South Carolina Department of
Natural Resources
DNR

John E. Frampton
Director

January 4, 2011

Dr. Roy Crabtree
Assistant Regional Administrator
Protected Resources Division
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

REFERENCE: COMMENTS: Endangered and Threatened Wildlife and Plants: Proposed Listings for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the Southeast

Dr. Crabtree,

Staff of the South Carolina Department of Natural Resources (DNR) has reviewed the proposal to list 2 distinct population segments of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) (ATS) in the Southeast as endangered under the Endangered Species Act (ESA) [Federal Register/Vol. 75, No. 193/Wednesday, October 6, 2010/Proposed Rules]. Additionally, DNR staff has reviewed the reports of the Atlantic Sturgeon Status Review Team (SRT) prepared for the National Marine Fisheries Service (NMFS) in 1998 and 2007. A substantial base of additional information on the species likewise has been reviewed by DNR marine and freshwater fisheries scientists who are leaders in the conservation, management and recovery of this species. The following comments are submitted regarding the proposed listing.

As one of the first states in the country to prohibit harvest of this species in 1984, DNR has a keen interest in the recovery of ATS. DNR supported the 1998 action by the Atlantic States Marine Fisheries Commission (ASMFC) to institute a 40-year fishing moratorium for this species, reaffirming our commitment to its conservation. However, the proposed listing of Atlantic sturgeon as an endangered species is premature and should be carefully considered before moving forward. It is imperative that such action be based on sound scientific data and collaborative efforts resulting in reasonable consensus on what the scientific body of knowledge states. Currently there are not sufficient data available to support listing this species or the proposed distinct population segments (DPSs) as endangered. There certainly is not consensus on the body of science.

During the 26 years the fishery for this species has been closed, DNR staff has continued to monitor ATS abundance in a series of experiments conducted in several South Carolina (SC) river basins. Data collected indicate abundance has not declined and, in fact, has trended upward. Since the species has a generation time greater than 25 years, the population would be just beginning to show signs of recovery as a result of the fishing moratorium. Thus, DNR

believes current protection is adequate, and that any potential benefits to the species of listing ATS as an endangered species do not outweigh the associated consequences to various stake holders at this time.

DNR staff has compiled the attached information which fully supports this recommendation respectfully submitted for your consideration.

Additionally, in lieu of formal listing, DNR urges NMFS to initiate, actively participate and reciprocate in a bi-state, multi-partner *Carolina DPS of the ATS Cooperative* to gather critical information to support management actions necessary for the conservation of the species. Such an effort should continue until conservation actions and data gaps described herein and attached are established, completed and result in an acceptable level of scientific consensus. Similar efforts have been very successful for the benefit of other species. Your office can be assured DNR stands willing to participate to the fullest in such a cooperative. Until such an effort is meaningfully undertaken and provided an opportunity to bear fruit, the described DPSs for the Carolinas and South Atlantic populations of ATS should not be listed as endangered under the ESA.

DNR is appreciative of the opportunity to provide comments on this proposal. Please do not hesitate to contact me if I can be of further assistance on this matter.

Sincerely,

John E. Frampton
Director

c: Governor Mark Sanford
Governor-Elect Nikki Haley
DNR Board Members
Don Winslow
Robert Boyles
Breck Carmichael
Bob Perry

Specific Comments: Endangered and Threatened Wildlife and Plants: Proposed Listings for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the Southeast

Prepared by South Carolina Department of Natural Resources

DNR specific comments can be broken down into 3 general categories:

- Comment on what is known about ATS, particularly in SC, based on focused studies and incidental encounters of the species by DNR field staff over the 26 year period since the fishery was closed,
- Comment on specific statements published in the Federal Register Vol. 75, No. 193 pages 61904-61929, *Proposed listing for two distinct population segments of Atlantic Sturgeon in the Southeast*, and
- Comment on the potential effects a listing will have on various stake holders.

I. Over the nearly 3 decades the Atlantic sturgeon fishery has been closed in SC, data collection on abundance and life history characteristics of the species have continued as funding was available or as the result of incidental captures during studies focused on other species. Many studies cited in the proposed listing were conducted and published by DNR staff. DNR does not agree with the DPS designations and suggests that populations be evaluated on a drainage specific basis (e.g., Winyah Bay, Santee/Cooper, ACE Basin and Savannah) as outlined by Grunwald et al. (2007), or as a single unit south of Cape Hatteras. Using the NMFS proposed methodology, many of SC rivers with high abundances of ATS have been combined with other rivers where ATS populations are unknown, known to be low or believed to be extirpated. For example, in the Carolina DPS, the Winyah Bay System has been combined with <u>all</u> North Carolina (NC) rivers where populations are known to be low. Likewise, in the South Atlantic DPS, the Edisto and Savannah rivers have been combined with Georgia (GA) and Florida (FL) rivers that are at the margins historical range of the ATS where populations are thought to be extirpated. Furthermore, DNR presently is conducting directed research along with NC and GA to assess movements and habitat use of adult ATS. This study entitled *Research and management of endangered and threaten species in the southeast: Riverine movements of shortnose and Atlantic sturgeon* will be conducted over the next 3 years in order to provide NMFS with data that can be evaluated objectively to determine actual population status. DNR recommends waiting at least until this well designed, standardized study is complete before making a decision on listing ATS.

The following information summarizes current knowledge about ATS in each SC river system. Due to limits in available funding, more is known about some systems than others, however in cases where data exists, the fish are far more abundant than the estimates published in the proposed listing document.

1. Winyah Bay riverine system – There are some project-specific catch data from 2002-03 and 2007-09 during research targeting shortnose sturgeon (SNS). During 2007-09 ATS were caught in almost every net set between April-July. Since the project was targeting SNS and ATS catches were frequent, staff moved more-and-more up river trying to catch fewer ATS; however, ATS were captured at all sample sites. Furthermore, Dr. Joe Hightower (USGS-NCSU), a recognized expert in the use of side scan sonar conducted a survey of potential habitat the Waccamaw River and record occurrences of sturgeon in the system. Dr. Hightower indicated that he recorded *several hundred* ATS at the confluence of the Sampit

River and Winyah Bay in 2009; he further reported that ATS density was far greater than anything he had seen in any of the other systems he sampled in the country.

2. Santee River – There are very few encounters with ATS, even though there is a fish lift at the St. Stephen Dam and significant commercial and research shad and herring netting occurs there during late winter through early spring each year.

3. Cooper River – There are anecdotal reports of ATS breaching by boaters.

4. Edisto River – DNR has monitored this river for sturgeon since 1994, and to the present, and has captured 3,661 individual ATS during that time frame. Population estimates have been conducted using Lin-Peterson and Schnabel (both closed system) models. Preliminary results suggest 70,000 and 20,000 ATS, respectively. Both models suggest increasing trends in abundance. This trend is apparent even after removing an outlying point for a high flow year (2003), in which the population estimate exceeded 178,000 individuals. These models do not account for immigration or natural mortalities, but since animals captured during this sampling were 1-3 years old, these scenarios may closely resemble closed systems. Efforts currently are underway to reformat data to use in the Program Mark (open system model), similar to what was used in the Altamaha River, GA, to better assess ATS populations in the Edisto River. Furthermore, DNR has conducted telemetry studies with adult ATS to assess movement and habitat use during 1997-99, and presently along with the ongoing multi-state effort. In these efforts, 118 adult ATS individuals were captured during spring and fall spawning runs. In these studies, once DNR reached a predetermined quota for catches, netting ceased. Most of these animals were caught in as little as 2 months of sampling. There is little doubt that if a targeted netting effort for ATS adults had been conducted during the entire spawning run, abundance estimates would far exceed the <300 individuals that NMFS uses in the proposed listing document. In addition, projects that were not targeting sturgeon in the Edisto River have encountered ~20 adult ATS in just 1-2 months of juvenile American shad sampling. In fact, in 2010, 4 adults that had been tagged as age 0+ during the 1990s were recaptured indicating that the fishing moratorium is having the desired effect of allowing fish to recruit to the broodstock population.

5. Ashepoo River – Occurrence data from telemetry studies are available but are too limited to draw any conclusions other than presence or absence.

6. Combahee River – Catch data from a 1997-99 telemetry study are available, but the data are too limited to draw any conclusions other than presence or absence.

7. Savannah River – Incidental catch data are available from many studies all focused on SNS. During 1997-2010, DNR personnel captured 369 ATS individuals ranging from 270 mm TL - 1,500mm TL. Further, a study (Collins et al. 1996) cited in the proposed listing document, referred to a vast difference in the catch by 2 commercial fishermen of SNS (n=189) vs. ATS (n=14) in the document. The listing document went on to conclude that this indicated that the abundance of ATS in the Savannah River was very low. Contrary to the conclusions drawn by NMFS staff, DNR contends the data actually show that the fishermen were fishing in portions of the river that were not the preferred habitats for juvenile ATS. One fisherman was fishing about 10 miles above the saltwater freshwater dividing line, while the other was nearly 180 miles up-river; neither habitat is preferred by ATS juveniles. If the fishermen had

been fishing in the estuarine portion of the river the numbers likely would have been reversed with the number of ATS exceeding that of SNS.

II. NMFS compiled the available published data on ATS; however, there is insufficient data in the literature to support the conclusion the species should be listed, especially as it relates to population segments in SC. The following sections summarize specific comments on the document. NMFS statements are in italics followed by a DNR response.

1. Background – *Distribution and Abundance*

*The Altamaha River is believed to have the largest population (of ATS) in the southeast (ASSRT, 2007) . . . Altamaha spawning population is the largest we believe a conservative estimate of other spawning populations in the SE region is no more than 300 adults per year.*

Response: DNR disagrees with this statement, as indicated in earlier summaries of ATS abundance in the Winyah system and ACE Basin. There are not enough data to support the NMFS conclusion that there are no more than 300 spawning adults/year in the other spawning populations in the Southeast (SE) region. The current multi-year cooperative study being conducted in GA, SC and NC will address and resolve this issue and provide more robust estimates.

*Secor (2002) estimated that 8,000 spawning females were likely present (in SC) prior to 1890.*

Response: While DNR believes that Secor's work, which uses landings estimates to back calculate abundance, is an excellent example of forensic fisheries science, we do not agree with his conclusion that there were 8,000 spawning females in SC before 1890. During the latter part of the 19$^{th}$ century, SC fishermen were commonly fishing for sturgeon with gill nets in nearshore waters. As a result, fishermen were intercepting animals from the migrating population segments both north and south of the landing location. This mixed stock fishery became even more effective with the completion, in the late 1880s and early 1890s, of the Charleston and Georgetown jetties, which extend over 2 miles into the ocean. Once the jetties were in place, these areas became prime spots for intercepting ATS, and remained so until the SC fishery was closed in 1984. Thus, DNR believes Secor's conclusions may be a gross over-estimate of abundance of SC ATS at the time, and should not be used as a baseline for recovery.

*CPUE of Atlantic sturgeon was up to eight times greater during 1997 than in earlier survey years. Since 1997 ATS CPUE doubled between 1997 and 2003. However it is unknown whether this is an actual population increase reflecting the effects of NC's ban on ATS fishing in 1991 or whether the results are skewed by one outlier year (Moser et al. 1998, Williams and Lankford 2003).*

Response: These data demonstrate a definite trend of increasing abundance in the sample location 1990-2000; however, the SRT chose to discount it based on a large increase observed in a flood year (2002). The increase was 8-fold prior to the 2002 outlier, and the SRT should note, and not dismiss, this as a positive trend indicating that closing the fishery in 1991 is having the desired effect.

2. Identification of Distinct Population Segments – *Discreteness*

*. . . with some studies showing one or two individuals per generation spawning outside their natal rivers.*

Response: With respect to spawning site fidelity to natal streams this conclusion, at best, is inconclusive. This statement suggests the number of out-migrants is static regardless of population size. DNR contends the rate of out-migration is far higher than stated here, and should, at a minimum, be presented as a percentage. The numerous inconsistencies in the document (e.g., Waccamaw population being grouped with Edisto/ Savannah/ Ogeechee/Altamaha) support some level of mixing at least among adjacent populations and should be considered. Based on the available data at present, a unifying theory on population segmentation is premature. Finally, at least for the southern region, DNR believes the previously mentioned cooperative interstate study will be crucial in determining the most accurate partitioning of the various populations.

3. Conservation Status

Response: Thomas (1990) offers a population goal of 5,500 individuals/ system. Based on data presented earlier for SC, DNR believes that at least 2 of SC water sheds, Winyah and the ACE Basin, currently support far more individuals than this, indicating that neither group is endangered or threatened. In addition and over time, out-migrates from these systems likely will colonize adjacent systems with suitable available habitat. Further, while the numbers presented for the populations in the ACE Basin and Winyah systems do not represent the effective population size, DNR maintains the current standardized multi-state research effort will shed more light on this important population metric, and time should be allowed to obtain these data before action is taken to list ATS as endangered.

4. Analysis of Section 4 (a)(1) Factors Effects on a Species

*A. Present or Threatened Destruction Modification or Curtailment of the Species Habitat or Range*

Response: While DNR agrees that dams, dredging, water quality and climate change are all important factors affecting the species survival, DNR contends the protections already in place for other co-occurring endangered anadromous, estuarine and marine species are sufficient for protecting ATS and their critical habitat.

*B. Overutilization for Commercial, Recreational, Scientific or Educational Purposes*

Response: The only sink net fisheries remaining in SC are those focused on American shad, a fishery which is prosecuted in the late winter/early spring. In addition, trawling has been prohibited in SC sounds and bays since 1985, thus eliminating that source of interaction between ATS and the other fisheries. DNR maintains these protections and the seasonality of the shad fishery have already combined to reduce ATS by-catch and subsequent mortality below the threshold suggested by NMFS.

As it relates to specific data mentioned in this section: White and Armstrong (2000) report that a single flounder gill net fisherman captured 131 ATS, and that none were seriously injured. These data should carry more weight in both the analysis of abundance, as well as related mortality and should not be used solely to illustrate the potential effects of by-catch in the flounder fishery.

Summer mortality of ATS reported by Moser et al. (1998) and subsequently by NCDMF from the Cape Fear River would not be representative of the rates experienced by the shad fishery, which occurs in the winter and early spring, and should not be used to place further restrictions on this fishery. In SC, the only sink nets in the water during the warmer months are those of fisheries researchers.

*C. Disease and Predation*

*With millions of aquaria fish sold to individuals annually, it is unlikely that such activity could ever be effectively regulated.*

Response: While disease and predation were not listed as a present threat to the ATS by the SRT, DNR disagrees with their analysis of the gravity of the situation. Their seemingly defeatist attitude toward the aquarium industry and importation of nonnative fish is exactly what has led to the current infestation of the non-native Lionfish in our coastal waters. While great burdens to protect sturgeon are being suggested for industry, potential aquaculturists, and fisheries researchers, the SRT basically gives the aquarium industry, long-known to be the source of introductions of nonnative species, a pass on protecting native sturgeon. In fact, the US Fish and Wildlife Service (FWS) and NMFS have allowed non-native sturgeon from central Europe and Asia to be imported into the United States for both the aquarium trade and aquaculture under the misguided belief that this would be better and safer than allowing the private culture of either of our native species. DNR contends these international movements are a greater risk to native sturgeon species than any of the other factors outlined in the listing document and their importance should not minimized. These non-native species have the potential to be placed in the wild and compete with native fish, and may harbor viruses, parasites and other pathogens thus presenting the potential for a pandemic and complete destruction of native sturgeon populations.

*D. Inadequacy of Existing Regulatory Mechanisms*

Response: The primary reason for the decline in abundance of ATS has been well documented to be recruitment overfishing and the unregulated harvest of all age and size classes. The ASMFC has taken action to close the fishery. During the 26 years that the fishery has been closed, DNR has observed increases in abundance of ATS, particularly in several SC river systems. DNR agrees that, by-catch and other incidental takes are still of concern, but, at least in SC, much of that gear has been removed from the water or occurs during a time when mortality is limited.

As mentioned in the listing document, each jurisdiction with a reproducing population should conduct juvenile assessment surveys as well as surveys of nursery habitats in rivers without reproducing populations. However, state funds for doing these types of surveys are very limited or nonexistent, and, for the most part, what is known about ATS

has been deduced from small projects, with spotty and inconsistent coverage, using a diverse number of sampling methods that were short in duration and federally funded. Even these projects consistently show increasing abundance in the locations where active and repeated sampling has occurred. DNR contends that the ongoing interstate project will be successful in not only standardizing methods, but also in generating data that can be quantitatively used to determine the true population status in the southeast.

*E. Other Natural or Manmade Factors Affecting the Species Continued Existence*

*Multiple suspected ship strikes have been reported in several rivers. A large number of mortalities observed in these rivers from potential ship strike have been of large adult Atlantic sturgeon.*

Response: These factors were determined by the SRT currently to not be a factor in the threats to ATS; however DNR is concerned that if ship strikes increase regulation may be required. It is unclear what is meant by *A large number of mortalities*. This statement does not adequately describe the real or perceived magnitude of the problem. If the incidence of ship strikes has indeed increased over time, it could just as logically indicate that the population of ATS in these areas has increased.

*Lastly, potential artificial propagation of Atlantic sturgeon was also a concern to SRT members.*

Response: The SRT ironically dismissed the potentially greater dangers of importation of non-native sturgeon. DNR agrees that concerns about aquaculture and stock enhancement, including disease, escape and out breeding depression are justified; however these impacts can all be minimized, managed and mitigated. DNR contends the risks posed by these activities would be far less than that associated with the importation of non-native sturgeon. In addition, the listing document outlines a number of rivers where the species is believed to be extirpated. A responsible stocking program using appropriate broodstock may be the best hope for reestablishing a population in these systems. The SRT repeatedly states the potential *dangers* of stocking and aquaculture, and even goes so far in their closing summary on potential violations of Section 9, to state that the release of a (1) cultured fish in the wild would be detrimental to the wild population. This is far from a significant concern and is further evidence of the SRT's distain for stock enhancement in general and aquaculture in particular. The SRT also states that progeny of ATS broodstock currently held in captivity would not be exempt from the provisions of the ESA, and thus one assumes that means the fish cannot be cultured for commercial purposes or stocking and could only be destroyed. If that is so, what is the point of the private sector maintaining the fish they currently have in captivity? Unfortunately this is the same shortsighted approach that has been used to prevent commercial culture of SNS that dictates hope of commercial culture of ATS would end with listing. In fact aquaculture and stock enhancement of both the SNS and ATS sturgeon would provide excellent information on the environmental tolerance, life history and bottlenecks limiting sturgeon survival in the wild, and also would provide an additional level of protection from poaching for the wild stock by providing a legal, biochemically identifiable, traceable and consistent source of caviar to the marketplace.

5. Conclusions

*Finding for the Carolina DPS and South Atlantic DPS*

Response: DNR believes it is premature to list ATS as endangered in either of the southeast DPSs.

III. DNR has grave concerns as to how the potential listing ATS will affect various stake holders in the region. The DNR summary herein is limited to impacts on existing fisheries monitoring programs, existing restoration plans, recreational fisheries and commerce.

1. Impacts on existing fisheries monitoring programs: DNR currently conducts research, monitoring and broodstock collection for a number of commercially and recreationally important marine, estuarine and freshwater species using a variety of gears including, but not limited to: trammel and gill nets, trawl nets, traps, bottom long lines, electrofishers, dredges, hook and line, etc. Because of the wide distribution of ATS, and depending on the season and location of sampling, ATS are likely to be encountered by all of these gears. Again, if ATS are listed as endangered, even accidentally encountering the species would be prohibited and could put these essential sampling and monitoring activities at risk without acquisition of Incidental Take Permit. Virtually every monitoring program DNR researchers conduct, ranging from striped bass hatchery broodstock collections to the DNR SEAMAP program, which samples the continental shelf with trawl gear, could be adversely affected by this proposed listing. These potential impacts would significantly reduce DNR capacity to monitor, manage, protect and enhance a broad assemblage of commercially and recreationally valuable fisheries as well as the associated aquatic ecosystems.

2. Impacts on sturgeon restoration efforts: While no directed restoration efforts (other than the continued fishing moratorium) currently are being promulgated by the DNR, broodstock conditioning, spawning, incubation, nursery, growout and production research are underway at the Bears Bluff National Fish Hatchery on Wadamalaw Island, SC. This cooperative program between the FWS, Georgia DNR, South Carolina DNR and the University of Georgia has the potential to lead to better understanding of environmental tolerance, life history, survival and habitat preferences of all life stages of the species by using hatchery produced fish as surrogates. This is similar to the nationally recognized DNR striped bass and red drum stocking programs, which adhere to the *Responsible Approach to Stock Enhancement* (Blakenship and Leber 1995). If ATS are listed as endangered, this research program likely is to be terminated due to the concerns from regulators about removing broodfish from the wild or releasing hatchery progeny. This rationale was used, in part, to terminate experimental stocking programs for SNS in SC and Gulf of Mexico sturgeon in Suwannee River, FL.

3. Impacts on fisheries in general: As stated above, virtually all gear types used by recreational and commercial fisheries in the state have the potential to interact with ATS. Specifically, commercial shad fishing, which is prosecuted during spring spawning runs, frequently encounters juvenile ATS in both estuarine and fresh waters. Further, winter by-catch of ATS adults and juveniles has been documented in our near shore shrimp, crab and whelk trawling fisheries. Neither of these interactions has been shown to cause significant mortality, but the fact that they occur could lead to additional restrictions being placed on these and other fisheries.

4. Impacts on commerce: Boat strikes have been listed as a concern for interactions between shipping and ATS. The same concern for right whales has resulted in speed restrictions for all

boats of 65 feet or more in length within 20 nautical miles of the SC coast November 15-April 15 of each year. These restrictions are reported to have negatively impacted shipping and head boats, in particular. Due to ATS wide-ranging movements off the coast, any regulations to reduce the probability of boat strikes likely would cover a much larger area than the present right whale protection zone, and perhaps could encompass the entire continental shelf. Further, SC maintains 3 deep water ports for national and international shipping interests in our state. These ports are responsible for 83,000 jobs, $2.6 billion in wages and an overall annual impact to our state of $10.7 billion (Wilbur Smith Associates, Inc. 2008). Each of these ports must be dredged regularly to maintain channel depths, and in some cases, there are discussions regarding the need to deepen ports further to accommodate ships that will be able to transit the deepened and widened Panama Canal beginning in 2014. At present, there are numerous dredging restrictions in place to limit interactions with protected species such as SNS sturgeon and sea turtles. This window effectively allows dredging only between December and March each year, a time during which ATS juveniles and adults are present in the estuary. Further restrictions to this dredging window could have economic consequences for SC ports and commercial shipping interests. While DNR interests are resource based, they must be balanced. DNR cannot support a rule making based on limited, incomplete science when it potentially can have significant economic impacts on state and regional commerce.

In conclusion, there are many unknowns regarding the ATS population. DNR believes it is essential to prioritize filling in the numerous data gaps before deciding whether or not to list this species as proposed. The fishing moratorium for ATS sturgeon in place along the Atlantic coast, plus the measures in place to protect co-occurring endangered species, will continue to provide sufficient protection for ATS, while additional data are collected. Additionally, the proposed listing will have impacts to DNR programs, commercial and recreational fishing as well as valuable commerce. Given the magnitude of these impacts, it is essential the proposed listing be based on the best available science. Currently that science is unavailable.

New Literature Cited

Blankenship, H. L. and K. M. Leber. 1995. A responsible approach to marine stock enhancement. *in*: Uses and effects of cultured fishes in aquatic ecosystems. American Fisheries Society Symposium 15:165-175.

Wilbur Smith Associates. 2008. South Carolina State Ports Authority: Economic Impact Study and Technical Report.