with the 1999 closure of the EEZ to fishing for Atlantic sturgeon. However, since implementation of the moratorium, additional bycatch information (Stein et al., 2004; ASMFC, 2007) became available indicating that Atlantic sturgeon are vulnerable to bycatch in commercial fisheries, and that the current rate of bycatch is unsustainable in the long term (ASMFC, 2007).

Comment 2: Comments from the New Jersey Department of Environmental Protection, Division of Fish and Wildlife stated that in 2006, the Division's biologists employed an expert opinion-based technique (the Delphi technique) to determine the status of Atlantic sturgeon in New Jersey state waters (Jenkins and Bowers-Altman, 2007). Expert opinion and data were shared to try to reach consensus (defined as 85 percent or greater) on the species status of either endangered, threatened, special concern, stable/secure, undetermined, no opinion or not applicable. For this process, "endangered" was defined as applying to species whose prospects

for survival within the state are in immediate danger due to one or several factors, such as loss or degradation of habitat, overexploitation, predation, competition, disease or environmental pollution, etc. (i.e., an endangered species likely requires immediate action to avoid extinction within New Jersey). A "threatened" species was defined as a species that may become endangered if conditions surrounding it begin to or continue to deteriorate (i.e., a threatened species is one that is already vulnerable as a result of small population size, restricted range, narrow habitat affinities, significant population decline, etc.). Although consensus was not achieved for assigning Atlantic sturgeon species status using the Delphi technique, final votes were divided between endangered and threatened, with three more reviewers voting for the threatened status.

Response: We appreciate the information provided. However, a listing of "endangered" or "threatened" under state law for a species within state jurisdiction does not equate to a listing of "endangered" or "threatened" under the ESA. As described in response to Comment 1, above, recent case law (Ctr. for Biological Diversity, et al. v. Salazar, et al., No. 08-2113; State of Alaska v. Salazar, et al., No. 08-1352; Safari Club Int'l, et al. v. Salazar, et al., No. 08-1550; California Cattlemen's Ass'n, et al. v. Salazar, et al., No. 08-1689; Conservation Force, et al. v. Salazar, et al., No. 09-245) supports that Congress did not intend to make any single factor controlling when drawing the distinction between endangered and threatened species, nor did it seek to limit the applicability of the endangered category to only those species facing imminent extinction.

The Atlantic sturgeon status review team did use an approach comparable to the Delphi technique (see ASSRT, 2007, and Patrick and Damon-Randall, 2008 for a detailed description),

and after completing their assessment, found that the NYB, CB, and Carolina DPSs of Atlantic sturgeon were at risk of becoming endangered within the foreseeable future (i.e., a "threatened" species as defined under the ESA). However, as described in response to Comment 1, while we considered and relied heavily on the biological information in the 2007 status review report, we independently reviewed the information in the status review report as well as new information on bycatch (ASMFC, 2007) and water quality (USEPA, 2008), and applied the ESA's listing determination requirements in accordance with regulations, case law and agency guidance. We thus concluded that the NYB and CB DPSs warranted listing as endangered, and the GOM DPS warranted listing as threatened.

Comment 3: Numerous comments were submitted with respect to the lack of abundance data for Atlantic sturgeon as well as our reliance on the Kahnle et al. (2007) estimate for the Hudson River, which is based on data collected from 1985-1995 when there was still a directed fishery for Atlantic sturgeon in the Hudson River estuary. The commenters oppose listing until abundance data are available and encourage new or continued research to acquire this information in lieu of a listing determination at this time.

Response: As was noted in the status review report (ASSRT, 2007) and the proposed listing rule, only two abundance estimates are available for Atlantic sturgeon riverine populations - one, for the Hudson River and one for the Altamaha River. The Hudson River riverine population was estimated to have 870 spawning adult Atlantic sturgeon per year based on data collected from 1985-1995 when a directed Atlantic sturgeon fishery was on-going (Kahnle et al., 2007). The Altamaha River riverine population was estimated to have 343 spawning adult Atlantic sturgeon per year based on more recent scientific research studies

(Schueller and Peterson, 2006).

Information was provided in the proposed rule that explained the caveats associated with the Kahnle et al. (2007) estimate for the Hudson River. Specifically, the accuracy of the estimate may be affected by bias in the reported harvest or estimated exploitation rate for that time period (Kahnle et al., 2007). Underreporting of harvest would have led to underestimates of stock size, while underestimates of exploitation rates would have resulted in overestimates of stock size (Kahnle et al., 2007). Therefore, the estimate may be either higher or lower than the actual number of spawning adults per year in the Hudson River during the 1985-1995 timespan. As stated in the proposed rule, we do not consider the Kahnle et al. (2007) estimate to be an estimate for the entire riverine population given that: (1) the estimate is for spawning adults only; (2) mature Atlantic sturgeon may not spawn every year (Vladykov and Greeley, 1963; Smith, 1985; Van Eenennaam et al., 1996; Stevenson and Secor, 1999; Collins et al. 2000; Caron et al., 2002); and, (3) it is unclear to what extent mature fish in a non-spawning condition occur on the spawning grounds (Vladykov and Greeley, 1963).

Having received a petition and subsequently finding that there was substantial scientific and commercial information indicating that listing Atlantic sturgeon may be warranted (75 FR 838; January 6, 2010), we are required to use the best scientific and commercial data available to determine whether Atlantic sturgeon should be listed under the ESA because of any of the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence (section 4(a)(1)(A)(E)), and

after taking into account efforts being made to protect the species. We are required to make a determination within 1 year of receipt of a petition. The best available information indicates that all riverine populations of Atlantic sturgeon in the Northeast Region are at reduced levels from those reported historically, and are being exposed to significant threats that are ongoing and not being adequately addressed.

Under section 4(c)(2) of the ESA, we are required to evaluate the listing classification of a species every 5 years. New, relevant scientific and commercial information should be considered during the 5-year evaluation process. Should new abundance data become available to indicate that the listing classification warrants changing, we would complete a thorough review of the best available data and proceed with any rulemaking as appropriate.

Comment 4: The State of Maine, Department of Marine Resources cautioned that differences in catch-per-unit-effort for subadult and adult Atlantic sturgeon in the Kennebec River over two time periods may not be directly comparable since the areas sampled during the two time periods were not similar. The selection of the sampling location during the first time period likely resulted in an underestimate of catch-per-unit-effort since fall sampling included areas where Atlantic sturgeon do not congregate at that time of year.

Response: In this final rule we have revised the description of available abundance information for the GOM DPS to reflect the information submitted.

Comment 5: One commenter felt that NMFS did not provide evidence of decreasing population abundance in the Chesapeake Bay DPS, and that abundance in other DPSs appears to be stable or increasing. We received several comments that the James River Atlantic sturgeon riverine population is increasing based on increased catches of sturgeon in the river by

researchers and an increase in the number of Atlantic sturgeon unintentionally caught in commercial fishing gear. Several comments pointed to NMFS statements in the proposed rule and newspaper accounts that sturgeon are expanding in areas where they have historically never been.

Response: We noted in the proposed rule that increasing numbers of Atlantic sturgeon are being observed in the James River (Garman and Balazik, unpub. data in Richardson et al., 2009). Similarly, we noted that Atlantic sturgeons are being observed in increasing numbers in the Kennebec River, Saco River, and the Merrimack River estuary. However, given the extensive mixing of Atlantic sturgeon from the five DPSs and Canada, genetic analysis is needed to identify whether and to what extent any reported increase in abundance within 'mixing areas' is the result of increased abundance of the nearest spawning population or the result of increased abundance or movement of one or more of the other DPSs.

Based on the best available information, we cannot determine whether the observations reflect actual increases in abundance. Directed sampling for Atlantic sturgeon has been limited in duration, intensity, and continuity. While the reports of increased sightings are encouraging, given the limited information, we cannot determine whether the increased sightings and/or captures are indicative of: (1) an increase in abundance of any one particular riverine population; (2) an increase in abundance of all Atlantic sturgeon riverine populations; or (3) an artifact of increased or improved sampling? Even relatively slight changes in sampling methodology can account for substantial differences in capture success of Atlantic sturgeon. For example, the Maine Department of Marine Resources has provided information on differences in sampling times and areas that likely account for perceived but not actual changes in abundance during two

sampling time periods (see Comment 4).

While it may be possible that some Atlantic sturgeon riverine populations are experiencing some increase in abundance, they remain at significantly reduced abundance levels compared to historical levels; and, factors such as bycatch mortality, vessel strikes, water quality and habitat destruction are keeping them at reduced levels despite the fishing moratorium and other protective efforts. Long-term, continuous, standardized studies of Atlantic sturgeon abundance (including genetic analysis to differentiate between sturgeon) are needed. We are funding several studies of Atlantic sturgeon within the riverine range of the CB, NYB, and GOM DPS to better assess abundances of Atlantic sturgeon riverine populations.

Comment 6: One commenter questioned NMFS' proposed listing of the NYB DPS as endangered and noted NMFS' statement from the proposed listing rule in regard to the Hudson River abundance estimate that "The current number of spawning adults may be higher given that the estimate is based on the time period prior to the moratorium on fishing for and retention of Atlantic sturgeon" (page 61881, 75 FR 61872; October 6, 2010).

Response: In the proposed rule we relied on the best available data, which included the existing population estimate for the Hudson of 870 spawning adults per year (Kahnle et al., 2007). We provided context for this estimate and indicated that it does not represent an estimate of the total number of adults in the riverine population, since mature Atlantic sturgeon may not spawn every year (Vladykov and Greeley, 1963; Smith, 1985; Van Eenennaam et al., 1996; Stevenson and Secor, 1999; Collins et al., 2000; Caron et al., 2002), and it is unclear to what extent mature fish in a non-spawning condition occur on the spawning grounds. The accuracy of the estimate may also be affected by bias in the reported harvest or estimated exploitation rate for

that time period (Kahnle et al., 2007). Underreporting of harvest would have led to underestimates of stock size, while underestimates of exploitation rates would have resulted in overestimates of stock size (Kahnle et al., 2007). In addition to these caveats, as the commenter indicates, we noted in the proposed rule that the current number of spawning adults may be higher given that the estimate is based on commercial fisheries data collected 16-26 years ago and prior to the moratorium on fishing for and retention of Atlantic sturgeon. This information was provided to further clarify why the estimate of 870 spawning adults per year (Kahnle et al., 2007) could not be used to generate a total abundance estimate for the current Hudson River riverine population of Atlantic sturgeon.

The Kahnle et al. estimate does, however, provide a benchmark of the number of spawning adults per year for the Hudson River prior to the moratorium on fishing for Atlantic sturgeon. Kahnle et al. (2007) also showed that the level of fishing mortality from the Hudson River Atlantic sturgeon fishery during the period of 1985-1995 exceeded the estimated sustainable level of fishing mortality for the riverine population. Information on catch-per-unit-effort of juvenile Atlantic sturgeon in the Hudson River estuary from 1985-2010 suggest that recruitment has declined since the mid-1980's and remains depressed relative to catches of juvenile Atlantic sturgeon in the estuary during the mid-late 1980's (Sweka et al., 2007; ASMFC, 2010).

Comment 7: Some commenters noted that while NMFS recognized that the abundance data cited for the Hudson River (Kahnle et al., 2007) may underestimate current conditions, no mention was made of an updated report, Kahnle et al., (in press), titled "Status of Atlantic sturgeon of the Hudson River estuary", published by the American Fisheries Society.

Response: The report, "Kahnle et al. (in press)," was referenced in the Atlantic sturgeon status review report, and is the same as Kahnle et al. (2007) since publication of the report occurred after the status review report was made available. The full citation for the report is as follows: Kahnle, A.W., K.A Hattala, and K.A. McKown. 2007. Status of Atlantic sturgeon of the Hudson River estuary, New York, USA. American Fisheries Society Symposium 56:347-363.

Comment 8: Some commenters recommended that Atlantic sturgeon be listed only in areas where they are rare, and that the listing not apply to areas where many sturgeons are known to be found.

Response: To be considered for listing under the ESA, a group of organisms must constitute a "species." A "species" is defined in section 3 of the ESA to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." Given the ESA's definition of "species", if Atlantic sturgeons are found to comprise multiple DPSs, it is possible to list some but not all DPSs if such a listing is warranted. Such was the case for green sturgeon on the U.S. West Coast where the southern DPS of green sturgeon is listed as threatened, and the northern DPS of green sturgeon is not listed under the ESA (71 FR 17757, April 7, 2006). Once listed, the species retains that listing status wherever it is found, and all persons within U.S. jurisdiction must comply with the protective regulations of the ESA for that listed species. Based on our review of the best available data, we determined that all U.S. DPSs of Atlantic sturgeon warrant listing under the ESA.

Comment 9: A commenter stated that the lack of recent abundance estimates does not

allow NMFS to evaluate the efficacy of the coastwide moratorium and expressed concern that NMFS has not allowed enough time to pass, nor collected enough data since 1998 to adequately conclude whether the moratorium alone has served to prevent the species from further decline.

Response: We would like to have had recent and complete abundance information for each DPS prior to making a final determination. However, we must comply with the statutory and regulatory requirements that we make a finding within a specified timeframe and use the best scientific and commercial data currently available in making this finding.

The objective of the coastwide moratorium is to restore Atlantic sturgeon abundance to a level at which each riverine population contains 20 consecutive year classes of females. The exact time that this will take is unknown but is expected to range from 20-40 years given Atlantic sturgeon's generation time. At a workshop in 2003, "Status and Management of Atlantic Sturgeon", Atlantic sturgeon experts met to discuss the status of the species and identify any threats that might be impeding recovery. Because participants of the workshop were concerned that some populations were continuing to decline, a status review was initiated. As described in the status review report (ASSRT, 2007) the abundance of Atlantic sturgeon spawning populations is far below historical levels, some spawning populations have likely been extirpated (i.e., no longer exist), and most DPSs have only one or two spawning populations. There are threats to each DPS that are not being adequately addressed, and at least some could have a greater effect on Atlantic sturgeon in the foreseeable future (e.g., changes in fishing practices resulting in higher Atlantic sturgeon bycatch, changes to major ports resulting in more and/or larger ships where vessel strikes are known to occur). Based on the review of the information, the status review team concluded that at least three Atlantic sturgeon DPSs

warranted listing under the ESA. As described in the proposed rule, additional information on threats was received after completion of the status review report. Our evaluation of this information indicates that the moratorium on directed fisheries has not and will not be sufficient to address the impacts that are preventing sturgeon populations from recovering (including bycatch, habitat degradation, and vessel strikes).

In January 2010, we determined that a petition to list Atlantic sturgeon presented substantial information indicating that the requested listing actions may be warranted (75 FR 838). Once such a finding is made, we are required by regulation to comply with specific timeframes. Specifically, we were required (50 CFR 424.14(B)(3)) to determine within 12 months of receipt of the petition whether listing is warranted and publish in the Federal Register either a proposed rule to list or a notice that listing is not warranted. Since we determined that listing the five Atlantic sturgeon DPSs was warranted and published proposed rules to that effect (75 FR 61872 and 75 FR 61904; October 6, 2010), we are required to make a final determination on the proposed listing within 1 year of publication of the proposed rule. Therefore, we are required to make a final listing determination for the GOM, NYB, and CB DPSs no later than October 6, 2011, unless there is substantial disagreement among scientists knowledgeable about the species concerned regarding the sufficiency or accuracy of the available data relevant to the determination, in which case we could have extended the timeframe for making the final listing determination by up to 6 months (50 CFR 424.17(a)(1)(iv)). Information provided during the public comment period on the proposed rule did not indicate that such substantial disagreement exists. Thus, we were required to comply with the statutory requirement to publish a final determination by October 6, 2011. However, additional time was necessary given the

complexity of ensuring consistency between the two rules that address listing of the five DPSs of Atlantic sturgeon.

Delineation of the GOM, NYB, and CB DPSs

Comment 10: One commenter felt that instead of having five individual DPSs, we should list the whole population as one entity. The commenter added that it would be simpler for NMFS and the Federal agencies engaging in ESA section 7 consultations.

Response: If the species were listed as one entity, the section 7 consultation process would likely be simpler to conduct given that there is substantial mixing throughout the marine range of Atlantic sturgeon. However, we found that discrete and significant population segments of Atlantic sturgeon exist, as defined in Services' joint DPS Policy (61 FR 4722; February 7, 1996), and have decided to list the species as DPSs. Regardless of how the entities are listed, consultations under section 7 will follow the same process and will apply the same standards.

For purposes of section 7, Federal agencies proposing to take an action will need to describe the effects of the proposed action on each of the Atlantic sturgeon DPSs that are likely to occur within the action area. We, as the consulting agency, will need to consider whether the proposed action is likely to jeopardize the continued existence of any of the Atlantic sturgeon DPSs that occur within the action area, provide an incidental take statement, and monitor the take of Atlantic sturgeon by DPS as a result of the proposed action. We acknowledge that this will be difficult given the complexity of Atlantic sturgeon life history and available information. However, while this issue may add complexity, at least temporarily, to consultations, we have determined that the identified DPSs warrant listing under the ESA. Furthermore, information is available to help us and other Federal agencies to address the section 7 requirements. Such

information includes genetic information from a mixed stock analysis of Atlantic sturgeon captured in marine waters from Canada to North Carolina. Genetic analyses of additional Atlantic sturgeon tissue samples are in progress to improve our understanding of the extent of DPS mixing in the marine environment. The results of the additional analyses will be available by spring 2012.

Comment 11: A commenter representing a group of fishermen stated that the data used in formulating the proposed listing of the NYB DPS as endangered are flawed and incomplete. Specifically, the commenter asserts that no mention is made of Wirgin et al., 2007, which provides information indicating that the genetic structure of sturgeon populations in the Hudson River and Delaware River are distinct. Nor did we note the statements made in Grunwald et al., 2008, with respect to statements made in Sweka et al. 2007, that there was evidence of increasing Atlantic sturgeon recruitment in the Hudson River since the fishery closure in 1996. The conclusions reached by these scientists support that the Hudson River riverine population and the Delaware River riverine population must be viewed as distinct and given separate risk analyses.

Response: We disagree with the commenter. The word "distinct" as commonly used is not synonymous with the phrase "distinct population segment". A vertebrate population that is, in layman's terms, distinct from another is not necessarily a "distinct population segment". The DPS Policy (61 FR 4722; February 7, 1996) describes how we will interpret the term "distinct population segment" for the purposes of listing, delisting, and reclassifying vertebrates under the ESA. While genetic differences between Atlantic sturgeon originating in the Delaware and Hudson Rivers have been detected, and while there are likely differences in abundance, the Hudson and Delaware River riverine populations of Atlantic sturgeon meet the criteria for listing

as a single DPS.

As described in the proposed listing rule (75 FR 61872), genetic analyses for Atlantic sturgeon using mitochondrial DNA (mtDNA), which is maternally inherited, and nuclear DNA (nDNA), which reflects the genetics of both parents, have consistently shown that Atlantic sturgeon riverine populations are genetically diverse and that individual riverine populations can be differentiated (Bowen and Avise, 1990; Ong et al., 1996; Waldman et al., 1996a; Waldman et al., 1996b; Waldman and Wirgin, 1998; Waldman et al., 2002; King et al., 2001; Wirgin et al., 2002; Wirgin et al., 2005; Wirgin and King supplemental data, 2006; Grunwald et al., 2008). The results of Wirgin et al. (2007) are consistent with the studies cited in the proposed listing rule. However, genetic discreteness alone does not qualify a population as a DPS. In evaluating whether the test for discreteness has been met under the DPS policy, we allow but do not require genetic evidence to be used (DPS policy at page 4723), and the measures of both discreteness and significance must be met for a vertebrate population to be recognized as a DPS (DPS policy at page 4724).

Nothing in the DPS policy points to differences in abundance as a reason for or against delineating DPSs. For clarification, Grunwald et al. (2008) incorrectly cited the source for the information on juvenile abundance in the Hudson River as Sweka et al. (in press) (subsequently published as Sweka et al., 2007). The source of this information on juvenile abundance is the New York State Department of Environmental Conservation 2004 annual compliance report to the ASMFC for Atlantic sturgeon (NYSDEC, 2005). The 2010 ASMFC Annual Report provides an update of catch-per-unit-effort of juvenile Atlantic sturgeon in the Hudson River estuary between 1996 and 2004. As described in NYSDEC (2005), catch-per-unit-effort was

slightly higher in 2004 compared to 1996 but has remained relatively unchanged since 2004 (ASMFC, 2010).

Comment 12: Commenters felt that the genetic analyses used to support the discreteness of the NYB DPS were not accurate, because genetic samples for the Delaware River riverine population used in these analyses were collected from subadult fish in the Delaware Bay. Subadult fish that are non-natal to the Delaware River are known to occur in the Delaware Bay.

Response: Genetic analyses used in determining the DPS structure for Atlantic sturgeon did not include analysis of samples from subadult fish, because subadults are known to travel widely and enter estuaries of non-natal rivers. New analyses of both mitochondrial DNA, which is maternally inherited, and nuclear DNA, which reflects the genetics of both parents, were conducted specifically for the status review. In comparison to previous studies, the genetic analyses used in the DPS analysis used larger sample sizes from multiple rivers, and limited the samples analyzed to those collected from young-of the-year and mature adults (> 130 cm total length (TL)) to ensure that samples represented fish originating from the particular river in which it was sampled (King, Supplemental data. 2011; Wirgin and King supplemental data, 2006; ASSRT, 2007).

Comment 13: One commenter also questioned the analysis we used to support grouping the Hudson River and Delaware River riverine populations into the same DPS as it relates to the significance criterion in our DPS Policy. The commenter asserted that while there are many similarities between the Hudson and Delaware watersheds, there are also sufficient differences between the watersheds to produce distinct genetic adaptations to each watershed, and that combining the Hudson and Delaware riverine populations into the same DPS dismisses the

unique genetic lineage of the Delaware River riverine population. In addition, some benthic habitat categorizations based on The Nature Conservancy's marine ecoregions for U.S. Atlantic coastal waters can be used to place the waters off of New York and Delaware into separate habitat groups. The commenter also noted that the argument under the significance criterion that loss of the NYB DPS would create a significant gap in the range of the species could be applied to any grouping of populations of Atlantic sturgeon and is therefore meaningless. Similarly, the commenter stated that the argument that the DPS represents the only surviving natural occurrence of a taxon that may be found more abundantly elsewhere could also be applied to any geographic grouping.

Response: We agree that the Hudson River and Delaware River riverine populations are genetically distinguishable. The proposed rule described four factors cited in the DPS Policy that could be considered when evaluating populations under the significance criterion of the policy. These four factors are: (1) persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon; (3) evidence that the DPS represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range; or, (4) evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics. We used evidence of persistence of the discrete population segment in an ecological setting unusual or unique for the taxon, and evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon for identifying the Atlantic sturgeon DPSs, including the NYB DPS. We did not present any evidence that any of the DPSs represents the only

surviving natural occurrence of a taxon that may be more abundant elsewhere.

We evaluated whether the five discrete populations we identified persist in ecological settings unique for the taxon by comparing the area encompassing the present or historical spawning range of each discrete population with the terrestrial ecoregions identified by The Nature Conservancy. We used the terrestrial ecoregions rather than the Nature Conservancy marine ecoregions because the terrestrial ecoregions included rivers in which Atlantic sturgeon spawn. Since the separation of Atlantic sturgeon to different spawning rivers accounts for the differences in genetic variation observed among the discrete populations, we focused on whether spawning rivers represented unique ecological settings versus evaluating the uniqueness of the coastal marine areas where Atlantic sturgeon originating from different rivers can co-occur.

We also considered whether the loss of any of the DPSs would create a significant gap in the range of the taxon. The loss of the discrete population which is comprised of the Hudson River and Delaware River riverine populations would create a gap in known Atlantic sturgeon spawning rivers from the Kennebec River, Maine to the James River, Virginia. Genetic data support the idea that the straying of individuals from the Kennebec River to the James River or vice versa for spawning is unlikely to occur. Therefore, the loss of the NYB DPS would be significant.

Comment 14: Several commenters questioned the proposal to list the CB DPS of Atlantic sturgeon as endangered. Some commenters felt that this DPS warrants listing as threatened, and others recommended no listing at all under the ESA. We received several comments that the James River Atlantic sturgeon riverine population is increasing based on increased catches in the river. One commenter reported that Virginia Commonwealth University

researchers have interacted with 87 different spawning adult Atlantic sturgeon on the James River and noted increasing numbers of Atlantic sturgeon (from two in 2007 to 34 in 2010) while gill netting in the James River near the confluence with the Appommattox River. Other commenters pointed to anecdotal reports of increased interactions in commercial fisheries, as well as the work of other Virginia researchers who have also documented capture of a very large number of sturgeon from 1997 to the present (see Spells, 1998). Commenters also pointed to the presence of sturgeon in tributaries of the York River, the potential presence of a spawning population in the York River, the likelihood that the threats identified in the proposed rule would remain the same or decrease as a result of current measures (e.g., temporal dredging restrictions, the recently published Total Maximum Daily Load measures for the Chesapeake Bay), and the discovery of summer holding areas in the James River and possibly the Mattaponi River.

Response: While these reports are encouraging, this perceived increase in abundance may not reflect an actual increase in abundance for the CB DPS; several reasons for this are discussed further in our response to Comment 5 above. Additionally, no data have been provided to suggest that the increased catch consisted entirely of Atlantic sturgeon from the CB DPS. The Chesapeake Bay and tributaries are known to be a mixing zone for Atlantic sturgeon of multiple DPSs (ASSRT, 2007). Without genetic analyses or other identifying information (e.g., tags), it is not possible to attribute increases in the catch of non-spawning adults to an increase in abundance of a particular DPS or riverine population. The proposed listing rule did note that increasing numbers of Atlantic sturgeon are being observed in the Chesapeake Bay area (Garman and Balazik, unpublished data in Richardson et al., 2009). These fish may originate from the James River; however, the data do not allow us to make any conclusions regarding the

origin of the fish. Richardson et al. (2009) went on to say that the Chesapeake Bay DPS remained severely depleted, and that little information exists on sturgeon behavior, movements, and reproduction in the Chesapeake Bay. The status review team acknowledged that spawning may be occurring in the York River (ASSRT, 2007), and the proposed rule likewise stated that spawning is suspected to occur in the York River.

We acknowledge, as stated in the proposed rule, that the Commonwealth of Virginia imposes a dredging moratorium during the spawning season for anadromous fish species in the James River, and that waivers to this restriction are only granted in very limited circumstances (e.g., studying the impacts of dredging on sturgeon). However, there remains the potential for habitat degradation as a result of dredging operations, and for Atlantic sturgeon to be taken in dredging operations that occur outside of the spawning season restriction period. With respect to water quality, the Total Maximum Daily Load for Nitrogen, Phosphorous, and Sediments (USEPA, 2010) should contribute to the trend of improving water quality that has been reported for the Northeast Coast in general (USEPA, 2008), and add to initiatives that are already in place to improve water quality within the Chesapeake Bay (Executive Order, May 12, 2009; NOAA's Chesapeake Bay Protection and Restoration Final Strategy, 2010). Nevertheless, the extensive watersheds of this area funnel nutrients, sediment, and organic material into secluded, poorly flushed estuaries that are more susceptible to eutrophication (USEPA, 2008). Using a multivariable bioenergetics and survival model, Niklitschek and Secor (2005) demonstrated that within the Chesapeake Bay, a combination of low dissolved oxygen, water temperature, and salinity restricts available Atlantic sturgeon habitat to 0-35 percent of the Bay's modeled surface area during the summer.

Comment 15: Some commenters disagreed with the proposed listing determination for the NYB DPS, and felt that the best available information indicates that the DPS should be listed as threatened. Specifically, the commenters felt that evidence of spawning in the Delaware River, increasing returns from the New Jersey Ocean Assessment Trawl from 2001-2008, and increases in juvenile and adult Atlantic sturgeon abundance in the Hudson River indicate that the status of the NYB DPS is improving. Additionally, commenters felt that the threat of bycatch was overstated in the proposed listing rule, impacts from climate change are uncertain and were inadequately explained in the proposed listing rule, and that a listing is not likely to result in the ability to reduce ship strikes in the Delaware River. One commenter also felt that if the DPS were listed as threatened, NMFS should provide a 4(d) exemption for scientific research that follows recently published research protocols (Damon-Randall et al., 2010), as the Agency's attention would be better focused on managing threats to the species.

Response: In making a listing determination for the NYB DPS, we considered that the Delaware River was a spawning river for Atlantic sturgeon. We determined that the NYB DPS of Atlantic sturgeon was currently in danger of extinction on the basis of precipitous declines to population sizes that are unstably low, the protracted period in which sturgeon populations have been depressed, the limited amount of current spawning, and the impacts and threats that have and will continue to prevent population recovery.

With respect to other information suggesting increases in abundance of Atlantic sturgeon, we refer to the response for comment 5. We have not received any new information to show that there is an increasing abundance of juvenile and/or adult Atlantic sturgeon in the Hudson River. Information on catch-per-unit-effort of juvenile Atlantic sturgeon in the Hudson River estuary

from 1985-2010 suggest that recruitment has declined since the mid-1980's and remains depressed relative to catches of juvenile Atlantic sturgeon in the estuary in the mid-late 1980's (Sweka et al., 2007; ASMFC, 2010). As described above, identifying information (e.g., genetic data or tags) is necessary to determine whether sturgeon abundance in mixing areas is attributable to a particular DPS.

We disagree with the comments that bycatch was overstated in the proposed rule as a threat to the DPSs. While the most recent bycatch report for Atlantic sturgeon (ASMFC, 2007) suggests a level of bycatch mortality that is less than what was reported by Stein et al., 2004, the levels of bycatch mortality in sink gillnet gear are still high and unsustainable based on modeling of anthropogenic mortality for Atlantic sturgeon (Boreman 1997, ASMFC, 2007; Kahnle et al., 2007; Brown and Murphy, 2010). In addition, reported levels of bycatch mortality are expected to be a minimum of what is actually occurring since some fish may be released alive but later die, and some bycatch mortality may be unreported.

We agree with the commenter that the extent of impacts from climate change is uncertain. Expected environmental effects from climate change, according to the latest report from the Intergovernmental Panel on Climate Change (IPCC), include higher water temperatures and changes in extreme weather events, including floods and droughts, that are projected to affect water quality and exacerbate many forms of water pollution, including sediments, nutrients, dissolved organic carbon, pathogens, pesticides, and salt, as well as thermal pollution, with possible negative impacts on ecosystems, human health, and water system reliability and operating costs. Changes in water quality (e.g., temperature, salinity, dissolved oxygen, contaminants) have the potential to impact Atlantic sturgeon riverine populations using impacted

river systems. Although these effects are expected to be more severe for southern portions of the U.S. range of Atlantic sturgeon, low dissolved oxygen levels from eutrophication have impacted systems throughout the range of the species, and recent water quality improvements (including increases in dissolved oxygen such as those noted for the Delaware River) indicate that even northern riverine populations of Atlantic sturgeon could be impacted by degraded water quality as a result of climate change. Simulations conducted by Niklitschek and Secor (2005), predicted that a 1°C increase of water temperature in the Chesapeake Bay would decrease the amount of available Atlantic sturgeon habitat by 65 percent.

Vessel strikes are a significant threat to the species in certain portions of its range (e.g., the Delaware River and the James River). Thus, it is appropriate to consider vessel strikes when determining the ESA listing status of Atlantic sturgeon. We agree that vessel strikes of Atlantic sturgeon are a challenging problem given the limited information of how, where, and when the strikes occur. However, the ESA provides tools for addressing threats to ESA-listed species, including funding of research initiatives, use of existing Federal authorities in accordance with section 7(a)(1), consultation with Federal agencies in accordance with section 7(a)(2), as well as public awareness and outreach with state agencies and non-Federal partners. We will use these tools to address the problem of vessel strikes of Atlantic sturgeon in the Delaware River and elsewhere within its range.

All of the prohibitions listed under section 9(a)(1) of the ESA apply automatically when a species is listed as endangered but not when listed as threatened. In the case of a species listed as threatened, section 4(d) of the ESA requires the implementation of measures deemed necessary and advisable for the conservation of species. We have proposed measures in accordance with

section 4(d) for the GOM DPS (76 FR 34023; June 10, 2011). The proposed 4(d) regulations for the GOM DPS include an exception for certain scientific research conducted within the river range of the DPS when the research followed NMFS-approved research protocols (e.g., Damon-Randall et al., 2010; Kahn and Mohead, 2010). If other DPSs were listed as threatened, we would likewise consider what measures were necessary for the conservation of the species, including any exceptions to those measures (e.g., for scientific research).

Comment 16: Some commenters felt that listing the NYB DPS should be expedited due to several projects that could imminently place the species at risk of extinction. Other commenters felt that the Delaware River should be listed as its own DPS, and on an emergency basis, with the entire Delaware River Estuary designated as critical habitat. The commenters cited several projects that could occur in 2011 and that have the potential to cause the extirpation of the Delaware River riverine population. The projects that commenters felt necessitated an emergency listing included the: (1) Delaware Deepening project; (2) Southport River fill project; (3) airport expansion project; (4) natural gas drilling in the Upper Delaware River and the Schulykill River; and, (5) LNG Crown Point project.

Response: We considered whether the Delaware River riverine population of Atlantic sturgeon met the definition of a DPS as identified in the DPS policy (61 FR 4722; February 7, 1996). As described in comment 13 above, we evaluated whether Atlantic sturgeon population segments met the DPS Policy criteria and described the delineation of five Atlantic sturgeon DPSs in detail in the proposed rule. Based on application of the DPS policy criteria, we determined that the Delaware River riverine population does not meet the criteria of a DPS on its own.

Although the Delaware River riverine population of Atlantic sturgeon does not meet the criteria for a DPS on its own, we did consider whether the NYB DPS, of which the Delaware River riverine population is a part, warranted an emergency listing under the ESA given activities expected to occur in the Delaware River. Emergency listing is authorized under the section 4(b)(7) of the ESA at the discretion of the Secretary upon determination that an emergency poses a significant risk to the well-being of the species. In the case of an emergency listing, the Secretary must publish the regulation with a detailed explanation of why the regulation is necessary, and provide notice of the regulation to each state where the species is known to occur. The listing goes into effect immediately at the time of publication in the Federal Register and is in effect for 240 days following its publication, at which time any regular rulemaking that occurred during the emergency listing period would go into effect.

We concluded that multiple planned actions including those identified by the commenter did not pose significant risk to the well-being of the NYB DPS to warrant an emergency listing. We are currently conferencing with the Army Corp of Engineers (USACE) on the Delaware Deepening project and the Southport River fill project in accordance with section 7(a)(4) of the ESA. As the agency responsible for carrying out the project, the USACE is working with us to ensure that the project does not jeopardize the continued existence of any Atlantic sturgeon DPS.

In 2010, the Federal Aviation Administration (FAA) consulted with us to ensure that the Philadelphia International Airport expansion project did not jeopardize the existence of shortnose sturgeon. As part of this consultation, we provided technical assistance on candidate species in the action area, including Atlantic sturgeon. Additionally, in our letter to the FAA, we indicated that the FAA should coordinate with us prior to beginning any in-water work, in order to ensure

that Atlantic sturgeon and shortnose sturgeon are sufficiently protected. In 2006, the Federal Energy Regulatory Commission (FERC) consulted with us on the Crown Point LNG project. At this time, the project is not moving ahead, and there is no indication that it will be initiated. We have no information that the natural gas drilling project is already occurring or is about to occur. If the action agency informs us of its proposal to drill in the upper Delaware River, we will consult on the action to determine what effects there will be to Atlantic sturgeon or any other ESA-listed species.

Critical habitat will be considered in a separate rulemaking. We welcome information that will assist us in identifying the physical or biological features essential to the conservation of the species which may require special management considerations or protection. We have not yet determined which portions, if any, of the Delaware River Estuary, contain such features.

Comment 17: One commenter requested that we consider the importance of Atlantic sturgeon to the Delaware Estuary when making our final listing decision. This commenter noted that Atlantic sturgeon have been identified as a priority resource by the Delaware Estuary Program's Habitat Task Force.

Response: We are responsible for determining whether Atlantic sturgeon are threatened or endangered under the ESA (16 U.S.C. 1531 et seq.). Accordingly, based on the statutory, regulatory, and policy provisions described in the proposed rule (October 6, 2011; 75 FR 61872), we evaluated the status of the species and the factors affecting it, and identified and assessed efforts being made to protect the species. After considering public comment on the proposed rule, we believe the best available information as outlined in the proposed listing and as supplemented by public comments and our responses to the public comments, continue to

support the determination that the NYB DPS is in danger of extinction throughout all or a significant portion of its range.

Comment 18: One commenter submitted a scientific paper (Erickson et al., 2011) that showed Atlantic sturgeon mixing during their time in the ocean, with Atlantic sturgeon tagged in the Hudson River (the authors presumed that these were fish from the NYB DPS) traveling as far south as the coast of Georgia and as far north as the Bay of Fundy. Given this data, the commenter suggests that all DPSs be listed as endangered, and the impact of Canadian fisheries on Atlantic sturgeon populations that spawn in the United States be considered in the recovery plan.

Response: The information provided in the proposed rule and this final rule notes the extensive mixing of Atlantic sturgeon in the marine environment. We appreciate the information presented that further demonstrates the mixing of Atlantic sturgeon in the marine environment. Listing decisions are made on the basis of the best available scientific and commercial information, taking into consideration: the status of the species and the factors affecting it, and efforts being made to protect the species. The notable mixing of Atlantic sturgeon in the marine environment does not necessitate that all Atlantic sturgeon DPSs are listed identically. Because each DPS was considered for listing as a species, we evaluated the status of each DPS to determine their appropriate listing classification under the ESA.

The Erickson et al. (2011) reference shows that while two Atlantic sturgeon tagged in the Hudson River made extensive migrations (i.e., they were tracked to Georgia and the Bay of Fundy), the remaining thirteen fish did not leave the Mid-Atlantic Bight. The same pattern is expected to be seen for each Atlantic sturgeon riverine population, with the highest

concentrations of fish from a riverine population being found in close proximity to the spawning river from which they originated. Because of this pattern, we expect fish from each Atlantic sturgeon riverine population to be exposed to similar threats, yet at different degrees. This differential threat exposure, combined with the differing population status of each DPS, has led to the listing determination that the NYB and CB DPSs are endangered, while the GOM DPS is threatened.

We expect to prepare a recovery plan for each DPS. Canada's Department of Fisheries and Oceans has submitted information to us with respect to operation of the Atlantic sturgeon fisheries that occur in the St. Lawrence River and in the Bay of Fundy. We will consider all of this information when preparing the recovery plans for the GOM, NYB, and CB DPSs as well as in ESA section 7 consultations.

Comment 19: Some commenters felt that the NYB and CB DPSs should not be listed under the ESA, or should be listed as threatened rather than endangered, with section 4(d) take exemptions for recreational fishing and boating, as well as cooperative fisheries, management and scientific research activities.

Response: As noted previously, the best available information indicates that Atlantic sturgeon are currently at reduced levels that are well below historical abundance levels, and are impacted by ongoing, significant threats that are not currently being adequately regulated (e.g. water quality, dredging, vessel strikes, and bycatch in commercial fisheries). These threats place the NYB and CB DPSs at risk of extinction. Thus, we have concluded that listing both the NYB and CB DPSs as endangered is warranted. Listing as endangered precludes the use of section 4(d) of the ESA to promulgate other protective regulations as suggested by the commenter. We

have, however, proposed protective 4(d) regulations for the GOM DPS (76 FR 34023; June 10, 2011).

Identification and Consideration of Specific Threats

Comment 20: Several commenters recommended that there should be more research done on the potential impacts on Atlantic sturgeon and ways to mitigate and reduce these impacts. Some research subjects that were mentioned include: structures that block passages such as dams, genetic diversity, vessel strikes, Atlantic sturgeon habitat that could be potentially threatened by dredging, bycatch mortality, toxins, climate change, migration patterns, and behavioral (e.g., spawning, nursing, overwintering, foraging, etc.) investigations, and habitat mapping. Other commenters stated that data on the threats of Atlantic sturgeon are incomplete and more research is needed.

Response: We agree with the comments that more research on threats to Atlantic sturgeon and their habitat is needed. Currently, there are multiple Atlantic sturgeon research initiatives underway, the results of which should aid in the management and recovery of the species. We are actively working with many partners, including ASMFC, state agencies, and academic institutions to fill some of the existing data gaps identified by the commenters and have funded several research projects through regional and Species Recovery Grant awards ("section 6" grants).

Comment 21: One commenter stated that silviculture activities and forest manufacturing facilities do not appear to have significant implications for sturgeon or their habitat, particularly when compared to other land uses like agriculture or development. The commenter supplied information on forestry best management practices, sedimentation, the use of herbicides, and

urged us to reconsider our assertion that forest management practices pose a significant threat to biological diversity or to habitat for the Atlantic sturgeon.

Response: In the discussion on impacts to the species' habitat or range, the proposed listing rule identified forestry as one of several activities that can affect water quality. Degraded water quality from past activities such as agriculture, urban development, and forestry activities may have negatively impacted the GOM, NYB, and CB DPSs. Forestry practices were not identified as a threat to the GOM, NYB, or CB DPSs. Forestry practices were mentioned as a contributing factor to past water quality degradation in the GOM DPS. However, the proposed rule also noted that many rivers and watersheds within the range of the GOM DPS have demonstrated improvement in water quality (USEPA, 2008). In general, the most recent (third edition) USEPA Coastal Condition Report identified that water quality was good to fair for waters north of Cape Cod (USEPA, 2008).

We appreciate the information provided by the commenter on the degree of threat to Atlantic sturgeon from forestry activities, as well as forestry best management practices (BMPs) and the efforts of the industry to ensure successful BMP implementation, including education and monitoring. We believe that our characterization of the past threat of forestry practices to the GOM, NYB, and CB DPSs was correctly characterized in the proposed listing rule, and was consistent with information provided by the commenter.

Comment 22: One commenter argues that not only has bycatch decreased, but so has fishing in general. For example, there are fewer fishermen each year, and very few young people go into the fishing industry. Therefore, fishing effort and bycatch have both decreased.

Response: Bycatch and bycatch mortality of Atlantic sturgeon have been well

documented, and occur in multiple fisheries in marine waters from Maine through Virginia (Stein et al., 2004, and ASMFC, 2007). Based on modeling work (Boreman, 1997; Kahnle et al., 2007, ASMFC, 2007), the most recent estimate of bycatch mortality is expected to not be sustainable for any of the DPSs (ASMFC, 2007). It should also be noted that the levels of bycatch mortality described in ASMFC, 2007 and Stein et al. (2004) are assumed to be underestimates of true bycatch levels. Atlantic sturgeon can only sustain relatively low levels of anthropogenic mortality (Boreman, 1997; Kahnle et al., 2007). Estimated levels of bycatch mortality exceed levels that Atlantic sturgeon can sustain (Boreman, 1997; Kahnle et al., 2007, ASMFC, 2007), and bycatch mortality is in addition to mortality suffered from other anthropogenic activities such as vessel strikes (Brown and Murphy, 2010).

We also note that levels of fishing effort can increase or decrease depending on the condition of the stocks and their status under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The most recent Status of the Stocks report indicates that in the Northeast, several stocks are no longer being overfished and/or overfishing is no longer occurring (NMFS, 2011); therefore, fishing effort in these fisheries may increase. In the absence of measures to address Atlantic sturgeon bycatch mortality in fisheries in which it is known to occur, fisheries bycatch remains a threat to the GOM, NYB, and CB DPSs now and in the foreseeable future.

Comment 23: One commenter felt that our portrayal of predation and disease as driving factors for the decrease in Atlantic sturgeon abundance is based on assumptions. The commenter then referred to a recent tank study that showed that sturgeon juveniles were not the preferred prey for most predators.

Response: As discussed in the status review report and the proposed listing rule, disease and predation are not likely contributing significantly to the decline of the GOM, NYB or CB DPSs, and are not discussed as primary factors necessitating listing the GOM, NYB or CB DPSs of Atlantic sturgeon. The proposed rule describes potential threats from predation, including seal predation of shortnose sturgeon in the GOM DPS, and the potential for predation of Atlantic sturgeon by introduced flathead catfish in the Delaware River and Susquehanna River. However, as there is no evidence that these threats are impacting Atlantic sturgeon to any significant degree, we concluded that predation was not a significant factor contributing to the listing of the species.

Although we did not consider disease to be a primary factor impacting Atlantic sturgeon populations significantly, the proposed listing rule did note that the species may be impacted by saxitoxin poisoning after eating infected shellfish. This evidence comes from one event in Sagdahoc Bay, Maine where thirteen sturgeon were found dead. Two of these were confirmed to be Atlantic sturgeon. Stomach content analysis of shortnose sturgeon carcasses recovered during the event revealed that the sturgeon had saxitoxin levels of several hundred nanograms per gram (S. Fire, NOAA, pers. comm., 2009). However, it was not conclusively determined that saxitoxin poisoning was the cause of death. Therefore, based on this information and other considerations of disease for Atlantic sturgeon, we concluded that disease is not a primary threat to the GOM, NYB or CB DPSs of Atlantic sturgeon.

Comment 24: One commenter stated that the ongoing national consultation between the USEPA and the Services over cyanide national water quality criteria was never considered in the proposed rule. The commenter suggested that this may be of particular importance to the NYB

DPS, and a more restrictive criterion may be needed for Atlantic sturgeon. The commenter suggested adding information on the consultation to the water quality discussion contained in the proposed rule.

Response: In 2007, the Services entered into consultation with the USEPA on USEPA'a aquatic life criteria for cyanide. This followed from a 2001 Memorandum of Agreement (MOA) to enhance coordination under the ESA and the Clean Water Act (CWA). In 2004, the first data exchanges pursuant to the MOA began between the agencies. The Services sent a letter in 2006 to the USEPA detailing why we could not concur with the USEPA'a determination that its cyanide water quality standards "may effect, but are not likely to adversely affect" threatened and endangered species or critical habitat. The formal consultation is currently underway. Information on this consultation will be added to the information considered for this rule.

Comment 25: One commenter noted that we mentioned but did not explicitly describe potential threats from artificial propagation activities, in the "Other Natural or Manmade Factors Affecting the Species Continued Existence" section of the listing factor analysis of the proposed rule.

Response: Because artificial propagation was not considered a significant threat to the species, specific threats that may arise from artificial propagation were not discussed in the proposed listing rule. However, the status review report (ASSRT, 2007) identifies potential threats stemming from artificial propagation activities, including the unintentional introduction of cultured fish into wild populations that may compete with wild fish for scarce resources and potentially introduce pathogens or non-native genetic strains into wild populations. Additionally, while commercial aquaculture operations can provide a legal product that reduces

illegal harvest of the species, enforcement of a ban on possession of wild fish could become difficult if cultured fish and wild fish are indistinguishable.

Comment 26: One commenter agreed with the endangered listing for the NYB DPS, but requested that we identify open loop cooling systems as an important threat to Atlantic sturgeon in the Delaware River and other rivers on the East Coast of the United States, specifically citing the Indian Point nuclear power plant on the Hudson River, NY, in addition to several Delaware River power plants (Salem I and II nuclear plants, Delaware City Refinery, Conectiv, Inc. power plant in Edgemoor, DE, and a power plant in Eddystone, PA). The commenter stated that we should continue the ban on commercial fishing for Atlantic sturgeon, enforce the CWA, which would include a ban on open loop cooling systems, and require industries to use closed loop cooling systems to protect Atlantic sturgeon.

Response: We appreciate the information provided by the commenter and acknowledge that open loop cooling systems were not specifically identified in the proposed listing rule or the status review as a major threat to the GOM, NYB or CB DPSs of Atlantic sturgeon. The potential for mortality due to the discharge of heated effluents was discussed in both documents. However, as stated in the proposed listing rule there are no known mortalities as a result of effluent discharge of heated water.

The CWA, also known as the Federal Water Pollution Control Act, mandates Federal protection of water quality. The USEPA is the Federal agency responsible for administration of the CWA, and we do not have the authority to mandate closed loop cooling systems through that law. However, we will consult under section 7 of the ESA as appropriate to ensure that projects do not jeopardize the continued existence of any Atlantic sturgeon DPS.

Comment 27: One commenter stated that 100 percent of historical habitat is available in the Connecticut River, because Atlantic sturgeon were mostly limited to below the fall line near Enfield, CT, where significant rapids may have inhibited passage of Atlantic sturgeon, especially during periods of high flows. The commenter also indicated that of the three reported incidents of Atlantic sturgeon upstream of Enfield mentioned in the ASSRT status review report (2007), only one was likely to be an Atlantic sturgeon. The other two historical observations might have been shortnose sturgeon. The commenter felt that no critical habitat for Atlantic sturgeon is present upstream of Enfield, CT.

Response: This comment refers to the Judd (1905) reference cited in the ASSRT status review report (2007). We agree that Judd (1905) refers only to the term "sturgeon", and it is possible that the fish were shortnose sturgeon. However, as described in the ASSRT status review report, a fish captured in the Holyoke fish lift was positively identified as an Atlantic sturgeon. Therefore, the best available information indicates that Atlantic sturgeon are capable of accessing areas of the Connecticut River up to Holyoke Dam. Critical habitat will be considered in a separate rulemaking, and we welcome any additional information on the current or historical use of habitat in the Connecticut River.

Comment 28: One commenter questioned our assertions that dredging negatively impacts Atlantic sturgeon. The commenter provided a power point presentation showing the results of a study involving a hydraulic cutterhead dredge and five Atlantic sturgeon implanted with acoustic transmitters. Movements of the tagged Atlantic sturgeon in the James River were not impeded during dredging operations, and no attraction or avoidance behavior in relation to the active dredging operation was detected during the study. The commenter asserted that there is no

scientific evidence supporting our claim that dredging impacts spawning habitat, and pointed out that, based on the same study, turbidity plumes from dredging are of a sufficiently limited scope (e.g., ambient turbidity was observed within about 200m from dredging activity in monitoring data submitted by the commenter) such that they do not impact Atlantic sturgeon. Another commenter suggested that a threatened listing may allow more monitoring of dredging projects.

Response: As the commenter and the proposed listing rule cited, USACE data on sturgeon taken during hopper dredging indicate a minimum rate of 0.6 Atlantic sturgeon takes per year coast-wide. We also note that this estimate is likely to represent a minimum estimate, because documentation of any Atlantic sturgeon is incidental to observer coverage of dredging activities for other, already listed species (e.g., shortnose sturgeon and sea turtles). Given that Atlantic sturgeon do not have the same temporal and spatial distribution as these ESA-listed species, it is likely that Atlantic sturgeon takes occur during unobserved dredging operations.

Impacts of dredging on habitat and water quality have been documented in the scientific literature. According to the status review report, environmental impacts of dredging include the following: direct removal/burial of benthic prey organisms; turbidity/siltation effects; contaminant resuspension; noise/disturbance; alterations to hydrodynamic regime and physical habitat and actual loss of riparian habitat (Chytalo, 1996; Winger et al., 2000). According to Smith and Clugston (1997), dredging and filling impact important features of Atlantic sturgeon habitat as they disturb benthic fauna, eliminate deep holes, and alter rock substrates. Nellis et al. (2007) documented similar impacts as dredge spoil was documented to drift 12 km downstream over a 10 year period in the Saint Lawrence River, and those spoils have significantly lower amounts of macrobenthic biomass compared to control sites. Using an acoustic trawl survey,

researchers found that Atlantic and lake sturgeon were substrate dependent and avoided spoil dumping grounds (McQuinn and Nellis, 2007). Similarly, Hatin et al. (2007) tested whether dredging operations affected Atlantic sturgeon behavior by comparing catch-per-unit-effort before and after dredging events in 1999 and 2000. The authors documented a three to seven-fold reduction in Atlantic sturgeon presence after dredging operations began, indicating that sturgeon avoid these areas during operations.

The level of monitoring for dredging projects is not conditioned on whether the species being monitored is listed as threatened or endangered. In many cases, monitoring may occur for more than one protected species (e.g., ESA-listed, MMPA-listed, state protected species) at the same time.

Comment 29: Some commenters felt that we currently have sufficient regulatory authority to restrict the gill net and otter trawl fisheries in the range of Atlantic sturgeon enough to eliminate bycatch, and thus, listing under the ESA is not necessary. One commenter stated that an endangered listing for the NYB DPS would provide no greater protection to sturgeon than a threatened listing, as NMFS could still work to incorporate bycatch reduction measures into fisheries where sturgeon take is known to occur.

Response: In accordance with the ESA, a species must be listed as endangered if it is in danger of extinction throughout all or a significant portion of its range because of one or more of the factors enumerated in section 4(a)(1) of the ESA. A listing determination made under the ESA does not include consideration of whether additional protections for the species will result from the listing or whether the species may be afforded better protection under some other regulatory authority or mechanism. In making a listing determination, we are required to consider efforts

being made to protect the species. The Services' joint Policy for Evaluation of Conservation Efforts When Making Listing Decisions" ("PECE"; 68 FR 15100; March 28, 2003) establishes two basic criteria for evaluating protective efforts: (1) the certainty that the conservation efforts will be implemented and, (2) the certainty that the efforts will be effective. Satisfaction of the criteria for implementation and effectiveness establishes a given protective effort as a candidate for consideration but does not mean that effort will ultimately change the risk assessment for the species.

The available data indicate that Atlantic sturgeon bycatch occurs in both state and federally-managed fisheries. We have responsibility for regulating federally-managed fisheries under the MSA, and we work with the regional fishery management councils. Measures to reduce bycatch of Atlantic sturgeon in federally-managed fisheries could be considered for incorporation into relevant fishery management plans; however, none currently do include such measures. There are a variety of other Federal, state, and local laws and programs (e.g., regulations governing construction activities and gear configurations that reduce bycatch) that benefit Atlantic sturgeon, but we believe that threats from habitat modification and bycatch (as well as other threats) are not sufficiently managed through current regulatory mechanisms in place. We have also evaluated efforts according to the criteria in PECE and have determined that the current protective efforts do not negate the need to list the GOM, NYB, or CB DPSs of Atlantic sturgeon. Therefore, the listing determinations made through this final rule are warranted.

We acknowledge that it is possible that an endangered listing for the NYB DPS may not necessarily provide greater protection to NYB DPS sturgeon than a threatened listing. All of the

prohibitions listed under section 9(a)(1) of the ESA apply automatically when a species is listed as endangered but not when listed as threatened. In the case of a species listed as threatened, section 4(d) of the ESA requires the implementation of measures deemed necessary and advisable for the conservation of species. Therefore, for any species listed as threatened, we can impose any or all of the section 9 prohibitions if such measures are necessary and advisable for the conservation of the species. However, determining whether a species warrants listing as endangered or threatened must be made in accordance with the statutory and regulatory requirements, and policy (see Comment 1). If a species warrants listing as endangered, then it must be listed as endangered regardless of whether we could impose the same prohibitions under section 4(d) for a similar species that is listed as threatened.

Comment 30: One commenter felt that we did not adequately describe the impacts of impaired water quality on Atlantic sturgeon and did not detail how activities that can impair water quality contribute to the problem in areas containing important habitat for the species. Another commenter argued that the impacts of water quality are only theoretical due to the lack of supporting data.

Response: In our "Analysis of Factors Affecting the Three Northeast Region DPSs of Atlantic Sturgeon" in the proposed listing rule, we considered the best available data. While we agree with the commenter that data on specific impacts to Atlantic sturgeon are lacking, some evidence is available to indicate that impaired water quality is a threat to Atlantic sturgeon and their habitat. Where data were available, the proposed listing rule provided more specific information on some of the likely impacts to Atlantic sturgeon in certain areas (e.g., effect of coal tar leachate in the Connecticut River and legacy pollution from PCB contamination in the

Hudson River on sturgeon reproduction). The best available data also indicate that Atlantic and shortnose sturgeon are both sensitive to contaminants (Dwyer et al., 2000), and that coal tar leachate from the Connecticut River may be impairing reproduction in shortnose sturgeon, which may have sensitivities similar to those of Atlantic sturgeon. Bioenergetics studies combined with modeling of environmental conditions in the Chesapeake Bay revealed that a combination of low dissolved oxygen, water temperature, and salinity restricts available Atlantic sturgeon habitat to 0–35 percent of the Bay's modeled surface area during the summer (Niklitschek and Secor, 2005). This and other information provided in the proposed rule supported the conclusion that water quality is one of the significant threats affecting the GOM, NYB, and CB DPS of Atlantic sturgeon.

Activities identified in the proposed listing rule that have contributed to water quality issues included industrial activities, agricultural activities, forestry, land development, and urbanization. These activities have the potential to reduce reproductive success (e.g., as a result of damaging spawning habitat, reducing hatching success, damaging nursery habitat), reduce foraging success (e.g. contamination of sediments and/or prey species where foraging occurs, changes to the distribution and or abundance of prey species resulting from habitat alterations as a result of eutrophication, siltation, water availability) or cause other negative effects to Atlantic sturgeon. We will consider specific information and how a specific activity may or may not contribute to impaired water quality through section 7 consultation with Federal agencies that are proposing to authorize, fund, or carry-out these activities.

Comment 31: One commenter felt that recreational fishing and boating in tidal and brackish waters of the CB DPS do not pose a risk to sturgeon and should not be subject to the

prohibitions of the ESA if the CB DPS is listed.

Response: Once a species is listed as endangered, the ESA section 9 take prohibitions of the ESA automatically apply and any 'take' of the species is illegal unless that take is authorized under an incidental take statement following ESA section 7 consultation or under an ESA section 10 permit authorizing directed take (e.g., for scientific research or enhancement of the species) or incidental take during an otherwise lawful activity. If recreational fishing and boating do not take Atlantic sturgeon then it is not necessary to pursue one of these ESA take authorizations.

Comment 32: One commenter felt that our conclusion in the proposed listing rule that water quality is improving in the Delaware River was based in part on the designation of a portion of the Delaware River (Roebling-Trenton area) as a Superfund site by the USEPA. The commenter requested that we acknowledge that absent implementation of remediation efforts, the designation as a Superfund site simply indicates that the river is contaminated.

Response: Our conclusion that water quality has improved in the Delaware River was not based on designating the Roebling-Trenton area as a Superfund site. Our intent in including information on the Superfund site in the proposed listing rule was to illustrate that steps are being taken or considered that could further improve water quality in the Delaware River. We agree with the commenter that designating the Superfund site (with no remediation efforts to address the contamination) merely indicates that the river is contaminated. Our conclusion that water quality has improved is based on information in the USEPA Coastal Condition Report III (USEPA, 2008), suggesting that other fish species are using the Delaware River mainstem as spawning and rearing habitat (e.g., striped bass, American shad, and river herring), apparent improvements in dissolved oxygen levels (e.g., dissolved oxygen levels have not dropped below

minimum state standards since 1990; R. Green, Delaware DNREC, pers. comm. 1998), and improvements to the population status of shortnose sturgeon in the Delaware River. Steps are being taken to ensure that the observed water quality improvements will continue as illustrated by designation of the Superfund site in the Roebling-Trenton area, and consideration of ways to cap or reduce the contamination from the Roebling Steel plant.

Comment 33: Some commenters felt that the degree of uncertainty over the impacts of climate change on Atlantic sturgeon is too great to contribute to the listing determination. One commenter noted that the uncertainty surrounding the impacts of climate change on Atlantic sturgeon does not necessarily mean that extinction risk will increase, but simply indicates that there is greater uncertainty in estimating that risk. Another commenter noted that sturgeon have overcome more drastic climate changes in their evolutionary past, and would, therefore, still be able to increase in abundance during this current climate change.

Response: The status review report (ASSRT, 2007) did not address climate change in its assessment of threats to the species, but we believe climate change should be considered as part of the evaluation of threats to the species and assessment of extinction risk. Section 4(a)(1)(A) of the ESA stipulates that a species may be threatened or endangered as a result of the present or threatened destruction, modification, or curtailment of the species' habitat or range. Climate change is one of several threats (e.g, dams, dredging, turbines, and water quality) that we considered under this broader habitat factor. Anticipated impacts to the environment from climate change include changes in frequency and intensity of floods and droughts and higher water temperatures (IPCC, 2007), which could exacerbate many forms of water pollution, such as sediments, nutrients, dissolved organic carbon, pathogens, pesticides, salt, and thermal

pollution. These impacts could in turn affect Atlantic sturgeon habitat. Based on bioenergetics studies, Niklitschek and Secor (2005) found that a 1º C increase in water temperature in the Chesapeake Bay would reduce available Atlantic sturgeon habitat by 65 percent. Therefore, we believe that climate change represents a real threat to the species.

Species adaptations occur over evolutionary timescales. The rate of climate change reported and/or anticipated to occur is faster than what we can reasonably expect Atlantic sturgeon to be able to adapt to, particularly at reduced population levels.

Comment 34: One commenter felt that using ship strikes as a prominent reason for listing the NYB DPS as endangered was improper given that it only affects the Delaware River riverine population of Atlantic sturgeon of the NYB DPS.

Response: While vessel strikes were considered among the threats known to be impacting the NYB DPS, the proposed listing rule listed bycatch as the primary threat impacting Atlantic sturgeon in the NYB DPS. The proposed listing rule cited vessel strikes as a threat to Atlantic sturgeon in their riverine range in the NYB DPS. When evaluating threats to a DPS, we considered impacts to any riverine population within that DPS and did not limit analysis of threats to only those that affect the entire DPS. Additionally, it should be noted that Hudson River Atlantic sturgeon and Atlantic sturgeon from other DPSs are likely to be impacted by vessel strikes in the Delaware River, due to the coastal migrations and the use of non-natal estuaries.

Comment 35: While poor water quality was a concern in the Delaware River, there have been noted improvements and it is no longer thought to be hampering sturgeon recovery, as evidenced by increases in population abundance of other species in the river (e.g., striped bass,

American shad, shortnose sturgeon).

Response: As mentioned in the proposed listing rule, we agree that water quality has improved in the Delaware River. This conclusion was based on the apparent improvement in the status of shortnose sturgeon in the Delaware River, as well as improved dissolved oxygen levels (R. Green, Delaware DNREC, pers. comm., 1998). Nevertheless, waters from Connecticut to Delaware received fair and poor ratings in the USEPA's Third Coastal Condition Report (USEPA, 2008). In particular, the report noted that most of the Northeast Coast sites with poor water quality ratings were concentrated in a few estuarine systems, including New York/New Jersey Harbor, some tributaries of the Delaware Bay, and the Delaware River (USEPA, 2008).

Comment 36: Some commenters felt that our analysis of the impact of bycatch on Atlantic sturgeon was inaccurate. One commenter argued that information in the status review report was at odds with conclusions drawn in the proposed listing rule. Another commenter felt that the updated bycatch information cited in the ASMFC (2007) bycatch report provided only similar, or perhaps less damaging, evidence for the impact of bycatch mortality over the report analyzed by the ASSRT (2007) report (Stein et al. 2004), since reported bycatch was similar between the reports and mortality rates were lower in the ASMFC (2007) report. Thus, the commenter felt that we did not provide sufficient bycatch evidence to warrant an endangered listing.

Response: We agree with the commenter that the ASMFC (2007) bycatch report provided similar estimates of Atlantic sturgeon bycatch to the bycatch report used by the ASSRT (2007) status review (i.e., Stein et al., 2004), and documented lower mortality than the earlier report (mean mortality of 13.8 percent versus 22 percent mortality estimated in Stein et al., 2004).

However, Atlantic sturgeon can only sustain relatively low levels of anthropogenic mortality (Boreman, 1997; Kahnle et al., 2007), and bycatch mortality is in addition to mortality suffered from other anthropogenic activities such as vessel strikes (Brown and Murphy, 2010).

Based on modeling work (Boreman, 1997; Kahnle et al., 2007, ASMFC, 2007), the most recent estimate of bycatch mortality is expected to not be sustainable for any of the DPSs (ASMFC, 2007). Additionally, the report noted that the estimates of bycatch used in the analysis are likely to be underestimates of true bycatch and mortality levels, since they rely only on reported bycatch from the NMFS Observer program, which does not account for delayed mortality.

Comment 37: One commenter noticed that the proposed rule mentioned only the Delaware River Dredging Project and not other dredging projects along the East Coast. The commenter also mentioned that small recreational vessels should not be singled out as the only cause of ship strikes.

Response: The proposed rule discussed dredging as a threat to each of the Atlantic sturgeon DPSs, since dredging occurs in almost all major rivers where Atlantic sturgeon are found. Specifically, we are aware of dredging projects in the Northeast Region that could take or have taken Atlantic sturgeon in the Kennebec River, the Penobscot River, the Hudson River, the Delaware River, and the James River, as discussed in the proposed listing rule. The Delaware River Main Channel Deepening Project was discussed in detail in the proposed rule, because information on this project became available after the status review report, and the location and scope of the project in the Delaware River, coupled with the lack of information on the precise location of spawning and other important habitat in the Delaware River, indicate that the project

could be very harmful to the Delaware River riverine population of Atlantic sturgeon.

The proposed listing rule stated that external examination of Atlantic sturgeon apparently struck by vessels indicates that most vessel strikes are likely from larger, ocean going vessels. However, because strikes by large vessels may cause more apparent injuries, vessel strikes by smaller vessels, including recreational vessels, may be less frequently identified. There have been small vessel strikes of Atlantic sturgeon in the Delaware River and the Kennebec River. Thus, we felt it important to provide information on both types of vessel strikes in the listing determination.

Comment 38: Some commenters felt that threats other than bycatch were responsible for the continued low abundance of Atlantic sturgeon populations. Commenters cited loss of habitat, dams, and vessel strikes as larger impediments to recovery of Atlantic sturgeon than bycatch.

Response: We agree with the commenter that there are various threats to Atlantic sturgeon throughout the range of the species. However, we have determined that one of the primary threats to the species is bycatch in commercial fisheries, as evidenced by the ASMFC bycatch report (ASMFC, 2007). During recovery planning, we will consider all threats to the species and will develop strategies to minimize those threats, in order to recover the species.

Comment 39: One commenter stated that he has observed more ship strikes than bycatch mortalities in the James River. Based on his observations, he suggests that boats should be restricted from running up and down the river instead of having gill net restrictions.

Response: Conservation measures provided for species listed as endangered or threatened under the ESA include recovery actions (16 U.S.C. 1533(f)), critical habitat

designations, Federal agency consultation requirements (16 U.S.C. 1536), and prohibitions on taking (16 U.S.C. 1538). Recognition of the species' plight through listing promotes conservation actions by Federal and state agencies, private groups, and individuals. Specific measures to address the threats to the CB DPS will be addressed using all of the conservation measures of the ESA.

Conservation Efforts for the GOM, NYB and CB DPSs

Comment 40: Several commenters pointed to the 1998 ASMFC moratorium on Atlantic sturgeon retention, as well as other state and Federal moratoria on Atlantic sturgeon harvest, and argued that NMFS did not adequately describe the impact that these conservation efforts are having on the species or allow enough time for these existing conservation measures to prove their effectiveness. One commenter cited the 1998 ASMFC moratorium on Atlantic sturgeon retention, the closure of the EEZ to Atlantic sturgeon retention, periodic closure of gillnet fisheries aimed at protecting bottlenose dolphins, harbor porpoise, and large whales which reduce fishing effort, as examples of regulatory mechanisms that protect Atlantic sturgeon. The commenter wondered how these protections, which were significant enough to preclude NMFS from listing Atlantic sturgeon in 1998, are not sufficient for the species at this time.

Response: In the 1998 negative finding on the petition to list Atlantic sturgeon, the ASMFC moratorium was considered to be the critical component in the Atlantic sturgeon FMP that indicated Atlantic sturgeon were not likely to become endangered in the foreseeable future throughout all or a significant portion of the species' range. We followed this with the 1999 closure of the EEZ to fishing for Atlantic sturgeon. However, since implementation of the moratorium, additional bycatch information (Stein et al., 2004; ASMFC, 2007) became available

indicating that Atlantic sturgeon are vulnerable to bycatch in commercial fisheries, and that the current rate of bycatch is unsustainable in the long term (ASMFC, 2007).

We understand the concerns that listing is premature because the moratorium has not been allowed to run its course and realize all potential resultant benefits. However, having received a petition and subsequently finding that there was substantial scientific and commercial information indicating that listing Atlantic sturgeon may be warranted (75 FR 838; January 6, 2010), we are required to use the best scientific and commercial data available to determine within one year of receipt of a petition whether Atlantic sturgeon should be listed under the ESA because of any of the five factors (see Comment 3). The best available information indicates that all riverine populations of Atlantic sturgeon in the Northeast Region remain at reduced levels compared to those reported historically, and are being exposed to significant threats that are ongoing and not being adequately addressed.

The ASSRT (2007) status review report and the proposed listing rule both discussed conservation efforts and analyzed them according to the PECE and pursuant to section 4(b)(1)(A) of the ESA. The ASMFC Atlantic sturgeon FMP was considered in these analyses, including the 1998 moratorium. It was concluded that the 1998 Amendment to the ASMFC Atlantic Sturgeon FMP strengthens conservation efforts by formalizing the closure of the directed fishery and eliminates any incentive to retain Atlantic sturgeon. However, bycatch is known to occur in several fisheries (ASMFC, 2007), and it is widely accepted that bycatch is underreported (PECE Implementation criterion 5). Despite actions taken by the states and NMFS to prohibit directed fishing and retention of Atlantic sturgeon, subsequent to the 1998 Amendment, we learned that Atlantic sturgeon bycatch mortality is a major threat affecting the

recovery of Atlantic sturgeon. Therefore, there is considerable uncertainty that the Atlantic Sturgeon FMP will be effective in meeting its conservation goals (PECE Effectiveness criterion 1). In addition, there are limited resources for assessing current abundance of spawning females for each of the DPSs. Therefore, PECE effectiveness criterion 5 is not being met. For these reasons, there is no certainty of implementation and effectiveness of the intended ASMFC FMP conservation effort for the GOM, NYB, or CB DPSs of Atlantic sturgeon.

Restrictions on gill net fisheries that occur in Atlantic sturgeon habitat are likely to provide a conservation benefit to Atlantic sturgeon. However, the estimates of bycatch and bycatch mortality reported in the ASMFC bycatch report (2007) were derived from observer data collected from 2001-2006, meaning that any closures or restrictions on fishing practices would have been implemented and accounted for during the data collection process. It should also be noted that the observer data most likely provided an underestimate of true bycatch levels, since the observer program primarily targets Federal fisheries. Additionally, if restrictions put in place for other species are removed or reduced (due to changes in status of the species of interest or gear modifications that reduce interactions with the species of interest), Atlantic sturgeon bycatch and bycatch mortality may increase.

Comment 41: One commenter agreed that the protective measures (e.g., the moratorium) implemented by the ASMFC FMP for Atlantic sturgeon have not been sufficient in the Delaware River, citing juvenile catch rates that are lower than prior to the implementation of the moratorium.

Response: The commenter's point is noted and appreciated.

Comment 42: Multiple commenters recommended that we continue to work with

ASMFC and individual states to ensure Atlantic sturgeon are being adequately protected, and that ASMFC should retain management authority of the species. It was further recommended that if the species is to be federally managed (e.g., listed under the ESA), then management should be focused on riverine units rather than DPSs. One commenter said that DPS configurations are subjective and do not consider the management needs of specific Atlantic sturgeon riverine populations.

Response: The ASMFC has been very active in the management of Atlantic sturgeon. In 1990, a Fishery Management Plan for Atlantic sturgeon was published, and in 1998, Amendment 1 to the FMP imposed a 20-40 year moratorium on all Atlantic sturgeon fisheries until the Atlantic Coast spawning stocks could be restored to a level where 20 subsequent year classes of adult females were protected (ASMFC, 1998). These represented important management measures for the species. In 2007, the ASMFC published a bycatch report (ASMFC, 2007), which indicated that bycatch is having a negative impact on Atlantic sturgeon population growth and recovery. In combination with the ASSRT (2007) report, we determined that the best scientific and commercial data available indicated that each DPS of Atlantic sturgeon is in danger of extinction or likely to become endangered within the foreseeable future.

We agree that the most appropriate management unit to achieve recovery of Atlantic sturgeon is the riverine population unit. Although there is considerable mixing of Atlantic sturgeon stocks in the marine environment, Atlantic sturgeon exhibit a high degree of spawning river fidelity, and managing the species at the spawning river level is the most logical option based on the biology of the species. We intend to publish a recovery plan in accordance with ESA section 4(f)(1) unless it is determined that such a plan will not promote the conservation of

the Atlantic sturgeon. If a recovery plan is developed, recovery criteria will be developed for each DPS, and recovery activities aimed at achieving those criteria will be based on the individual riverine populations of Atlantic sturgeon. We intend to work closely with ASMFC during the recovery planning process.

Comment 43: One commenter noted that ongoing studies by state researchers in the Delaware River have provided information that has allowed the state of Delaware to more effectively regulate and require delays and modifications to projects in order to protect sturgeon. This commenter was concerned that vessel traffic may increase as a result of the Delaware deepening project, and that Atlantic sturgeon mortalities due to vessel strikes may increase with the increase in vessel traffic.

Response: We appreciate the update on the usefulness of current research projects being conducted by state agencies in enhancing management actions to protect Atlantic sturgeon. Research projects that provide information on the spatial and temporal habitat use patterns of Atlantic sturgeon will also assist us when providing project modifications pursuant to ESA section 7 consultations to ensure that projects that are carried-out, authorized or funded by a Federal agency do not jeopardize the existence of the species.

We appreciate and share the concern over vessel strikes in the Delaware River. An endangered listing of Atlantic sturgeon in the NYB DPS will make take (e.g., capture, killing) of the species illegal pursuant to section 9 of the ESA.

Comment 44: Some commenters suggested that critical habitat and other Federal protection for species like shortnose sturgeon and sea turtles may protect Atlantic sturgeon as well. Another commenter felt that designating critical habitat for shortnose sturgeon would be

appropriate and would provide ancillary protection for Atlantic sturgeon.

Response: It is true that take prohibitions put in place because of the listing of other species, such as shortnose sturgeon, may in part protect Atlantic sturgeon in areas where their ranges overlap. We have undertaken a number of activities to protect shortnose sturgeon and their habitat, including publishing a recovery plan for the species (63 FR 69613; December 17, 1998), funding research on the species, and consulting with Federal agencies under section 7 of the ESA to ensure shortnose sturgeon are not jeopardized by activities that may harm the fish or their habitat. Some of these efforts also benefit Atlantic sturgeon, as noted in the proposed listing. Because we were petitioned to list Atlantic sturgeon, we were required to evaluate the status of the species and the threats it is facing and make a finding on whether the petitioned action was warranted within 12 months, which resulted in our proposed listing determination of endangered for the NYB and CB DPSs, and threatened for the GOM DPS of Atlantic sturgeon. Additionally, if a species is determined to be threatened or endangered based on any of the five ESA section 4(a)(1) factors, we are required to list it.

Comment 45: Some commenters felt that we have not done enough to support private and state efforts to protect important habitat for Atlantic sturgeon, and that rather than list the species under the ESA, collaborative efforts should be pursued to protect the species from the threats identified in the proposed listing rule. One commenter also suggested expanding the 1965 Anadromous Fish Conservation Act (ACFA) for species like Atlantic sturgeon.

Response: As described in the proposed listing and in the previous response, the best available scientific and commercial information on the status of, and threats to, Atlantic sturgeon is sufficient to warrant listing of the NYB and CB DPSs of Atlantic sturgeon as endangered

under the ESA, and the GOM DPS of Atlantic sturgeon as threatened. Therefore, we cannot enter into multi-state, multi-agency partnerships or increase fishery regulations to address Atlantic sturgeon issues in lieu of listing.

We are working with multiple state agencies to expand our knowledge of the species and enhance conservation efforts. In 1999, pursuant to section 804(b) of the Atlantic Coastal Fisheries Cooperative Management Act (16 U.S.C. 5101 et seq.), we supported the ASMFC's moratorium on Atlantic sturgeon by closing the EEZ to Atlantic sturgeon retention. In 2003, we sponsored a workshop with the USFWS and ASMFC to discuss the status of sturgeon along the Atlantic Coast and determine what obstacles, if any, were impeding their recovery. State wildlife agency employees and scientific researchers with sturgeon expertise also contributed to the status review. Also, as described in the example given in the response above, we have entered into multi-state, multi-agency partnerships to conduct research. Section 6 of the ESA provides a mechanism for cooperation with the States in the conservation of threatened, endangered, and candidate species. Under section 6, we are authorized to enter into agreements with any State that establishes and maintains an "adequate and active" program for the conservation of endangered and threatened species. Once a State enters into such an agreement, we are authorized to assist in, and provide Federal funding for, implementation of the State's conservation program. Federal funding, provided in the form of grants, can be used to support management, outreach, research, and monitoring projects that have direct conservation benefits for listed species, recently de-listed species, and candidate species that reside within that State. We have provided substantial funding to States and their partners to support Atlantic sturgeon research, monitoring, and outreach projects through section 6 grants.

Multiple Atlantic sturgeon related projects have received funding through the AFCA program, making alteration of the existing AFCA unnecessary. Projects funded under the AFCA are conducted for the conservation, development, and enhancement of anadromous fishery resources and must be approved by the fishery agency of the state in which the work is carried out. Many projects funded under AFCA are critical elements of larger programs to manage, restore, or enhance anadromous resources.

Comment 46: One commenter suggested that monitoring should be increased for Atlantic sturgeon, and that the following research areas be listed as priority concerns in the recovery plan: long term population monitoring, and identification of spawning, overwintering, and nursery habitat.

Response: We agree that monitoring of the species is crucial to recovery efforts, and that the research areas identified are important for monitoring the status of the species and protecting the species from further decline. We also consider that additional research to further evaluate/understand genetic composition of sturgeon aggregations is also a very high priority. We have posted a list of research priorities for Atlantic sturgeon on the NMFS Northeast Regional Office's website (http://www.nero.noaa.gov/prot_res/research/).

Comment 47: One commenter felt that we should have identified Essential Fish Habitat (EFH) for Atlantic sturgeon in order to support the proposed listing rule. The commenter also noted that EFH and Habitat Areas of Particular Concern (HAPCs) have not been designated for shortnose sturgeon either.

Response: We work with the regional fishery management councils to identify EFH and HAPCs for fish stocks that are federally-managed under the MSA. Atlantic and shortnose

sturgeon are not federally-managed under the MSA. Therefore, EFH or HAPCs have not been designated for either species.

Additional Comments

Comment 48: Multiple commenters felt that not enough time was provided for public comment, given that the public hearings were held from November 8-11, 2010, and the initial deadline for public comments was January 4, 2011. Some commenters felt that the comment period should have been extended by 90 days, rather than 30 days. Additionally, one commenter felt that the NYB DPS hearing held in Stony Brook, NY, on November 8, 2010, was poorly planned because it conflicted with the ASMFC annual meeting. Another commenter felt that the hearing in Virginia was poorly advertised and many people were not aware of the event.

Response: The proposed listing rule published on October 6, 2010 (75 FR 61872), and provided an initial public comment period of 90 days, which is standard for most ESA rulemaking actions. This comment period was later extended by an additional 30 days to allow for additional comment (75 FR 82370; December 30, 2010). The opportunity to provide written public comment was available through February 3, 2011. During the public comment period, we also held four public hearings throughout the Northeast Region. We regret the unintentional conflict of the NYB DPS public hearing with the annual meeting of the ASMFC, and consider public participation as a critical component to the listing process. Those individuals unable to attend this hearing were still able to submit any written comments during the comment period.

The notice and public comment period on the proposed listing for the GOM, NYB, and CB DPSs of Atlantic sturgeon exceeded the requirements established in section 4(b)(5) of the ESA. Section 4(b)(5)(E) of the ESA only requires that one public hearing be held on a proposed

listing if it is requested by the public within 45 days after the date of the publication of the proposed listing in the Federal Register. Though the NMFS Northeast Region did not receive any requests for a public hearing, we elected to hold four public hearings on the Atlantic sturgeon GOM, NYB and CB DPSs, at least one in each of the areas occupied by these DPSs. Hearings were held in Portland, Maine, on November 3, 2010; Newport News, Virginia, on November 4, 2010; Stony Brook, New York, on November 8, 2010; and Wilmington, Delaware, on November 9, 2010, to accept public comments.

A media advisory released on October 5, 2010, prior to publication of the proposed listing rule, stated that the agency intended to hold public hearings. On October 19, 2010, we released a media advisory on the four scheduled hearings, including the date, time, and location of each public hearing. A notice announcing these hearings was also published in the Federal Register (75 FR 64249; October 19, 2010). These announcements with links to the Federal Register notices on the proposed rule comment period and public hearings were placed on the Atlantic sturgeon and "Hot News" webpages of the NMFS Northeast Regional Office's website. Therefore, we believe that appropriate notification and opportunity to comment was provided for the public.

Comment 49: Some commenters were concerned that a lack of detailed information on abundance of Atlantic sturgeon riverine populations and specific information on the impacts of anthropogenic activities would not allow us to pursue a successful recovery strategy. Commenters felt that additional research was needed to obtain population estimates, determine relationships between anthropogenic activities and the biological response they elicit, and gather information to sufficiently define the important terms "recovery" and "jeopardize" in relation to

implementing the ESA for listed Atlantic sturgeon.

Response: We agree that population abundance information for Atlantic sturgeon is lacking. However, section 4(b)(1)(A) of the ESA stipulates that listing decisions be made using the best available scientific and commercial information after conducting a review of the status of the species and considering the conservation efforts of states and foreign nations. The status review report (ASSRT, 2007), and information on bycatch and water quality that became available after the status review report was completed (ASMFC, 2007, and USEPA, 2008), constitute the best available information. As previously described, we are required to complete listing determinations within a specified timeframe. However, we agree that more information is needed and will continue to support and pursue additional research and monitoring initiatives toward this effort (see response to Comment 46).

Comment 50: One commenter quoted a portion of the ASMFC (2007) bycatch report, which claimed that fish greater than 200 cm are rarely observed, and that the Hudson River DPS has a total population abundance of approximately 870 adults. The commenter cited research conducted by researchers from Delaware State University, who captured 25 fish greater than 200 cm over the course of two sampling seasons (2009-2010).

Response: The ASMFC bycatch report was based on data recorded in the Northeast Fisheries Science Center (NEFSC) Observer Database, which mainly covers fisheries in New England and Middle Atlantic waters. Based on a review of that data for 2001-2006, the authors concluded that Atlantic sturgeon greater than 200 cm in length were rarely observed in coastal sink gillnet gear. This does not necessarily mean, however, that Atlantic sturgeon greater than 200 cm are rare; and we did not interpret this information to mean that Atlantic sturgeon greater

than 200 cm are rare. The statement simply reflects the size range of Atlantic sturgeon observed in the coastal sink gillnet fisheries.

Gillnet gear is known to be size selective (Moser et al., 2000). Therefore, the limited observations of Atlantic sturgeon greater than 200 cm in coastal sink gillnet gear likely reflect the particular gear used, which was selected based on its efficiency for catching the targeted commercial fish species (not its efficiency for catching Atlantic sturgeon greater than 200 cm). The NEFSC Observer Program observes fisheries that use a variety of mesh sizes. However, the monkfish fishery typically uses the largest mesh of fisheries observed with a requirement to use a minimum 10-inch mesh.

The research conducted by Delaware State University was fishery-independent, meaning that the gillnet gear used was configured and set to capture Atlantic sturgeon in spawning condition or of spawning age. Therefore, a larger mesh size (12 to 13-inch mesh) was used for gillnet gear in the study than what was used in most fisheries observed by the NEFSC Observer Program as described in the ASMFC 2007 report on Atlantic sturgeon bycatch.

Kahnle et al. (2007) reported that there were an estimated 870 spawning adults per year for the Hudson River riverine population based on fishery-dependent data collected from 1985-1995. Since Atlantic sturgeon do not spawn every year, this was not considered to be a total estimate of the number of spawning adults for the Hudson River riverine population. Information was provided in the proposed rule that explained the caveats associated with the Kahnle et al. (2007) estimate for the Hudson River (see Comment 3).

Comment 51: One commenter recommended textual edits to the proposed listing rule. This commenter felt that the term “healthiest” to describe the status of the Altamaha River, GA,

and the Hudson River, NY, riverine populations of Atlantic sturgeon was improper, and suggested that we use a more appropriate term. The commenter also pointed out that "Gulf of Mexico" was used as a heading where "Gulf of Maine" was intended.

Response: These comments are appreciated and are addressed in this final rule. We have removed the erroneous Gulf of Mexico heading, and we have referred to the "robustness" of Atlantic sturgeon populations rather than referring to a population's "health" when discussing the status of any Atlantic sturgeon DPSs or riverine populations.

Comment 52: Numerous comments were received opposing listing of the GOM, NYB, and CB DPSs because listing one or more of the DPSs would: (1) result in economic hardship; (2) hinder scientific research for Atlantic sturgeon or other species that occur in areas and at times when Atlantic sturgeon are also present; (3) disrupt beach nourishment projects; and, (4) result in navigation restrictions.

Response: Section 4 of the ESA makes clear that the Secretary must make listing decisions based on the best available scientific and commercial information after conducting a review of the status of the species and any existing conservation efforts. The listing is based on the status of the species and the five factors outlined in section 4(a)(1) of the ESA. As noted in the proposed listing rule, the Conference Report on the 1982 amendments to the ESA clearly states that economic impacts cannot be considered when assessing the status of a species. We recognize that there are important research and restoration initiatives being conducted by the states that aid the conservation of the species and, in fact, have provided funding for many of these initiatives. Section 10(a)(1)(A) of the ESA gives the Secretary discretion to authorize research activities that enhance the survival of the species, while prescribing terms and

conditions by which the permit recipient must comply.

We do not intend for listing of the Atlantic sturgeon DPSs to hinder completion of on-going research or unnecessarily delay the onset of new research and have taken steps to avoid this to the extent possible. We distributed information to the sturgeon research community after publication of the proposed listing rule that advised researchers to complete a section 10(a)(1) application as soon as possible, in the event that one or more of the DPSs would be listed. We could not issue any section 10(a)(1) permits for Atlantic sturgeon, or deny a section 10(a)(1) permit request for Atlantic sturgeon until the final listing determinations were made. However, the NMFS Office of Protected Resources, Permits Division has frontloaded the permit review process to the extent practicable, including conducting the steps necessary to comply with the National Environmental Policy Act, and with section 7(a)(2) of the ESA. Twelve applications for research permits for Atlantic sturgeon have been received and are undergoing review.

Research of other species will not be affected as a result of listing the Atlantic sturgeon DPSs unless that research results in the capture, harassment or other harm (i.e. "take") to any Atlantic sturgeon belonging to one of the DPSs. We acknowledge that listing Atlantic sturgeon may affect research studies of other species when the research is expected to result in take of Atlantic sturgeon. However, that is not a legal justification for not listing a species under the ESA. We have provided information on known distribution of Atlantic sturgeon and will continue to support new research to better define the spatial and temporal distribution of the Atlantic sturgeon DPSs. This information will help researchers to plan studies of other species to minimize the likelihood of incidental interactions with Atlantic sturgeon.

Similarly, it is not our intention to hinder or otherwise limit other legal activities such as

beach re-nourishment projects or commercial shipping. We will work with our stakeholders to evaluate the best options for minimizing impacts to Atlantic sturgeon without unduly hampering otherwise lawful activities. For example, beach nourishment projects requiring issuance of a Federal permit can be consulted on prior to the start of the action, providing us the opportunity to share the most current information on Atlantic sturgeon presence and or use of the action area, as well as steps that can be taken to minimize impacts of the action to Atlantic sturgeon.

Comment 53: The Department of the Navy expressed concern that the designation of critical habitat for Atlantic sturgeon would impede the U.S. Navy's ability to support mission-essential activities. The Navy requests that we consult with them prior to designating critical habitat.

Response: Critical habitat will be addressed in a separate rulemaking. However, for clarification, section 4(b)(2) of the ESA stipulates that critical habitat be designated for a species based on the best scientific data available, after considering the economic impacts, impacts to national security, and other relevant impacts that a listing might have. A specific area may be excluded from the critical habitat designation if the benefits of exclusion outweigh the benefits of including the specific area in the designation, as long as the exclusion will not result in the extinction of the species. In addition, the Secretary may not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such a plan provides a benefit to the species for which critical habitat is proposed for designation (see section 318(a)(3) of the National Defense Authorization Act, Public Law 108–136).

We appreciate the Navy's commitment to begin discussions over the designation of critical habitat, and fully expect to discuss the scope of the critical habitat designation with the Navy and the other Department of Defense branches as we conduct our critical habitat analyses, in order to determine where the designation overlaps with military lands and where military exclusions may be necessary due to the factors described above.

Summary of Changes from the Proposed Listing Rule

Based on the comments received and our review of the proposed rule, we made the changes listed below.

1. We slightly extended the marine range of the DPSs based on recent tagging and tracking data.

2. We added information on why the listing determinations for the GOM, NYB, and CB DPSs deviated from the conclusions of the ASSRT, and why these determinations are different than the decision made by the agency in 1998 to not list Atlantic sturgeon under the ESA.

3. We made minor revisions to the definitions for the GOM, NYB, and CB DPSs to clarify which sturgeons were included in each DPS.

4. We added information on metapopulations and the importance of multiple viable riverine populations in response to Comment 1.

5. We updated information regarding Atlantic sturgeon fisheries in Canada and the status of Atlantic sturgeon in Canada based on information from Fisheries and Oceans Canada.

6. We revised our interpretation of the reported differences in catch-per-unit-effort for subadult and adult Atlantic sturgeon in the Kennebec River for 1977-1981 and 1998-2000, based on information from Maine, Department of Marine Resources.

7. We added information on the ongoing national consultation between the USEPA and the Services over cyanide national water quality criteria.

8. We updated information regarding the progress for removal of the Veazie Dam on the Penobscot River based on information received from the USFWS.

9. We updated and revised information on the Verdant Power tidal turbine project occurring in the East River, NY.

10. We made minor corrections and updates to information in the listing rule based on recommendations from peer reviewers, commenters, and our own review of the proposed listing rule.

Our listing determination and summary of the data on which it is based, with the incorporated changes, are presented in the remainder of this document.

Identification of Distinct Population Segments

As described above, the ESA's definition of "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." The high degree of reproductive isolation of Atlantic sturgeon (i.e., homing to their natal rivers for spawning; ASSRT, 2007; Wirgin et al., 2000; King et al., 2001; Waldman et al., 2002), as well as the ecological uniqueness of those riverine spawning habitats, the genetic differentiation amongst riverine populations, and the differences in life history characteristics, provide evidence that discrete reproducing populations of Atlantic sturgeon exist, which led the Services to evaluate application of the DPS policy in its 2007 status review report. To determine whether any populations qualify as DPSs, we evaluated populations pursuant to the joint DPS policy, and considered: (1) the discreteness of any Atlantic sturgeon

population segment in relation to the remainder of the subspecies to which it belongs; and (2) the significance of any Atlantic sturgeon population segment to the remainder of the subspecies to which it belongs.

Discreteness

The joint DPS policy states that a population of a vertebrate species may be considered discrete if it satisfies either one of the following conditions: (1) it is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors (quantitative measures of genetic or morphological discontinuity may provide evidence of this separation) or (2) it is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of Section 4(a)(1)(D) of the ESA.

Atlantic sturgeon throughout their range exhibit ecological separation during spawning that has resulted in multiple, genetically distinct, interbreeding population segments. Tagging studies and genetic analyses provide the evidence of this ecological separation (Wirgin et al., 2000; King et al., 2001; Waldman et al., 2002; ASSRT, 2007; Grunwald et al., 2008). As previously discussed, though adult and subadult Atlantic sturgeon originating from different rivers mix in the marine environment (Stein et al., 2004a), the vast majority of Atlantic sturgeon return to their natal rivers to spawn, with some studies showing only one or two individuals per generation spawning outside their natal river system (Wirgin et al., 2000; King et al., 2001; Waldman et al., 2002). In addition, spawning in the various river systems occurs at different times, with spawning occurring earliest in southern systems and occurring as much as 5 months later in the northernmost river systems (Murawski and Pacheco, 1977; Smith, 1985; Rogers and

Weber, 1995; Weber and Jennings, 1996; Bain, 1997; Smith and Clugston, 1997; Moser et al., 1998; Caron et al., 2002). Therefore, the ecological separation of the interbreeding units of Atlantic sturgeon results primarily from spatial separation (i.e., very few fish spawning outside their natal river systems), as well as temporal separation (spawning populations becoming active at different times along a continuum from north to south).

Genetic analyses of mitochondrial DNA (mtDNA), which is maternally inherited, and nuclear DNA (nDNA), which reflects the genetics of both parents, provides evidence of the separation among Atlantic sturgeon populations in different rivers (Bowen and Avise, 1990; Ong et al., 1996; Waldman et al., 1996a; Waldman et al., 1996b; Waldman and Wirgin, 1998; Waldman et al., 2002; King et al., 2001; Wirgin et al., 2002; Wirgin et al., 2005; Wirgin and King, 2006; Grunwald et al., 2008). New analyses of both mtDNA and nDNA were conducted specifically for the status review. In comparison to previous studies, the genetic analyses for the status review employed greater sample sizes from multiple rivers, and limited the samples analyzed to those collected from YOY and mature adults (> 130 cm TL) to ensure that the fish originated from the river in which it was sampled (Wirgin and King supplemental data, 2006; ASSRT, 2007). The results for both the mtDNA haplotype and microsatellite (nDNA) allelic frequencies indicated that all of the Atlantic sturgeon riverine populations for which there are samples available are genetically differentiated (ASSRT, 2007; Tables 4 and 5) from each other. The results of the mtDNA analysis used for the status review report were also subsequently published by Grunwald et al. (2008). In comparison to the mtDNA analyses used for the status review report, Grunwald et al. (2008) used additional samples, some from fish in the size range (< 130 cm TL); these samples were excluded by Wirgin and King (supplemental data, 2006)

because they were smaller than those considered to be mature adults. Nevertheless, the results of Grunwald et al. (2008) similarly demonstrated that each of the 12 sampled Atlantic sturgeon riverine populations could be genetically differentiated from each other (Grunwald et al., 2008).

Genetic distances and statistical analyses (bootstrap values and assignment test values) were used to investigate significant relationships among, and differences between, Atlantic sturgeon riverine populations (ASSRT, 2007; Table 6 and Figures 16-18). Overall, the genetic markers used in this analysis resulted in an average accuracy of 88 percent (range 60.0-94.8 percent) for determining a sturgeon's natal river origin, but an average accuracy of 94 percent (range 88.1-95.9 percent) for correctly classifying it to one of five groups of populations (Kennebec River, Hudson River, James River, Albemarle Sound, and Savannah/Ogeechee/Altamaha Rivers) when using microsatellite data collected only from YOY and adults (ASSRT, 2007; Table 6). A phylogenetic tree (a neighbor joining tree) was produced from only YOY and adult samples (to reduce the likelihood of including strays from other populations) using the microsatellite analysis (ASSRT, 2007; Figure 17). Bootstrap values (which measure how consistently the data support the tree structure) for this tree were high (the lowest was 87 percent, and all others were over 90 percent) (ASSRT, 2007). Regarding sturgeon from northeast rivers, this analysis resulted in a range of 81 to 89 percent accuracy in determining a sturgeon's natal river of origin and correctly classifying a sturgeon to a population group. To further assess the accuracy of the results, King (supplemental data, 2006) reanalyzed the nDNA using a greater number of loci. His results showed that increasing the number of loci from 7 to 12 improved the classification rates for natal origin and identification of population groupings (e.g., from 84 percent to 95 percent for the James River), but did not change the

conclusion that there are five discrete Atlantic sturgeon population segments in the United States.

In summary, evidence to support the existence of discrete Atlantic sturgeon populations includes temporal and spatial separation during spawning and the results from genetic analyses. Genetic samples for YOY and spawning adults were not available for riverine populations originating from other rivers in the northeast region. However, nDNA from an expanded dataset that included juvenile Atlantic sturgeon was used to produce a neighbor-joining tree with bootstrap values (ASSRT, 2007; Figure 18). This dataset included additional samples from the Delaware River and York River riverine populations in the Northeast. Atlantic sturgeon riverine populations also grouped into five population segments in this analysis (Delaware River riverine population with the Hudson River riverine population, and the York River riverine population with the James River riverine population).

We have considered the information on Atlantic sturgeon population structuring provided in the status review report and Grunwald et al. (2008) and have concluded that five discrete Atlantic sturgeon population segments are present in the United States, with three located in the Northeast: (1) – the "Gulf of Maine (GOM)" population segment, which includes Atlantic sturgeon that originate from the Kennebec River, (2) – the "New York Bight (NYB)" population segment, which includes Atlantic sturgeon originating from the Hudson and Delaware Rivers, and (3) – the "Chesapeake Bay (CB)" population segment, which includes Atlantic sturgeon that originate from the James River. Each is markedly separate from the other four population segments as a consequence of physical factors.

With respect to Atlantic sturgeon of Canadian origin, mtDNA analysis has shown that Atlantic sturgeon originating from rivers ranging from the Kennebec River, Maine, to the Saint

Lawrence River, Canada, are predominately homogenous (one genotype) (Waldman et al., 2002; Grunwald et al., 2008; ASSRT, 2007). However, nDNA microsatellite analysis has found these same rivers to be genetically diverse (King, supplemental data, 2006). The SRT concluded that the differences in nDNA were sufficient to determine that Atlantic sturgeon which originate in Canada are markedly separate from Atlantic sturgeon of U.S. origin.

The genetic analyses support that at least one, and possibly more, discrete Atlantic sturgeon population groupings occur in Canada. The SRT did not further consider the status of Atlantic sturgeon originating in Canada once it was determined that they were discrete from the five U.S. Atlantic sturgeon population groupings. We did not consider a listing determination for these populations given the lack of information by which to determine whether the Canadian riverine populations represent one or more DPSs, and given the regulatory controls on import and export of Atlantic sturgeon and their parts per the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

Significance

When the discreteness criterion is met for a potential DPS, as it is for the GOM, NYB, and CB population segments in the Northeast identified above, the second element that must be considered under the DPS policy is significance of each DPS to the taxon as a whole. The DPS policy cites examples of potential considerations indicating significance, including: (1) persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon; (3) evidence that the DPS represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside

its historical range; or, (4) evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

We believe that the GOM, NYB, and CB population segments persist in ecological settings unique for the taxon. This is evidenced by the fact that spawning habitat of each population grouping is found in separate and distinct ecoregions that were identified by The Nature Conservancy (TNC) based on the habitat, climate, geology, and physiographic differences for both terrestrial and marine ecosystems throughout the range of the Atlantic sturgeon along the Atlantic coast (Figure 2).

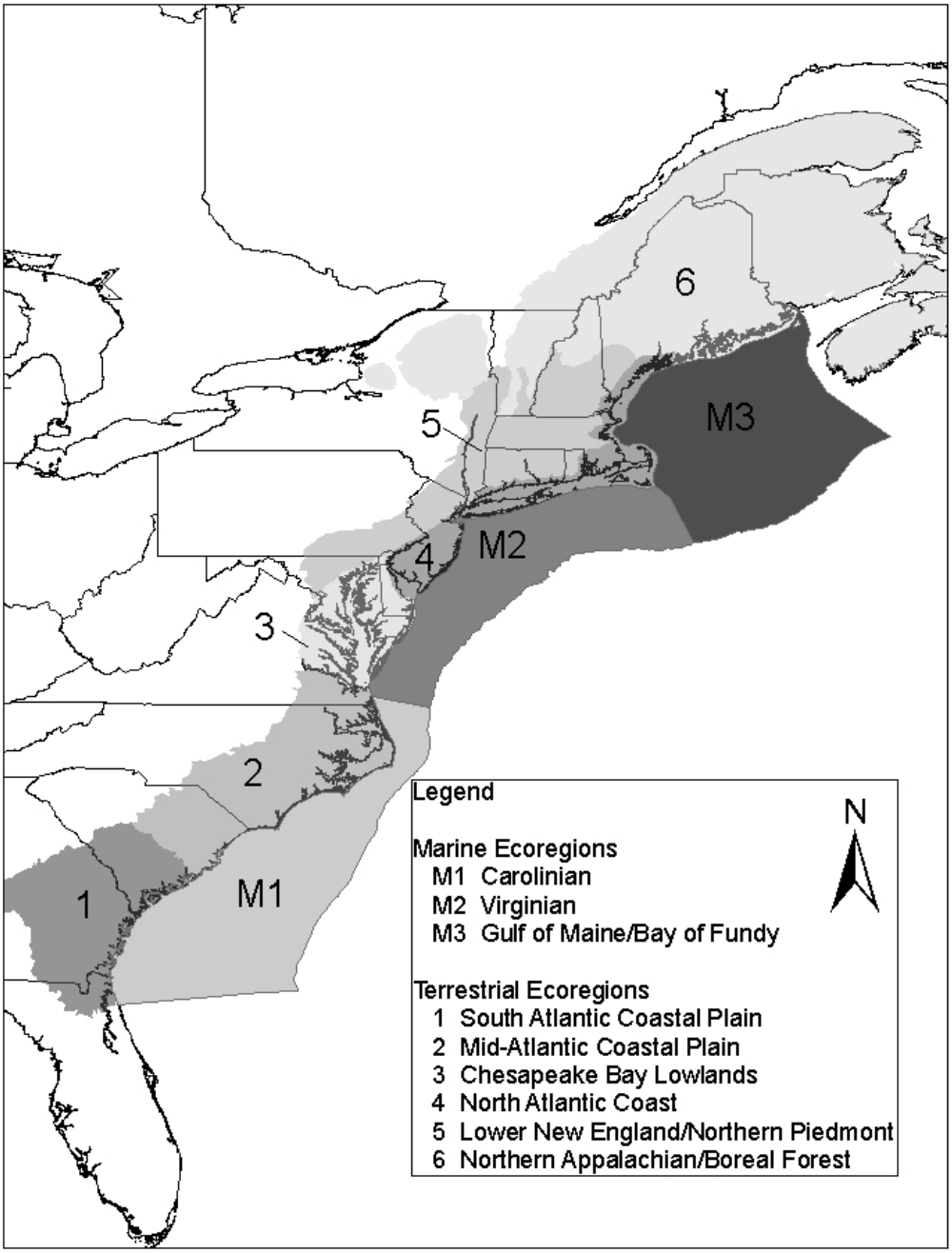

Figure 2: Map of TNC Marine and Terrestrial Ecoregions

TNC descriptions do not include detailed information on the chemical properties of the rivers within each ecoregion, but include an analysis of bedrock and surficial geology type because it relates to water chemistry, hydrologic regime, and substrate. It is well established that waters have different chemical properties (i.e., identities) depending on the geology of where the waters originate. For example, riverine spawning/nursery habitat of the Kennebec River riverine population occurs within the Northern Appalachian/Boreal Forest ecoregion whose characteristically large expanses of forest, variety of swamps, marshes, bogs, ice scoured riverbanks, salt marshes, and rocky coastal cliffs were influenced by a geological history that includes four glaciation events (TNC, 2008). In contrast, riverine spawning/nursery habitat of Atlantic sturgeon that originate from the Hudson and Delaware Rivers occurs within the Lower New England-Northern Piedmont and North Atlantic Coast ecoregions which are characterized by low mountains, abundant lakes, and limestone valleys inland and generally flat, sandy coastal plains dissected by major tidal river systems near the coast (Barbour, 2000; TNC, 2008). The Chesapeake Bay Lowlands ecoregion, within which riverine spawning/nursery habitat for the James River riverine population grouping of Atlantic sturgeon occurs, presents yet a different landscape based on its geologic history. As glaciers that extended as far south as present day Pennsylvania began to melt, streams and rivers that flowed toward the coast were carved out of the landscape (Pyzik et al., 2004). These past events are seen today in the characteristic features of the Chesapeake Bay Lowlands ecoregion which includes a broad plain to the west of the Bay with generally low slopes and gentle drainage dissected by a series of major rivers – the Patuxent, Potomac, Rappahannock, York and James – as well as a complex and dynamic patchwork of barrier islands, salt marshes, tidal flats and large coastal bays along the Delmarva

Peninsula (TNC, 2002 in draft). Riverine spawning/nursery habitat for the two remaining Atlantic sturgeon groupings in the Southeast likewise occur in separate and distinct ecoregions. Therefore, the ecoregion delineations support that the physical and chemical properties of the Atlantic sturgeon spawning rivers are unique to each population grouping. The five discrete U.S. Atlantic sturgeon population segments are "significant" as defined in the DPS policy, given that the spawning rivers for each population segment occur in a unique ecological setting.

Further, because each discrete population segment is genetically distinct and reproduces in a unique ecological setting, the loss of any one of the discrete population segments is likely to create a significant gap in the range of the taxon. Atlantic sturgeon that originate from other discrete population segments are not expected to re-colonize systems except perhaps over a long time frame (e.g., greater than 100 years), given that gene flow is low between the five discrete population segments (Wirgin et al., 2000; King et al., 2001; Waldman et al., 2002) and the geographic distances between spawning rivers of different population segments are relatively large (ASSRT, 2007). Therefore, the loss of any of the discrete population segments would result in a significant gap in the range of Atlantic sturgeon and negatively impact the species as a whole.

The information presented above describes: (1) persistence of the GOM, NYB, and CB population segments in ecological settings that are unique for the Atlantic sturgeon as a whole; and (2) evidence that loss of any of these three population segments would result in a significant gap in the range of the taxon. Based on this information, we conclude that the GOM, NYB, and CB population segments meet the discreteness and significance criteria outlined in the DPS policy.

Summary of Factors Affecting the Three Northeast Region DPSs of Atlantic Sturgeon

The proposed rule (75 FR 61872; October 6, 2010) and the status review report (ASSRT, 2007) provide detailed discussion of status and threats to each DPS. As described in the proposed rule, the primary factors responsible for the decline of the three DPSs are the destruction, modification or curtailment of habitat due to poor water quality, dredging, and the presence of dams; overutilization due to unintended catch of Atlantic sturgeon in fisheries; lack of regulatory mechanisms for protecting the fish; and other natural or manmade factors including loss of fish through vessel strikes

We conducted a comprehensive assessment of the combined impact of the five ESA section 4(a)(1) factors throughout the range of each DPS to determine extinction risk of each DPS. We focused on evaluating whether the DPSs are presently in danger of extinction, or whether the danger of extinction is likely to develop in the future. In our proposed rule and this final rule to list the GOM, NYB, and CB DPSs of Atlantic sturgeon, we determined that each DPS was at greater risk of extinction relative to their statuses as determined during the status review completed in 2007. Our listing determinations for the GOM, NYB, and CB DPSs and summary of the data on which they are based, including new information received since publication of the proposed rule, are presented below.

The Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

Barriers (e.g., dams, tidal turbines), dredging, and water quality (e.g., dissolved oxygen levels, water temperature, and contaminants) are threats that affect Atlantic sturgeon habitat or range. In the GOM DPS, access to Atlantic sturgeon spawning habitat is impeded most severely

on the Merrimack River, where Atlantic sturgeon are limited to 42 percent of historical spawning habitat (Oakley, 2003; ASSRT, 2007). Dams on the Saco and Piscataqua Rivers have an unknown impact upon Atlantic sturgeon using those rivers. Seventy-nine percent of Atlantic sturgeon habitat is accessible on the Penobscot River, due to the presence of the Veazie Dam at rkm 56; ASSRT, 2007).

We received additional information from the USFWS during the comment period on the progress for removal of the Veazie Dam on the Penobscot River. Removal of the Veazie Dam is part of a larger project described in the Penobscot River Restoration Plan (PRRP) to enhance fish passage on the Penobscot. The Penobscot River Restoration Trust (Trust) now owns and holds title to the Veazie, Great Works, and Howland Hydroelectric Projects. This completes phase I of the PRRP. Phase II involves decommissioning and removal of the Veazie Dam as well as the Great Works Hydroelectric Projects, including associated dams, and decommissioning and by-passing the Howland Hydroelectric Project. The Trust has secured all necessary State and Federal permits to purchase, remove or by-pass the dams. The Trust also holds substantial financial commitments for accomplishing the removal of Veazie as well as Great Works Dams. Removal of the Veazie is expected to restore access to all historical Atlantic sturgeon habitats in the Penobscot River.

Dredging projects on the Kennebec River in the GOM DPS are known to have captured Atlantic sturgeon. Dredging has also been proposed for the Penobscot Harbor of the Penobscot River (ASSRT, 2007).

Despite the persistence of contaminants in rivers and increasing land development, many rivers and watersheds within the range of the GOM DPS have demonstrated improvement in

water quality (USEPA, 2008). In general, the most recent (third edition) USEPA Coastal Condition Report identified that water quality was good to fair for waters north of Cape Cod (USEPA, 2008).

Within the NYB DPS, there is evidence of Atlantic sturgeon spawning in the Hudson and Delaware Rivers (ASSRT, 2007). Access to historical spawning grounds is unimpeded by dams in these rivers; whereas, dams may impede access to some habitat in the Taunton and Connecticut Rivers. Hadley Falls, at site of the Holyoke Dam, Connecticut River, MA, is considered the upstream limit of sturgeon in this system; however, there is record of an Atlantic sturgeon taken in the fish lift at the Holyoke Dam in 2006 (R. Murray, HG&E, pers. comm., 2006) (ASSRT, 2007).

Within the NYB DPS, maintenance dredging occurs in the Hudson and Delaware Rivers (excluding the Hudson River section between Haverstraw Bay and Catskill which is naturally deep; D. Mann-Klager, USFWS, pers. comm., 1998). Seasonal restrictions for diadromous species on when this work can occur have been imposed by the Delaware River Fish and Wildlife Management Cooperative (ASSRT, 2007), but dredge gear used in the Delaware is known to injure or kill Atlantic sturgeon (ASSRT, 2007). Additional proposed dredge activities (for a liquefied natural gas (LNG) terminal and a large scale deepening project) in the Delaware River create potential for Atlantic sturgeon takes.

Rivers and watersheds in the NYB DPS have been affected by industrialization, agriculture, and urbanization since European colonization. Continuing known or potential impacts from water quality in the NY Bight DPS include: low dissolved oxygen concentrations in the summer and high ammonia-nitrogen levels in the Taunton River (Taunton River Journal,

2006; ASSRT, 2007); impacts from coal tar leachate in the Connecticut River (Kocan et al., 1993; 1996); the legacy of PCB pollution in the Hudson River (Sloan et al., 2005); and contamination resulting from the Roebling Steel plant operations in the Delaware River, which resulted in the designation of the Roebling-Trenton stretch of the river as a USEPA Superfund site. However, improvements in the biological status of shortnose sturgeon in several rivers of the NYB DPS (e.g., the Connecticut, Hudson, and Delaware Rivers), suggests that water quality is sufficient for supporting Atlantic sturgeon riverine populations. The most recent (third edition) USEPA Coastal Condition Report identified that water quality was fair overall for waters south of Cape Cod through Delaware (USEPA, 2008).

For the CB DPS, there is evidence that Atlantic sturgeon currently spawn in the James River (ASSRT, 2007), and spawning may be occurring in the York River as well (Musick et al., 1994; K. Place, Commercial Fisherman, pers. comm., 2006; ASSRT, 2007). Access to habitat in these and other CB DPS rivers is not thought to be impeded by dams.

Past removal of granite outcroppings and dredging of the James River likely represented the most significant impacts to spawning habitat in the CB DPS (Holton and Walsh, 1995; Bushnoe et al., 2005). Maintenance dredging and current dredging projects underway to deepen and widen the shipping terminal near Richmond on the James River (C. Hager, VIMS, pers. comm., 2005; S. Powell, USACE, pers. comm., 2009) have the potential to take Atlantic sturgeon in the river. The Commonwealth of Virginia does impose a dredging moratorium during the anadromous spawning season (C. Hager, VIMS, pers. comm., 2005).

The placement of turbine structures to generate power in rivers used by Atlantic sturgeon could directly take fish by blade strike or could, potentially, damage or destroy bottom habitat.

Seventeen hydrokinetic projects proposed for both the GOM (9) and NYB (8) DPSs have received preliminary permits from FERC, and two tidal power projects are currently in operation along the range of Atlantic sturgeon. The Annapolis River (Nova Scotia, Canada) tidal power plant impacts Atlantic sturgeon, with a probability of lethal strike from the turbine ranging between 40 and 80 percent (M. Dadswell, Arcadia University, pers. comm., 2006; ASSRT, 2007). One marine turbine project is underway within the United States in the East River, New York (Angelo, 2005; Verdant Power webpage, 2009). However, the slowly rotating blades in the East River project are different than the ducted intake design used in the Annapolis River project in Nova Scotia. Modeling done as part of the project pilot license indicated that blade strike probability for Atlantic sturgeon at one turbine was 0.009 percent at this particular project site. Verdant Power recently completed Phase 2 of the project, which involved installation and operation of six full-scale turbines in an array at the project site in the East River (Verdant Power webpage, 2009). Phase 3 of the project will entail placement of 30 turbines in the East Channel of the East River, as well as environmental monitoring that includes making attempts to detect tagged ESA-listed species in the project area (Verdant Power, pers. comm., 2011).

With respect to the CB DPS, the period of Atlantic sturgeon population decline and low abundance in the Chesapeake Bay corresponds to a period of poor water quality caused by increased nutrient loading and increased frequency of hypoxia (Officer et al., 1984; Mackiernan, 1987; Kemp et al., 1992; Cooper and Brush, 1993). USEPA's Third Coastal Condition Report identified the water quality for the Chesapeake Bay and immediate vicinity (to the Virginia – North Carolina border) as fair to poor (USEPA, 2008). Water quality concerns (especially low dissolved oxygen resulting from nutrient loading) and the availability of clean, hard substrate for

attachment of demersal, adhesive eggs (Bushnoe et al., 2005; C. Hager, VIMS, pers. comm., 2005) appear to be limiting habitat requirements in the CB DPS.

Potential changes in water quality as a result of global climate change (temperature, salinity, dissolved oxygen, contaminants, etc.) in rivers and coastal waters inhabited by Atlantic sturgeon will likely affect those riverine populations. Effects are expected to be more severe for those riverine populations that occur at the southern extreme of the sturgeon's range, and in areas that are already subject to poor water quality as a result of eutrophication.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization of Atlantic sturgeon for commercial purposes is considered the primary factor for the historical decline of the GOM, NYB, and CB DPSs. A moratorium on the possession and retention of Atlantic sturgeon for the past 12 years has effectively terminated any directed harvest of Atlantic sturgeon. However, bycatch in Federal and state regulated fisheries continues to occur, and is one of the primary threats to the species (ASSRT, 2007). Fisheries known to incidentally catch Atlantic sturgeon occur throughout the marine range of the species and in some riverine waters as well. Therefore, adult and subadult age classes of each DPS are at risk of injury or death resulting from entanglement and/or capture in fishing gear wherever they occur.

Canadian fisheries for Atlantic sturgeon occur in the Saint Lawrence and Saint John Rivers. Information received from the Department of Fisheries and Oceans, Canada during the public comment period suggests that Atlantic sturgeon of U.S. origin may be captured in the Saint John fishery since the fishery occurs primarily in the estuary where non-natal sturgeon may be present. Retention of incidentally caught sturgeon in other fisheries is prohibited and

sturgeon bycatch is required to be released alive (DFO, pers. comm., 2011). DFO has received an application for the export of wild caught Atlantic sturgeon specimens and product (i.e. eggs, meat) captured in the Saint John fishery (DFO, pers. comm., 2011), and is working with U.S. representatives to ensure that the requirements of the Convention on International Trade in Endangered Species are met. Atlantic sturgeon are an Appendix II species under CITES. In Canada, the Species at Risk Act (SARA) is the statute used for the conservation, recovery, and protection of species at risk (DFO, pers. comm., 2011). Atlantic sturgeon was reviewed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in May 2011, and determined to be at risk of extinction. Given the determination, Atlantic sturgeon will be considered for listing under SARA.

Since the publication of the 2007 status review report, additional information on Atlantic sturgeon bycatch in U.S. sink gillnet and otter trawl fisheries has become available (ASMFC, 2007). For sink gillnet gear, Atlantic sturgeon bycatch rates were similar for otter trawl gear and sink gillnet gear. However, bycatch mortality was markedly different between the two gear types, with a mean estimated annual Atlantic sturgeon mortality from gillnets of 649 sturgeon per year, or 13.8 percent of the annual Atlantic sturgeon bycatch in sink gillnet gear (ASMFC, 2007). The total number of Atlantic sturgeon killed in otter trawl gear could not be estimated because of the low number of observed mortalities, indicating a low mortality rate (ASMFC, 2007).

Approximately 15 to 19 percent of observed Atlantic sturgeon bycatch in sink gillnet and otter trawl gear in 2001 to 2006 occurred in coastal marine waters north of Chatham, MA (ASMFC, 2007). Other fisheries occur in the estuaries of the GOM DPS, but Atlantic sturgeon

bycatch has not been reported in those fisheries.

Approximately 39 to 55 percent of observed Atlantic sturgeon bycatch in sink gillnet and otter trawl gear for 2001 to 2006 occurred in coastal marine waters south of Chatham, MA and north of the Delaware-Maryland border (ASMFC, 2007). Bycatch is also known to occur in the commercial shad fishery that operates in the lower Connecticut River from April to June in large mesh (14 cm minimum stretched mesh) gill nets (ASSRT, 2007). Several fisheries using gillnet gear occur in the Delaware Bay, including the striped bass, shad, white perch, Atlantic menhaden, and weakfish fisheries (ASSRT, 2007), but bycatch mortality of Atlantic sturgeon is typically low due to the timing of these fisheries (C. Shirey, DNREC, pers. comm., 2005).

With respect to the CB DPS, the NEFSC analysis indicated that coastal waters south of the Chesapeake Bay to Cape Hatteras, NC, had the second highest number of observed Atlantic sturgeon captures in sink gillnet gear for 2001-2006 (ASMFC, 2007). A gillnet fishery for dogfish was known to incidentally catch sturgeon off Chincoteague Island, VA, where more than 30 dead Atlantic sturgeon were found (Virginia Marine Police and Virginia Marine Resources Commission, pers. comm.). Access to the spiny dogfish fishery is not limited, and directed effort in the fishery is expected to increase as stock rebuilding objectives are met (ASMFC, 2009). An increase in effort could result in increased levels of Atlantic sturgeon bycatch.

In addition to fisheries occurring in marine waters, numerous fisheries operate throughout the Chesapeake Bay (ASSRT, 2007). Juvenile and subadult Atlantic sturgeon are routinely taken as bycatch throughout the Chesapeake Bay in a variety of fishing gears (ASSRT, 2007), and the mortality of Atlantic sturgeon bycatch in most of these fisheries is unknown, although low rates of bycatch mortality were reported for the striped bass gill net fishery and the shad fishery within

the Bay (Hager, 2006). The available information supports that overutilization of the GOM, NYB, and CB DPSs is not occurring as a result of educational or scientific purposes.

Disease or Predation

Very little is known about natural predators of Atlantic sturgeon. The presence of bony scutes is likely an effective adaptation for minimizing predation of sturgeon greater than 25 mm TL (Gadomski and Parsley, 2005; ASSRT, 2007). Seal predation on shortnose sturgeon in the Penobscot River has been documented (Fernandes, 2008; A. Lictenwalner, UME, pers. comm., 2009) and Atlantic sturgeon that are of comparable size to shortnose (e.g., subadult Atlantic sturgeon) may also be susceptible to seal predation.

The presence of introduced flathead catfish has been confirmed in the Delaware and Susquehanna River systems of the NYB and CB DPSs, respectively (Horwitz et al., 2004; Brown et al., 2005). However, there are no indications that the presence of flathead catfish in the Cape Fear River, NC, and Altamaha River, GA (where flatheads have been present for many years) is negatively impacting Atlantic sturgeon in those rivers (ASSRT, 2007).

A die-off of sturgeon, 13 shortnose and two Atlantic sturgeon, was reported for Sagadahoc Bay, ME, in July 2009, at the same time as a red tide event for the region. The dinoflagellate associated with the red tide event, Alexandrium fundyense, is known to produce saxitoxin, which can cause paralytic shellfish poisoning when consumed in sufficient quantity.

There is concern that non-indigenous sturgeon pathogens could be introduced to wild Atlantic sturgeon, most likely through aquaculture operations. The aquarium industry is another possible source for transfer of non-indigenous pathogens or non-indigenous species from one geographic area to another, primarily through release of aquaria fish into public waters. Neither

disease nor predation are considered primary factors affecting the continued persistence of any of the three Atlantic sturgeon DPSs in the Northeast.

Inadequacy of Existing Regulatory Mechanisms.

As a wide-ranging anadromous species, Atlantic sturgeon are subject to numerous Federal (U.S. and Canadian), state and provincial, and inter-jurisdictional laws, regulations, and agency activities. These regulatory mechanisms are described in detail in the status review report (see section 3.4), and those that impact Atlantic sturgeon the most are highlighted here. As previously described, the ASMFC manages Atlantic sturgeon through an interstate fisheries management plan that was developed in 1990 (Taub, 1990). The moratorium prohibiting directed catch of Atlantic sturgeon was developed as Amendment 1 to the FMP. Under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA), in 1999, NMFS implemented regulations that prohibit the retention and landing of Atlantic sturgeon bycatch from federally regulated fisheries. While there are currently no fishery specific regulations in place that address Atlantic sturgeon bycatch, NMFS has the authority and discretion to implement such measures, and has previously used its authority to implement measures to reduce bycatch of protected species in federally-regulated fisheries.

Some fisheries that occur within state waters are also known or suspected of taking Atlantic sturgeon as bycatch. Maine's regulations prohibit the use of purse, drag, and stop seines, and gill nets with greater than 87.5 mm stretched mesh (ASSRT, 2007). Fixed or anchored nets have to be tended continuously and hauled in and emptied every 2 hours (ASSRT, 2007). As described above, there has been no reported or observed bycatch of Atlantic sturgeon in the limited gill net fisheries for menhaden, alewives, blueback herring, sea herring, and

mackerel in the estuarial complex of the Kennebec and Androscoggin Rivers (ASSRT, 2007). However, the level of observer coverage or reporting effort is unknown. Current Connecticut regulations appear to be inadequate for addressing bycatch in the Connecticut River. As mentioned above, the NY DEC closed all shad fisheries in the Hudson River effective March 17, 2010 (NY DEC press release, March 17, 2010).

Gillnet fisheries for numerous fish species occur in the Chesapeake Bay. Low rates of sturgeon bycatch mortality were reported for the striped bass gill net fishery and the shad staked gill net fishery (Hager, 2006; ASSRT, 2007), although estimates of bycatch in these fisheries as well as other fisheries in the Bay are not available. Since completion of the status review report, Virginia has closed the directed fishery for American shad to allow rebuilding of the stock. Virginia also has various time and gear restrictions for the use of gillnet gear in its tidal waters, including prohibitions on the use of staked or anchored gillnet gear in portions of the James and Rappahannock Rivers from April 1 through May 31 (VA MRC Summary of Regulations, 2009), that are likely to benefit Atlantic sturgeon by reducing the likelihood of sturgeon bycatch. Similarly, regulations implemented by NMFS (69 FR 24997, May 5, 2004; 71 FR 36024, June 23, 2006) to reduce sea turtle interactions with pound net gear in the Bay and portions of the surrounding rivers (e.g., James, York, and Rappahannock Rivers) likely reduce the chance that Atlantic sturgeon will be caught in the gear.

Due to existing state and Federal laws, water quality and other habitat conditions have improved in many rivers (USEPA, 2008). As described above, dredging is a threat for the GOM, NYB, and CB DPSs of Atlantic sturgeon. Currently, there are no specific regulations requiring action(s) to reduce effects of dredging on Atlantic sturgeon. However, we have some authority

and discretion to implement such measures or require modification of dredging activities when Atlantic sturgeon are listed under the ESA.

Other Natural or Manmade Factors Affecting the Species Continued Existence

The ASSRT considered several manmade factors that may affect Atlantic sturgeon, including impingement and entrainment, vessel strikes, and artificial propagation. Within the range of Atlantic sturgeon, most, if not all, riverine populations are at risk of possible entrainment or impingement in water withdrawal intakes for commercial uses, municipal water supply facilities, and agricultural irrigation intakes. Based on surveys conducted in the Hudson and Delaware Rivers, entrainment and impingement does not appear to be a primary threat to Atlantic sturgeon. Vessel strikes of Atlantic sturgeon have been documented in particular areas. 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). Twenty-nine mortalities believed to be the result of vessel strikes were documented in the Delaware River from 2004 to 2008 (Kahnle et al., 2005; Murphy, 2006; Brown and Murphy, 2010), most likely from larger vessels, although at least one boater reported hitting a large sturgeon with his small craft (C. Shirey, DNREC, pers. comm., 2005). Recreational vessels are known to have struck and killed shortnose sturgeon in the Kennebec River (G. Wipplehauser, ME DMR, pers. comm., 2009). Therefore, it is likely that Atlantic sturgeon can also suffer mortal injuries when struck by recreational vessels. In the James River, 11 Atlantic sturgeon were reported to have been struck by vessels from 2005 through 2007 (A. Spells, USFWS, pers. comm., 2007). The propeller marks present on the six fish examined indicated that the wounds were inflicted by both large and small vessels (A. Spells, USFWS, pers. comm., 2007). Other sources suggest an

even higher rate of interaction with at least 16 Atlantic sturgeon mortalities reported for a short reach of the James River during 2007-2008 (Balazik, unpublished, in Richardson et al., 2009).

Artificial propagation of Atlantic sturgeon for use in restoration of extirpated riverine populations or recovery of severely depleted wild riverine populations has the potential to be both a threat to the species and a tool for recovery. In 1991, the USFWS Northeast Fisheries Center (NEFC) in Lamar, Pennsylvania began a program to capture, transport, spawn, and culture Atlantic sturgeon. The work at Lamar resulted in the publication of the Culture Manual for the Atlantic sturgeon (Mohler, 2004). Since NEFC's first successful spawning in 1993, many requests have been made for excess progeny both inside and outside of the Department of the Interior. These requests were filled only under the condition that a study plan, including provisions that escapement of cultured sturgeon into the wild be prevented except where experimental stockings were conducted under Federal and state regulations, be submitted to NEFC for review by the Center Director and biologists.

Summary of Protective Efforts

The PECE (68 FR 15100, March 28, 2003) provides direction for the consideration of protective efforts identified in conservation agreements, conservation plans, management plans, or similar documents (developed by Federal agencies, state and local governments, Tribal governments, businesses, organizations, and individuals) that have not yet been implemented, or have been implemented but have not yet demonstrated effectiveness. The evaluation of the certainty of an effort's effectiveness is made on the basis of whether the effort or plan: establishes specific conservation objectives; identifies the necessary steps to reduce threats or factors for decline; includes quantifiable performance measures for the monitoring of compliance

and effectiveness; incorporates the principles of adaptive management; and is likely to improve the species' viability at the time of the listing determination. Conservation measures that may apply to listed species include those implemented by tribes, states, foreign nations, local governments, and private organizations. Also, Federal, tribal, state, and foreign nations' recovery actions (16 U.S.C. 1533(f)), Federal consultation requirements (16 U.S.C. 1536), and prohibitions on taking (16 U.S.C. 1538) constitute conservation measures. In addition, recognition through Federal government or state listing promotes public awareness and conservation actions by Federal, state, tribal governments, foreign nations, private organizations, and individuals.

As described in detail in the proposed rule, various agencies, groups, and individuals are carrying out a number of efforts aimed at protecting and conserving Atlantic sturgeon belonging to the GOM, NYB, and CB DPSs. These actions are directed at reducing threats faced by Atlantic sturgeon and/or gaining additional knowledge of specific Atlantic sturgeon riverine populations. Such actions could contribute to the recovery of the GOM, NYB, and CB DPSs of Atlantic sturgeon in the future. However, there is still considerable uncertainty regarding the implementation and effectiveness of these efforts, and the extent to which any would reduce the threats to the GOM, NYB, or CB DPSs that are the cause of their listing. Therefore, we have determined that none of these protective efforts currently contribute to making it unnecessary to list of the GOM, NYB, or CB DPSs of Atlantic sturgeon.

We received additional information during the public comment period specifically referring to the Penobscot River Restoration Project (PRRP), indicating that PECE criterion 4 has been satisfied. The PRRP has successfully purchased the Veazie, Great Works, and

Howland Hydroelectric Projects, has obtained the necessary state and Federal permits required for removing or bypassing the dams, and has gathered a large amount of funding which can be used for removal of the dams that could impact Atlantic sturgeon.

Final Listing Determination

We determined that the NYB and CB DPSs of Atlantic sturgeon are currently in danger of extinction throughout their range, and the GOM DPS of Atlantic sturgeon is likely to become endangered within the foreseeable future throughout its range, on the basis of low population size and the level of impacts and number of threats such as continued degraded water quality, habitat impacts from dredging, continued bycatch in state and federally-managed fisheries, and vessel strikes to each DPS. Historically, each of the DPSs likely supported more than 10,000 spawning adults (Kennebec River Resource Management Plan 1993; Secor 2002; ASSRT, 2007). The best available data support that current numbers of spawning adults for each DPS are one to two orders of magnitude smaller than historical levels (e.g., hundreds to low thousands (ASSRT, 2007; Kahnle et al., 2007)). A long life-span allows multiple opportunities for Atlantic sturgeon to contribute to future generations, but it increases the timeframe over which exposure to the multitude of threats facing the DPSs can occur. Their late age at maturity also provides more opportunities for individual Atlantic sturgeon to be removed from the population before reproducing.

While there is only one known spawning population within the GOM DPS (i.e., the Kennebec River), there is possible spawning in the Penobscot River. Atlantic sturgeon continue to be present in the Kennebec River; in addition, they are captured in directed research projects in the Penobscot River, and are observed in rivers where they were unknown to occur or had not

been observed to occur for many years (e.g., the Saco River and the Presumpscot River). These observations suggest that abundance of the GOM DPS of Atlantic sturgeon is sufficient such that recolonization to rivers historically suitable for spawning may be occurring.

Despite the past impacts of exploitation, industrialization and population expansion, the DPS has persisted and is now showing signs of potential recovery (e.g., increased abundance and/or expansion into its historical range). The level of impact from the threats which facilitated its decline have been removed (e.g., directed fishing) or reduced as a result of improvements in water quality since passage of the CWA; removal of dams (e.g., the Edwards Dam on the Kennebec River in 1999); reductions in fishing effort in state and Federal waters, which may have resulted in a reduction in overall bycatch mortality; and the implementation of strict regulations on the use of fishing gear in Maine state waters that incidentally catch sturgeon. As indicated by the mixed stock analysis results, fish from the Gulf of Maine DPS are not commonly taken as bycatch in areas south of Chatham, MA (Wirgin and King, 2011). Of the 84 observed Atlantic sturgeon interactions with fishing gear in the Mid Atlantic/Carolina region, only 8 percent (e.g., 7 of the 84 fish) were assigned to the GOM DPS (Wirgin and King, 2011). Tagging results also indicate that GOM DPS fish tend to remain within the waters of the Gulf of Maine and only occasionally venture to points south (Eyler, 2006; Eyler, 2011).

Water quality within the Gulf of Maine has improved significantly over time and unlike in areas farther south, it is very rare to have issues with low dissolved oxygen concentrations (that negatively affect Atlantic sturgeon) in the Gulf of Maine. A significant amount of fishing in the Gulf of Maine is conducted using trawl gear, which is known to have a much lower mortality rate for Atlantic sturgeon. Given the reduced level of threat to the GOM DPS, the

anticipated distribution of GOM DPS fish predominantly in the Gulf of Maine, and the positive signs regarding distribution and abundance within the DPS, we concluded that the GOM DPS is not currently endangered. However, as noted previously, studies have shown that Atlantic sturgeon can sustain only low levels of bycatch and other anthropogenic mortality (e.g., vessel strikes) (Boreman, 1997; ASMFC, 2007; Kahnle et al., 2007; Brown and Murphy, 2010). We anticipate that sink gillnet fishing effort will increase in the Gulf of Maine as fish stocks are rebuilt. In addition, individual-based assignment and mixed stock analysis of samples collected from sturgeon captured in Canadian fisheries in the Bay of Fundy indicated that approximately 35 percent were from the GOM DPS (Wirgin et al., in draft). There are no current regulatory measures to address the bycatch threat to GOM DPS Atlantic sturgeon posed by U.S. Federal fisheries or fisheries that occur in Canadian waters. Potential changes in water quality as a result of global climate change (temperature, salinity, dissolved oxygen, contaminants, etc.) in rivers and coastal waters inhabited by Atlantic sturgeon will likely affect riverine populations. Therefore, despite some management efforts and improvements, we concluded that the GOM DPS is at risk of becoming endangered in the foreseeable future throughout all of its range (i.e., is a threatened species) given the persistence of threats from bycatch and habitat impacts from continued degraded water quality and dredging in some areas, and the lack of measures to address these threats.

In the NYB DPS, there are two known spawning populations – the Hudson and Delaware River riverine populations. While the Hudson is presumably the largest extant reproducing Atlantic sturgeon population, the Delaware is presumably very small and extremely vulnerable to any sources of anthropogenic mortality. There are no indications of increasing abundance for the

NYB DPS (ASSRT, 2009; 2010). There are anecdotal reports of increased sightings and captures of Atlantic sturgeon in the James River, which comprises the only known spawning river for the CB DPS. However, this information has not been comprehensive enough to develop a population estimate for the James River or to provide sufficient evidence to confirm increased abundance.

Some of the impact from the threats that facilitated the decline of these two DPSs have been removed (e.g., directed fishing) or reduced as a result of improvements in water quality since passage of the Clean Water Act (CWA). In addition, there have been reductions in fishing effort in state and Federal waters, which most likely would result in a reduction in bycatch mortality of Atlantic sturgeon. Nevertheless, areas with persistent, degraded water quality, habitat impacts from dredging, continued bycatch in state and federally-managed fisheries, and vessel strikes remain significant threats to both the NYB and CB DPSs.

Based on the mixed stock analysis results, over 40 percent of the Atlantic sturgeon bycatch interactions in the Mid-Atlantic Bight region were with fish from the NYB DPS and 20 percent were with fish from the CB DPS (Wirgin and King, 2011). Atlantic sturgeon belonging to the NYB DPS or CB DPS likely benefited from the effort control measures implemented for rebuilding of fish stocks (e.g., monkfish and spiny dogfish), because the amount of sink gillnets in Mid-Atlantic waters was reduced. However, as fish stocks are rebuilt, we anticipate that sink gillnet fishing effort will increase in the Mid-Atlantic. In addition, individual-based assignment and mixed stock analysis of samples collected from sturgeon captured in Canadian fisheries in the Bay of Fundy indicated that approximately 1-2 percent were from the NYB DPS, and perhaps 1 percent from the CB DPS (Wirgin et al., in draft). A recent study also indicated that

the loss of only a few adult female Atlantic sturgeons from the Delaware River riverine population as a result of vessel strikes would hinder recovery of that riverine population (Brown and Murphy, 2010). There are no current regulatory measures to address the bycatch threat to the NYB and CB DPSs of Atlantic sturgeon posed by U.S. Federal fisheries or fisheries that occur in Canadian waters, or measures to address the threat of vessel strikes. Potential changes in water quality as a result of global climate change (temperature, salinity, dissolved oxygen, contaminants, etc.) in rivers and coastal waters inhabited by Atlantic sturgeon will likely affect riverine populations. We have, therefore, concluded that the NYB and CB DPSs are currently at risk of extinction (i.e., are endangered) given the following: (1) both the NYB and CB DPSs are at low levels of abundance with a limited number of spawning populations within each DPS; (2) both continue to be significantly affected by threats to habitat from continued degraded water quality and dredging in some areas as well as threats from bycatch and vessel strikes; (3) these threats are considered to be unsustainable at present and the threat posed by bycatch is likely to increase in magnitude in the future; and, (4) there is a lack of existing regulatory mechanisms to adequately address these threats.

Take Prohibitions and Protective Regulations

Section 9 of the ESA prohibits the take of endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct (16 U.S.C. 1532(19)). In the case of threatened species, ESA section 4(d) authorizes NMFS to issue regulations it considers necessary and advisable for the conservation of the species. The 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts that section 9(a)(1) of the ESA prohibits with respect to endangered

species. These 9(a)(1) prohibitions and 4(d) regulations apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. We have proposed 4(d) regulations for the threatened GOM DPS in a separate rulemaking (76 FR 34023; June 10, 2011).

Other Protective Measures

Section 7(a)(2) of the ESA requires Federal agencies to confer with us on actions likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. If a Federal action is likely to adversely affect a listed species or destroy or adversely modify its critical habitat, the responsible Federal agency must initiate formal consultation. Examples of Federal actions that may affect the three Northeast DPS include: fishery management practices; dredging operations; point and nonpoint source discharge of persistent contaminants; contaminated waste disposal; water quality standards.

Sections 10(a)(1)(A) and (B) of the ESA provide us with the authority to grant exceptions to the ESA's section 9 "take" prohibitions. Section 10(a)(1)(A) scientific research and enhancement permits may be issued to entities (Federal and non-Federal) for scientific purposes or to enhance the propagation or survival of a listed species. The type of activities potentially requiring a section 10(a)(1)(A) research/enhancement permit include scientific research that targets Atlantic sturgeon.

Section 10(a)(1)(B) incidental take permits may be issued to non-Federal entities performing activities that may incidentally take listed species, as long as the taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Service Policies on Endangered and Threatened Fish and Wildlife

Critical Habitat

Critical habitat is defined in section 3 of the ESA as: (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of the species (16 U.S.C. 1532(5)(A). Section 4(b) of the ESA states that designation of critical habitat should occur at the same time as the final ruling, unless the Secretary deems that critical habitat is not then determinable, in which case the time to critical habitat designation may be extended by 1 year. We are seeking public input and information to assist in gathering and analyzing the best available scientific data to support a critical habitat designation. The Secretary has determined that critical habitat designation for the three DPSs in the Northeast is not yet determinable. We will continue to meet with co-managers and other stakeholders to review information that will be used in the overall designation process. We will then initiate rulemaking with publication in the Federal Register of a proposed designation of critical habitat, followed by a period for public comment and the opportunity for public hearings. In the coming months, we will continue to evaluate the physical and biological features of specific areas (e.g., spawning or feeding site quality or quantity, water quality or quantity, geological formation, vegetation type) that are essential to the conservation of the three DPSs in the Northeast. Features that may be considered essential could include, but are not limited to: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring,

germination, or seed dispersal; and generally, (5) habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

Information Solicited

To ensure that subsequent rulemaking resulting from this Final Rule will be as accurate and effective as possible, we are soliciting information from the public, other governmental agencies, the Government of Canada, the scientific community, industry, and any other interested parties. Specifically, we are interested in information that will inform the designation of critical habitat for three DPSs in the Northeast, including: (1) Atlantic sturgeon spawning habitat within the range of each of the three DPSs in the Northeast that was present in the past, but may have been lost over time; (2) quantitative evaluations describing the quality and extent of freshwater and marine habitats (occupied currently or occupied in the past, but no longer occupied) for all life stages of Atlantic sturgeon as well as information on areas that may qualify as critical habitat throughout the full range of the taxon; (3) activities that could be affected by a critical habitat designation; and (4) the economic costs and benefits of additional requirements of designation of critical habitat (see DATES and ADDRESSES).

References Cited

A complete list of the references used in this final rule is available upon request (see ADDRESSES).

Classification

National Environmental Policy Act

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in Pacific Legal Foundation v. Andrus, 675 F. 2d 825 (6th Cir. 1981), NMFS has concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (NEPA). (See NOAA Administrative Order 216-6.)

Executive Order 12866, Regulatory Flexibility Act and Paperwork Reduction Act

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this rule is exempt from review under Executive Order 12866. This rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations where a regulation will preempt state law, or impose substantial direct compliance costs on state and local governments (unless required by statute). Pursuant to the Executive Order on Federalism, E.O. 13132, we provided notice of the proposed action, requested comments from, and addressed the comments received from the appropriate state resource agencies of the states in which the GOM, NYB, and CB DPSs occur.

Environmental Justice

Executive Order 12898 requires that Federal actions address environmental justice in decision-making process. In particular, the environmental effects of the actions should not have a disproportionate effect on minority and low-income communities. The listing determination is not expected to have a disproportionately high effect on minority populations or low-income populations.

Coastal Zone Management Act (16 U.S.C. 1451 et seq.)

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all Federal activities that affect any land or water use or natural resource of the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. NMFS has determined that this action is consistent to the maximum extent practicable with the enforceable policies of approved Coastal Zone Management Programs of each of the states within the range of the GOM, NYB, and CB DPSs. A list of the specific state contacts and a copy of the letters are available upon request.

List of Subjects

50 CFR Part 223

Administrative practice and procedure, Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, Transportation.

50 CFR Part 224

Endangered and threatened species, Exports, Imports.

Dated: JAN 24 2012

Alan D. Risenhoover
Acting Deputy Assistant Administrator for Regulatory Programs,
National Marine Fisheries Service

For the reasons set out in the preamble, 50 CFR parts 223 and 224 are amended as follows:

1. The authority citation for parts 223 and 224 continues to read as follows:

Authority: 16 U.S.C. 1531-1543.

2. In § 223.102, paragraph (c)(30) is added to read as follows:

§ 223.102 Enumeration of threatened marine and anadromous species.

* * * * *

(c) * * *

Species[1]		Where Listed	Citation(s) for listing determination(s)	Citation(s) for critical habitat designation(s)
Common name	Scientific name			
*	*	* * *	*	*
(29) Atlantic Sturgeon - Gulf of Maine DPS	Acipenser oxyrinchus oxyrinchus	Gulf of Maine Distinct Population Segment. The GOM DPS includes the following: all anadromous Atlantic sturgeon that are spawned in the watersheds from the Maine/Canadian border and extending southward to include all associated watersheds draining into the Gulf of Maine as far south as Chatham, MA, as well as wherever these fish occur in coastal bays and estuaries and the marine environment. Within this range, Atlantic sturgeon have been documented from the following rivers: Penobscot, Kennebec, Androscoggin, Sheepscot, Saco, Piscataqua, Presumpscott, and Merrimack. The marine range of Atlantic sturgeon from the GOM DPS extends from Hamilton Inlet, Labrador, Canada to Cape Canaveral, FL. The GOM DPS also includes Atlantic sturgeon held in captivity (e.g., hatcheries, scientific institutions) and which are identified as fish belonging to the GOM DPS based on genetics analyses, previously applied tags, previously applied marks, or documentation to verify that the fish originated from (hatched in) a river within the range of the GOM DPS, or is the progeny of any fish that originated from a river within	[Insert FR page number where the document begins]; [insert date of publication]	

*	*	the range of the GOM DPS. * * *	*	*

[1] Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

* * * * *

3. In § 224.101 the table is revised by adding an entry at the end for Atlantic Sturgeon-New York Bight DPS, and by adding an entry for Atlantic Sturgeon-Chesapeake Bay DPS to read as follows:

§ 224.101 Enumeration of endangered marine and anadromous species

* * * * *

(a) * * *

Species[1]		Where Listed	Citation(s) for listing determination(s)	Citation(s) for critical habitat designation(s)
Common name	Scientific name			
*	*	* * *	*	*

Atlantic Sturgeon – New York Bight DPS	Acipenser oxyrinchus oxyrinchus	New York Bight Distinct Population Segment. The NYB DPS includes the following: all anadromous Atlantic sturgeon that are spawned in the watersheds that drain into coastal waters, including Long Island Sound, the New York Bight, and Delaware Bay, from Chatham, MA to the Delaware-Maryland border on Fenwick Island. Within this range, Atlantic sturgeon have been documented from the Hudson and Delaware rivers as well as at the mouth of the Connecticut and Taunton rivers, and throughout Long Island Sound. The marine range of Atlantic sturgeon from the NYB DPS extends from Hamilton Inlet, Labrador, Canada to Cape Canaveral, FL. The NYB DPS also includes Atlantic sturgeon held in captivity (e.g., hatcheries, scientific institutions) and which are identified as fish belonging to the NYB DPS based on genetics analyses, previously applied tags, previously applied marks, or documentation to verify that the fish originated from (hatched in) a river within the range of the NYB DPS, or is the progeny of any fish that originated from a river within the range of the NYB DPS.	[Insert FR page number where the document begins]; [insert date of publication]	NA

Atlantic Sturgeon - Chesapeake Bay DPS	Acipenser oxyrinchus oxyrinchus	Chesapeake Bay Distinct Population Segment. The CB DPS includes the following: all anadromous Atlantic sturgeon that are spawned in the watersheds that drain into the Chesapeake Bay and into coastal waters from the Delaware-Maryland border on Fenwick Island to Cape Henry, VA, as well as wherever these fish occur in coastal bays and estuaries and the marine environment. Within this range, Atlantic sturgeon have been documented from the James, York, Potomac, Rappahannock, Pocomoke, Choptank, Little Choptank, Patapsco, Nanticoke, Honga, and South rivers as well as the Susquehanna Flats. The marine range of Atlantic sturgeon from the CB DPS extends from Labrador Inlet, Labrador, Canada to Cape Canaveral, FL. The CB DPS also includes Atlantic sturgeon held in captivity (e.g., hatcheries, scientific institutions) and which are identified as fish belonging to the CB DPS based on genetics analyses, previously applied tags, previously applied marks, or documentation to verify that the fish originated from (hatched in) a river within the range of the CB DPS, or is the progeny of any fish that originated from a river within the range of the CB DPS.	[Insert FR page number where the document begins]; [insert date of publication]	NA

[1] Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

* * * * *