

Atlantic States Marine Fisheries Commission

Sturgeon Management Board

August 8, 2012
3:00 p.m. – 4:30 p.m.
Alexandria, Virginia

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*R. Allen*) 3:00 p.m.
2. Board Consent 3:00 p.m.
 - Approval of Agenda
 - Approval of Proceedings from May 2, 2012
3. Public Comment 3:05 p.m.
4. Atlantic Sturgeon Endangered Species Listing 3:15 p.m.
 - Technical Committee Report on listing methodology and potential bycatch reduction strategies (*B. Post*)
 - Discuss Technical Committee Report **Possible Action**
 - Technical Committee Report on delisting proposal (*B. Post*)
 - Discuss development of delisting petition **Potential Action**
5. Atlantic Sturgeon Habitat Addendum for Public Comment (*P. Campfield*) **Action** 4:15 p.m.
6. Section 10 Application Update 4:25 p.m.
7. Other Business/Adjourn 4:30 p.m.

The meeting will be held at the Crowne Plaza Hotel
901 North Fairfax Street, Alexandria, Virginia
1 (703) 683 - 6000

MEETING OVERVIEW

Atlantic Sturgeon Management Board Meeting
August 8, 2012
3:00 – 4:30 p.m.
Alexandria, Virginia

Chair: Russ Allen (Assumed 5/12)	Technical Committee Chair: Dwayne Fox (DE)	Law Enforcement Committee Rep: Brannock/Meyer
Vice Chair: John Clark	Advisory Panel Chair: Vacant	Previous Board Meeting: May 2, 2012
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, VA, NC, SC, GA, FL, D.C., PRFC, USFWS, NMFS (19 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 2, 2012

3. Public Comment – At the beginning of the meeting, public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance, the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Atlantic Sturgeon Endangered Species Listing 3:15 - 4:15 p.m. Possible Action

Background

- In February the National Marine Fisheries Service published a federal register notice listing Atlantic Sturgeon on the Endangered Species List. Four distinct population segments (DPS) were listed as endangered and one DPS was listed as threatened. The rule became effective April 6, 2012.
- In May the Board requested a joint meeting between NOAA Fisheries Office of Protected Resources and the Sturgeon Technical Committee. Further, the Board tasked the TC with advising the Board on the appropriateness of the methodology used in the listing analysis, recommend ways to improve the analysis and how the analysis can be used to reduce sturgeon bycatch, and to begin the initial phase in the creation of a petition to delist Atlantic sturgeon. \
- The TC met with NOAA Fisheries staff in July.

Presentations

- Technical Committee Report on listing methodology and potential bycatch reduction strategies by B. Post
- Technical Committee Report on delisting proposal by B. Post

Board Action for Consideration

- Provide further direction to the Technical Committee, if necessary

5. Atlantic Sturgeon Habitat Addendum 4:15 - 4:25 p.m. Action

Background

- A habitat addendum has been developed for Atlantic Sturgeon by the Habitat Committee **(Briefing CD)**.

Presentations

- Atlantic sturgeon Habitat Addendum by P. Campfield

Board Action for Consideration

- Approve Habitat Addendum for Public Comment

6. Section 10 Application Update 4:20 – 4:30

Background

- Many states are in the process of developing Section 10 applications for their state fisheries which encounter Atlantic sturgeon. NMFS staff met with the TC in July to provide guidance on the availability of observer data for use by the states in the application process.
- In May the Commission sent a letter to NOAA Fisheries in support of Georgia's Section 10 Application **(Briefing CD)**.

Presentations

- Update on Section 10 Applications

7. Other Business/Adjourn

DRAFT

DRAFT

DRAFT

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
STURGEON MANAGEMENT BOARD**

Crowne Plaza Hotel - Old Town
Alexandria, Virginia
May 2, 2012

These minutes are draft and subject to approval by the Sturgeon Management Board.
The Board will review the minutes during its next meeting.

TABLE OF CONTENTS

Call to Order, Mr. Robert E. Beal 1

Approval of Agenda..... 1

Approval of Proceedings, October 29, 2007..... 1

Public Comment..... 1

Discussion of the Endangered Species Act Listing..... 1

Georgia Section 10 Application for Public Comment 24

Election of Chair and Vice-Chairman..... 24

Adjournment 24

INDEX OF MOTIONS

1. **Approval of Agenda by Consent (Page 1)**
2. **Approval of Proceedings of October 29, 2007 by Consent (Page 1)**
3. **Move the Sturgeon Management Board request the Policy Board:**
 1. **Send a letter to the National Marine Fisheries Service requesting a meeting of the agency's Protected Species staff with the ASMFC Sturgeon Technical Committee to receive a detailed update from the National Marine Fisheries Service staff on the Atlantic sturgeon listing under the Endangered Species Act;**
 - a) **Following this meeting the technical committee will review the scientific basis for the listing with a focus on the methodology and data used to generate the listing and associated conclusions; and, the methodology used to generate bycatch and discard estimates by gear type, season and area; and**
 - b) **After this review, the technical committee will advise the board as to the appropriateness of the methodology used in the NMFS analysis and then recommend ways to improve the analysis and how the analysis can be used to reduce sturgeon bycatch;**
 2. **Request the NMFS Protected Species staff provide the board with a detailed description of the methodology, the process, the timeline and description of any public process mechanisms NMFS will use to formulate a so-called batch biological opinion specific to Atlantic sturgeon; a detailed explanation of the baseline population data being used to estimate the condition of each DPS; the rationale that will be used to determine whether jeopardy exists for each affected fishery; and how the incidental take statements will be calculated in relation to DPS population condition for each affected fishery; and then a draft biological opinion on sturgeon following the precedent set with the Pacific Councils with the potential ESA listing involving the North Pacific groundfish in Hawaiian swordfish fisheries; and, then finally providing a time period allowing for adequate board review of and public comment on this biological opinion (Page 10). Motion by David Pierce; second by Louis Daniel. Motion carried (Page 11).**
4. **Move to direct the technical committee to begin at least the initial phase of developing a petition to delist for discussion at the August meeting (Page 12). Motion by Louis Daniel; second by Pat Augustine. Motion carried (Page 15).**
5. **Adjournment by consent (Page 24).**

ATTENDANCE**Board Members**

Terry Stockwell, ME, proxy for P. Keliher (AA)	Bernie Pankowski, DE, proxy for Sen. Venables (LA)
Steve Train, ME (GA)	Roy Miller, DE (GA)
G. Ritchie White, NH (GA)	David Saveikis, DE (AA)
Douglas Grout, NH (AA)	John Clark, DE, Administrative proxy
Dennis Abbott, NH, proxy for Rep. Watters (LA)	Tom O'Connell, MD (AA)
Jocelyn Cary, MA, Legislative proxy	Russell Dize, MD, proxy for Sen. Colburn (LA)
David Pierce, MA, proxy for P. Diodati (AA)	Bill Goldsborough, MD (GA)
Bill Adler, MA (GA)	Jack Travelstead, VA (AA)
Robert Ballou, RI (AA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Mark Gibson, RI, Administrative proxy	Mike Johnson, NC, proxy for Rep. Wainwright (LA)
Bill McElroy, RI (GA)	Louis Daniel, NC (AA)
Rick Bellavance, RI, proxy for Rep. P. Martin (LA)	Malcolm Rhodes, SC (GA)
David Simpson, CT (AA)	Mel Bell, SC, proxy for R. Boyles (LA)
Steve Heins, NY, proxy for J. Gilmore (AA)	Spud Woodward, GA (AA)
Brian Culhane, NY, proxy for Sen. Johnson (LA)	John Duren, GA (GA)
Pat Augustine, NY (GA)	Aaron Podey, FL (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	A.C. Carpenter, PRFC
Tom Fote, NJ (GA)	Steve Meyers, NMFS
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)	Jaime Geiger, USFWS
Leroy Young, PA, proxy for J. Arway (AA)	Bryan King, DC
Loren Lustig, PA (GA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Brian Richardson, Technical Committee Chair

Staff

Vince O'Shea
Robert Beal

Kate Taylor
Danielle Chesky

Guests

Michelle Duval, NC DMR
Jeff Kaelin, Lund's Fisheries, Inc
David Pierce, MA DMF
Daniel Morris, NMFS
Dorothy Thumm, NYSDEC
Dan McKiernan, MADMF
Derek Orner, NMFS
Charles Lynch, NOAA
William Ball, Ofc of Sen. Collins, DC
Peter Moore, Maracoos
Paul Jacobson, Elec. Power Research Inst.
Janice Plante, Commercial Fisheries News
Greg DiDomenico, GSSA
Michael Luisi, MD DNR
Daniel Ryan, DC F&W
Mary Beth Charles, NFWFS

Shaun Gehan, KDW
Jennifer Harris, Ecology & Environment
Sarah Bowman, Ecology & Environment
Helen Takade-Heimacher, EDF
Heather Coll, NMFS
Jason Kahn, NMFS
Angela Sominor, NMFS
Martz Nammack, NMFS
Bruce Vogt, NMFS
Bob Ross, NMFS
Kim Damon-Randall, NMFS
Peter Burns, NMFS
Wilson Laney, USFWS
Mari-Beth DeLucia, The Nature Conservancy
Joe Grist, VMRC
Rob O'Reilly, VMRC

The Sturgeon Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel, Alexandria, Virginia, May 2, 2012, and was called to order at 1:30 o'clock p.m. by Mr. Robert E. Beal.

CALL TO ORDER

MR. ROBERT E. BEAL: Let's go ahead and get the Sturgeon Board called into order. The Sturgeon Board has not met for a number of years. The chair's and vice-chair's tenure has expired. The two-year tenure for the chair and the vice-chair has expired since our last meeting. I am going to chair this meeting and we will elect a chair and vice-chair toward the end of the agenda for the next go-round.

APPROVAL OF AGENDA

With that, we'll go ahead and get started. The first item is approval of the agenda. There was an agenda distributed on the Briefing CD. It's pretty general. I think essentially one item is to discuss the ESA listing and the state response to that. Any other changes, additions or deletions to the agenda? Seeing none, the agenda stands approved. Steve Meyers.

MR. STEVE MEYERS: Mr. Chairman, I just wanted to take a moment, if I could, to introduce Dan Morris, who is our Acting Regional Administrator for the Northeast Region, who will be here this afternoon with us at the table. He is a friend of mine and a friend to this commission.

APPROVAL OF PROCEEDINGS

MR. BEAL: Thank you, Steve; Dan, it is good to see you. The agenda stands approved. The next thing is the approval of proceedings from October 29, 2007, so that gives you an idea of the last time this board got together. Any deletions or anyone who was actually at that meeting have any comments? I was there, too, I guess. I don't see any changes and no one recalls that meeting since it was five years ago, anyway, so the proceedings stand as approved.

PUBLIC COMMENT

With that, the next item is public comment. Is there any public comment before the Sturgeon Board today? We'll come back to Kelly in a few minutes. With that, I think we'll jump right into the main agenda item which is discussion of the

DISCUSSION OF THE ENDANGERED SPECIES ACT LISTING

Endangered Species Act listing for sturgeon. I've got a few slides kind of to frame the issue and just provide some background on kind of how we got to where we are today and update everyone on what has happened since the last meeting when the Policy Board discussed this at the February meeting.

Overall the background is the National Marine Fisheries Service published a Federal Register Notice on February 6th. This Federal Register Notice notified the states and the public that the National Marine Fisheries Service is listing the Gulf of Maine distinct population segment as threatened and the other four distinct population segments of Atlantic sturgeon to the south as endangered. The Gulf of Maine is threatened and all the other range of the coast is endangered. This rule was effective on April 6th, so it has been in place for about a month now.

There has been some correspondence since our last meeting of the Policy Board. The ASMFC sent a letter to the National Marine Fisheries Service that included two or three pages of questions for the National Marine Fisheries Service to answer specific to the Atlantic sturgeon listing and how the states should respond and what the states should anticipate in the response from the National Marine Fisheries Service.

The commission also requested that the National Marine Fisheries Service delay the effective date of this listing from April 6th. The request was made not because the states were saying that the Atlantic sturgeon didn't need the protection. The delay was requested so the states had more time to work with the National Marine Fisheries Service and figure out the most effective way to respond to the listing and implement protections and have the states receive take coverage from the National Marine Fisheries Service for this Endangered Species Act listing.

In April the National Marine Fisheries Service responded to both of these letters. The first letter we received was the response to the delay request, and the National Marine Fisheries Service indicated that there were no provisions in the Endangered Species Act to allow them to grant the delay in the effective date of the listing.

The National Marine Fisheries Service also responded to all the questions that were included in the list that the commission gave them. All the correspondence is included in your briefing material. We've also, since the last board meeting, had a number of discussions between conference calls with board members, technical committee members, National Marine Fisheries Service representatives.

These conference calls have focused on how the states want to respond, what type of reaction should the states have as far as, now that we know the listing has occurred, what type of application or what type of permitting process do the states want to go through in order to be granted take coverage by the National Marine Fisheries Service for this species.

Moving forward, the next two slides really focus the conversation today and this is what the board needs to decide on how the states want to move forward. One question that's out there is Section 7. There was a lot of discussion at a previous board meeting and the state directors' meeting that happened in between the last two meetings about is there any opportunity for ASMFC to fall under the Section 7 umbrella that usually applies to federal activities and is there enough of a nexus between ASMFC and the federal agency to use the Section 7 permitting process.

There are ongoing discussions about this. It is definitely not the typical way a Section 7 permit would be granted for a federal species management. The Section 7 process will be used to address the councils and other federal activities, but for the commission it doesn't appear that is a clear path for the states to use to be granted take coverage for Atlantic sturgeon.

But like I said, there is some ongoing discussion there, but a lot of the discussion and as it goes on – and the part of it that I've heard about, anyway, kind of leads me personally to think that there may be as much difficulty and complications and baggage associated with going down the Section 7 route than there might be if the states just go with the standard Section 10 permitting process that has been used for other ESA listings, and we can chat about that.

The next option that is before the management board is frankly state-specific Section 10 applications, so each state up and down the coast can submit an application for take coverage from

the National Marine Fisheries Service. There are some implications with this. One thing is it's a state workload issue. All the states are taxed pretty well with they are able to do right now and this would be one big additional project on top of what they have to do.

One question is how can that be streamlined. If the states do act individually, that does provide the states flexibility to act on their own timeline; and when they have the data available and the manpower available to develop these documents, they'd submit them to the National Marine Fisheries Service.

The other end of the spectrum, if you want to call it that, would be a coordinated Section 10 application of some sort. This may be through ASMFC or ASMFC or may be a coordinating body or a clearinghouse of information. The details on this still should be discussed today, but this may be a decrease in state workload if there is some standard language that can be applied to a lot of the states and we can implement that up and down the coast.

One of the downsides that has come up during some of the conference calls that we've had over the last couple of weeks is if there is a coast-wide Section 10 application, what does this mean as far as take coverage and how would take coverage be allocated. Would there be one total number of interactions that can occur on Atlantic sturgeon and those total number of interactions somehow needed to be allocated to the states.

There was some concern that that kind of pits one state against another to get a larger share of allocation of take coverage, and this is one of the concerns that has come up. The other is that the schedule is less flexible if we go with a coordinated approach. There has been some concern expressed that kind of the lowest common denominator, the slowest state or the slowest data set may be what slows down the overall Section 10 application for the coast.

If that process is moving forward but is limited by the slowest element, then there is concern that some states would be able to get their paperwork submitted to the National Marine Fisheries Service and their process moving forward a little bit quicker than waiting for a coordinated response.

Those are the general comments that frame where we are and what the questions are and the history between now and the last meeting. I can answer any questions on that. In the letter that we submitted to the National Marine Fisheries Service that requested the delay, there was a commitment in that letter to get our technical committee together to talk about the interactions and gear types or least start that initial discussion.

The technical committee has gotten together. Brian Richardson from Maryland is here to give a presentation or summarize that discussion. Duane Fox and Bill Post, the chair and vice-chair, were not able to make it so thank you to Brian for coming over to do this. If there are no questions on my presentation, I'll turn it over to Brian. Steve.

MR. STEVE HEINS: Bob, you mentioned the coordinator approach that might pit states one against the other for takes, but wouldn't that also be true with a state-by-state approach? In my naiveté it just seems to me that you're still pitting one state against the other as far as takes go on the coast.

MR. BEAL: It might be. I guess it depends how the state-specific applications are written. My assumption would be that they would be written based on the data that is available to those states and that state would describe its interactions and the number of takes or interactions that state is permitted would be based on their state analysis rather than a larger coast-wide analysis of some sort that has to be subdivided potentially individual in the state take. That's part of the discussion today to figure out how those things would take place. Pat.

MR. PATRICK AUGUSTINE: I was going to do a follow-on. I didn't go back and read that letter that was sent to the National Marine Fisheries Service, but as you recall in our conversations that we had relative to the actions we could take, can we assume then that there will be no further action in the near future to look at declassifying in any way, shape, form or manner.

I know some of us asked were we comfortable, we, the board, ASMFC comfortable with the full assessment that was done on the stock up and down the coast and did we have an opportunity to go back and review all that? If so, did our

technical committee or is our technical committee fully in belief, if you will, that the assessments that were made were as complete as we could get and that we have used the latest data that is available?

A lot of questions, but the bottom line is if we, our technical committee and ASMFC feel that there is no need to go any further other than a follow-through and continue to follow through any of the Section 7 or Section 10, that we just go forward to the next two, three, four or five years and then look at the review of guidelines on cultured Atlantic sturgeon for supplemental or reintroduction. Do we have an idea as to which way we're going to go, Bob?

MR. BEAL: Well, I think the questions of the technical committee are probably a perfect segue to have Brian give his presentations. I think he'll cover some of the things you're asking about. If he doesn't cover all those, we can chat about those afterwards if Brian is comfortable with that.

MR. BRIAN RICHARDSON: Okay, the technical committee held a conference call in April to discuss some recent data provided by the National Marine Fisheries Service on bycatch interactions. Primarily that's all we discussed during that conference call. This analysis was conducted by the Northeast Fisheries Science Center and it was from data collected by the National Marine Fisheries Service Observer Program.

The technical committee came up with several observations and concerns about this analysis. The first was the analysis only focused on federal waters and not state waters where sturgeon spend the majority of their time; where Atlantic sturgeon spend the majority of their time. Also, analysis only considers takes.

According to the terms of the ESA, a take is an encounter with the listed species regardless of the outcome of that interaction, so all takes do not equate to a mortality. A sturgeon released unharmed from a pound net is treated the same as a sturgeon mortality from a ship strike. The analysis only focused on presence or absence in three fisheries.

The fisheries included gill net and trawl fisheries for monkfish and skate and the trawl fishery for flounder. Data used in the analysis were only from observed trips and only from the Northeast

Fisheries. There was no differentiation on sizes of sturgeon caught, so we can't tell if it's juvenile or adult. Size-specific data would help to put any associated mortality into perspective.

Soak time was not considered in this analysis and previous work by ASMFC in 2007 indicated that this factor is the principal influence on sturgeon survival in these coastal fisheries although enforcement of soak time restrictions can be difficult. From the data provided by NMFS, it's clear that there are certain times and areas where encounters are more frequent.

Finally, states need to initiate action soon as the permit process can be lengthy, up to several years, and we'll need the full observer data base to complete the Section 10 applications. That was primarily what we discussed during the conference call. I believe there is going to be a meeting scheduled with the technical committee to discuss more of the data issues they brought up.

MR. BEAL: Any questions for Brian on the technical committee report? Pat.

MR. AUGUSTINE: Brian, that was an excellent report. At first pass I would say it raises cause for us to look at a delisting in the relatively near future. If I understand the process between the Section 7 and Section 10 and how onerous it is to file, I recall someone here had indicated in one of our recent meetings that they had been working – I guess it was Mr. O'Connell – had been working at a Section 10, I believe it was, for, what, seven or eight years with nothing in sight other than a big question mark followed up by the presentation that Kate – and I apologize for not remembering last name – in her statement in response in response to how long would it take to get one of these sections through the process and she said it could be a short time or it could be – in my opinion it was forever.

It just seems to me that we are in a dilemma there is data out there that indicates this stock in some areas is much more robust than is warranted for this listing. This appears to be a real slam dunk. I've had several conversations with some of our fishermen, and from their perspective the question is, is this listing anything more than a veiled attempt to reduce commercial fishing?

Quite frankly, if I stepped back and took a deep breath and trying to be as practical and objective as possible, I would find maybe there is some truth in that, particularly in one of the more robust fisheries that we're dealing with that is an economic driver, that being monkfish. I understand the interaction with sturgeon is extremely active between those two species.

But, it just seems to me that when listening to what the technical committee reviewed, it leaves one to believe that this turned out to be in the common vernacular on the street as a slam dunk without having taken into consideration all the relevant data that is available. And a final comment is if that's the case, it would just seem to me that within the next three to six months while states are trying to figure out how to file a Section 7 or Section 10 to give some allowance for their fishermen and the effort that goes into that and taking from the day-to-day work that these limited staffs have to do, anyway, it's another ludicrous move just to take away from our real active jobs that we have to do.

I would hope by the end of the meeting other folks around the table would speak to the issue and hopefully come up with the conclusion or consensus that somewhere in the near future, which could be three months, six months or less than a year, take a look at trying to put together the paperwork and rationale as to move forward with a delisting for those areas that quite frankly don't need to be listed. I don't have question, but I think that's my response to you, Brian, and I thank you very much for your information.

MR. THOMAS O'CONNELL: I just had a question for Brian. It's my understanding that – well, first, there is a tremendous of workload before all of us to develop these conservation plans. There have been several requests my understanding is to obtain the NOAA observer data, and I was just wondering, Brian, if that data has been delivered yet or if there is a timeframe to receive that information?

MR. RICHARDSON: Several members did mention they had requested data from NMFS and to my knowledge at least as of April 25th, when we had the conference call, they had not received that data.

DR. LOUIS DANIEL: I've got a lot to say but it will take probably a couple of hand raises to get there. One question that I had for the technical

committee was in looking at the gill net fisheries that they looked at, they were looking at fisheries with very long soak times, and it appears to us that they assessed mortality in gill net fisheries consistently with like the monkfish fishery that has a very high rate of mortality; whereas, many of the other fisheries like strike net fisheries that are basically set-and-retrieve type fisheries that don't have long soak times the mortality rates of the sturgeon are extraordinarily low.

In North Carolina, through our analysis, boat-side mortalities are in the neighborhood of 3 percent in a lot of those fisheries compared to the very high levels in the monkfish fishery. It appears that NMFS used primarily the high numbers that greatly inflate the number of mortalities associated with the gill net fishery. Is that what you have seen?

MR. RICHARDSON: This particular data was coastal fisheries. Certainly, there are other interactions especially inshore with different gears. That level of detail I don't think was in the report that we were given.

DR. DANIEL: Another point as well, to answer I think Tom's question, I know New Jersey and Rhode Island and North Carolina have requested the observer information and the data that NMFS used to at least partly defend this decision. We have been absolutely unsuccessful in getting any kind of response back from NMFS.

You would think, after having a meeting with the head of Protected Resources and Sam Rauch in the conference room down the hall, that word would have got filtered down, but it has not. That's critical information. We've tried to put together what we can with a Section 10 permit application just to try to cover ourselves, and everyone should have a copy of that to give you some sense of the direction that we're heading in.

But then likewise my understanding is that at the last meeting the Fish and Wildlife Service didn't feel as though – it was not clear if NMFS had addressed their concerns where they had commented on the listing decision. Has that been resolved from the Fish and Wildlife Service's perspective? Has that apparent not addressing your comments; has that been resolved to the Fish and Wildlife Service's satisfaction?

DR. JAIME GEIGER: Several weeks ago Dan Morris brought his entire staff over to our northeast region office in Hadley, Massachusetts, and we had a good opportunity to discuss a variety of issues of joint interest and concern in terms of resource conservation. At that point in time I think we had a good chance to discuss some of our concerns, some of our questions and certainly some of the way we need to go forward collectively.

Again, I feel comfortable that our issues had been discussed and addressed. I think we're on a good course to work together for Atlantic sturgeon recovery. If memory serves me correctly, I believe the southeast region of the Fish and Wildlife Service also had discussions with the southeast office as well on this issue. I would defer to Dr. Laney if he knows anymore information on those particular meetings as well.

MR. BEAL: Wilson, do you have anything to add to what Dr. Geiger just commented?

DR. WILSON LANEY: A couple of things. There were some discussions between the southeast regional office and the southeast regional office of the National Marine Fisheries Service. I haven't been fully briefed on where those wound up. I think there are still ongoing discussions.

I personally met with Assistant Regional Administrator David Bernhart and Sturgeon Coordinator Kelly Shotts last week in St. Petersburg to talk about one specific component of the ASMFC program for which I'm responsible, that being the Cooperative Winter Tagging Cruise. Per my discussion with David and Kelly, I will be submitting a Section 7 proposal to them; basically submitting the cruise protocol for a Section 7 consultation with the southeast regional office.

My understanding, Dan, is that they were going to then contact you all in the northeast region to see if they could work out an arrangement with you all where they would have the lead for consulting for both regions since our operations occur in federal and state waters off Virginia and North Carolina.

Therefore, we are operating in both regions and we have the potential based on past genetic analysis, conventional tag recaptures and results from the 14 acoustically tagged fish that we

released that show that we basically have the potential for encountering fish from any one of the five DPSs.

That was the way I left my discussion with them in the southeast region last week, and I don't know whether they've contacted you all in the northeast region yet or not. But, for that one small element of the ASMFC program, it seems as though we are at least going to proceed down the Section 7 pathway and it will be up to the National Marine Fisheries Service whether or not we qualify for a Section 7.

Again, relative to where things are from a regional perspective between the southeast region of the Fish and Wildlife Service and the National Marine Fisheries Service, I would ask you to direct those questions to Regional Director Cindy Dohner who is much more aware of where things stand than I am.

MR. BEAL: Thank you, Dr. Laney. With that, I am going to ask Dr. Pierce to make his comments or questions, and then I had promised Kelly we would go back to him for a quick public comment. Then I'm going to ask Kate to provide a summary of where the states currently are and then we'll jump into hopefully the discussion on how to move forward.

DR. DAVID PIERCE: Okay, thank you for that good guidance because I have a suggestion as to how we should move forward or at least part of the process as to how we should move forward, so I'll hold off on that particular comment. I will note, however, that ASMFC certainly has every right to be very involved in these discussions and to ask all sorts of questions and to request clarification.

The National Marine Fisheries Service actually has used the Atlantic States Marine Fisheries Commission analysis and, data base as one of the foundations for the decisions to list. I'll just call the board's attention to the February 6, 2012, Federal Register where the Service highlights an important document. I'll just read it; it's very short.

It says that the ASMFC has been very active in the management of Atlantic sturgeon. It cites our management plan in 1990. It cites in 1998 what we did through Amendment 1 to impose the moratorium on the take of sturgeon. Then it says, "In 2007 the ASMFC published a bycatch

report," and then it cites the document, "which indicated that bycatch is having a negative impact on Atlantic sturgeon population growth and recovery."

Another report that the Service has referenced, "we have determined that the best scientific and commercial data available indicate that each DPS of Atlantic sturgeon is in danger of extinction or likely to become endangered within the foreseeable future." It goes on from here. So, the irony is that here we are a group of states now being obliged to take some very dramatic actions that will involve tremendous expense as a consequence of our data base interpreted by the National Marine Fisheries Service to draw this conclusion that indeed there is a danger of extinction; hence, the threatened and the endangered status for sturgeon. I only say this as sort of a prelude to again a motion I would like to make at the appropriate time when we get to the issue of what is the next step.

MR. BEAL: Thanks, David; I'll come back to you after Kate's presentation. Kelly, are you ready for your public comment? Do you think you can keep it within five minutes or so?

MR. KELLY PLACE: Yes, sir, I believe that's about what it is and I apologize for being a late. I had a little fender bender out there and I had to race around the heat and got in here and didn't have my comment printed. I represent the Virginia State Watermen's Association, and we'd like to express fundamental disagreement with the National Marine Fisheries Service final determination to list the Chesapeake Bay DPS of sturgeon as endangered under the ESA.

We request that the commission to officially petition NOAA Fisheries to delist or at least down-list the status of Atlantic sturgeon under the ESA. We think it was irresponsible and scientifically indefensible to impose the most stringent ESA listing possible especially with no stock assessment.

We're certain that NMFS has not used the best available scientific information as legally required in order to comply with the ESA; nor has the Service answered the questions we posed during the comment period as required by the ESA. In fact, we believe this reckless action harms the scientific reputation of NMFS and endangers the integrity of the Endangered Species Act itself.

I've never opposed an ESA listing before and was even a member of NRDC for most of the last 25 years, but this action taken without the benefit of even a stock assessment is unethical and unwise in the extreme. We believe the ASMFC Sturgeon Management Plan has been demonstrably successful in protecting the expanding east coast sturgeon populations and deserves credit for that.

We're only 14 years in to a 40-year plan and only now is there a large generation of protected sturgeons reaching reproductive maturity. Consequently, the significant population increases that we've been monitoring seem all ready to be manifesting into a veritable population boom in Virginia waters.

In fact, no Virginia waterman alive has ever seen the number of sturgeons we see in Virginia's waters today. I've been monitoring sturgeon in Virginia's waters for over 30 years and Virginia watermen and our partners in the Virginia Sturgeon Partnership have been conducting fishery-dependent and independent surveys under Sea Grant for eight years.

We've been creating and testing bycatch reduction gear and techniques while measuring bycatch and bycatch mortality under many different scenarios and under many different fisheries. We and our partners have now collected around 2,000 unique DNA samples from many year classes in Virginia's ocean, bay and riverine waters.

We have numerous fish with transmitters that are being tracked up and down the east coast. Numerous papers, articles and graduate theses have been conducted based upon our data. One of our graduate student partners recently discovered what appear to be robust spawning events in the James River in the autumn, and we have reason to believe this is occurring in other Virginia rivers, too.

Last year he caught and sampled as many as 12 to 13 fish in spawning condition at one time in one pull of the net, all adults, obviously. In about 45 days of limited fishing in one small area, he has collected more DNA from spawning adults than NMFS has ever stated exist even in their most optimistic estimates.

Last year he had one recapture; all the rest are unique. The gentleman has certainly not caught

even 1 percent of the returning adults in the James River let alone the Chesapeake Bay. His data and ours indicates that NMFS population estimates are at least one or two orders of magnitude in error.

In 2004, when I first announced to NMFS and the scientific community that we were beginning this research and that we needed them to provide observers, geneticists and other support, shockingly NMFS has ignored our request and most of the vital data that we've generated. The only time NRDC or NMFS has alluded to our work was to dismiss, mischaracterize or mis-analyze it.

In fact, NMFS in this ESA action has become the greatest obstacle to sturgeon research in the Chesapeake Bay. We recently got a surprise notice that we can no longer handle or research the numerous sturgeon our project encounters. We can't measure them, tag them, track them, DNA sample them or even photograph them.

Even coastwide the onerous research permit conditions from NMFS will make most research way too ineffective and inefficient to pursue. Some years ago we thought NMFS was one of the biggest threats to sturgeon spawning in York River tributaries because of their actions and inactions on a controversial water project right in the middle of their spawning grounds.

We fought for years to protect those sturgeon and their spawning grounds whose destruction NMFS was apparently content with then. Only our victory in federal court in 2009 kept that harmful project from happening despite NMFS inactions and actually their acquiescence to the project.

Now that we have proved their existence and their abundance, NMFS has decided they need to come in and save them. NMFS and many others are concerned that increasing ship strikes are an imminent threat to the health of Chesapeake adult sturgeon populations. It's correct that the numbers of ship strikes have increased significantly over the last ten years, but not because shipping or boating has increased. It has actually diminished especially in this economy.

The increasing numbers of ship strikes are reflective of an increasing population of large fish. Even last July 5th over five ship strikes in one day; it used to be we'd get one a year. There

is a major increase in sturgeon spawning in the James, the York and other rivers as well. For 20 years I considered NMFS list of research needs and in 2005 I set out to fulfill them on a shoestring. NMFS had made insignificant progress over the previous decade –

MR. BEAL: Kelly, real quick, it looks like you have a couple of more pages; so if you could wrap it up, that would be good.

MR. KELLY: No, no, I'm right at the very end, but something got mixed up in the printing there, but no big deal, I can do that from memory. With all the DNA that we had collected trying to fulfill NMFS data needs, I think it's important when you look at their needs whether it's sturgeon mortality, we've got that; DNA samples, we've got that; ship strikes, we've got that; population monitoring, done that.

All down their list we have been fulfilling these data needs but we can't get NMFS to look at it. They have ignored our requests. For all these years they have not used the best available scientific data. I'm happy to say that VIMS and VMRC have that now, our rather large data base, and I'm sure they'll be analyzing and putting it together.

I do encourage NMFS to especially start to analyze the DNA from the adults in the James because a preliminary analysis by Dr. Tim King noted, noted sturgeon geneticist, in his words in 2007 said the genetic diversity of the James River population is much larger than anyone had ever previously imagined. We've got direct empirical evidence.

We would like to get NMFS to come and look at that. I would like to say that the irresponsible action and consequent regulations are so onerous and unwarranted, it could cause congress to eviscerate the ESA and NMFS when they begin to realize the costs to government and society. To the adults in NMFS you'd basically need to enter the room because your OPR kids are playing with matches and may burn down the whole house if you don't intercede.

We don't want or like to litigate; but if someone pokes you in the eye and won't withdraw their finger until you accept what you personally know to be incorrect, what options do you have? ASMFC instituted their moratorium in 1998 and

Virginia had proactively done so in 1974 and had a four-foot size limit since 1928.

Only 14 years into the ASMFC's plan, it has worked well and promises to synergistically generate remarkable biomass in the future as these protected generations come of age. We urge the ASMFC to show backbone, stand up and take credit for the unheralded successes of your sturgeon management plan. We implore you to officially petition NMFS to ESA delist or at least down-list Atlantic sturgeon because their data and scientific rationale is either wrong or non-existent. Thank you for your forbearance.

MR. BEAL: Thank you, Kelly. Your comments have apparently inspired at least one more hand in the audience. Greg DiDomenico, can you come up and give your comment to the board quickly, please.

MR. GREG DiDOMENICO: Greg DiDomenico, Garden State Seafood Association. I'll be brief and I won't be as technical as Kelly just was. I felt it was important to just tell the commission that one of our members from Barnegat Light – he is a gill net fisherman – just finished up a fourth year of sturgeon tagging outside Delaware Bay.

In less than 90 days of fishing a very small amount of net over a four-year period, they just tagged their 506th sturgeon. They have had only one recapture and one mortality in those 90 days of fishing. I think that speaks to not just the issue of continued science, but it also speaks to the issue of the real population size of sturgeon may be at this point. I just wanted to give you a quick update on that, and we hope to have specific information about the complete research and we'll provide that another time. Thank you.

MR. BEAL: Thank you, Greg. Kim Damon-Randall from the National Marine Fisheries Service has her hand up in the back.

MS. KIM DAMON-RANDALL: I just wanted to quickly say that while you were talking, I e-mailed the observer program to find out about the data request, and Gina Shield e-mailed me back and she is working on the data request today.

MR. BEAL: Thanks for the update, Kim, appreciate that. With that, I'll ask Kate to

provide an update on where the states are right now with their response.

MS. KATE TAYLOR: A survey was sent out to our member states to assess where they are in compilation of Section 10 permits among some other questions. This presentation is just focusing on the Section 10 A-1-B permits, the incidental take permits. The states of Maine, New Hampshire and Florida responded that they either will not be submitting these permits or are unknown if they will be submitting these permits.

The states of Delaware, Maryland and Virginia are currently either working on these permits or are in the initial stages of beginning to work on these permits. The state of South Carolina is almost finalized with their permits. The states of North Carolina and Georgia have both submitted their application to the National Marine Fisheries Service.

Both of those applications were included with your briefing material. The state of Georgia has had their application go out for public comment and a Federal Register Notice was included with your briefing material as well. Among the states that did respond to the survey, there were various focuses of the applications from either all fisheries or pound net fisheries, drift gill net fisheries, gill net fisheries. That is the information we got from that. Thank you for those that responded.

MR. BEAL: Thanks, Kate. Any questions on the updates to the update on where states are?

MR. RUSS ALLEN: Right now New Jersey is working on our Section 10. We've kind of put a draft together and working with Kim on trying to make sure we're in the right realm of what we're trying to do since we've never done this before and trying to put together the conservation plan. As Louis said, we're waiting on the data.

We really can't do much more until we have that observer data which would help us figure out which fisheries we need to use to get takes. One of the main focuses we're trying to come up with our Section 10 is to make sure all those fisheries that don't have interactions with sturgeon are exempted from all this, so we can make sure those fisheries continue as is.

That is just bait net fisheries and some of the haul seines and other things like that, crab pots, just whatever there was in there and trying to make sure that those are all exempt from having to worry about the Section 10 and then focus on the gill nets, trawls and the pound nets. That's where we are right now with that. Also, our Section 7 consultation is moving forward for our research programs and we hope to have an answer on a biological opinion on that very soon.

MR. BEAL: Thanks for the update, Russ. Steve Heins.

MR. HEINS: New York is in the process of hiring a new biologist to work specifically on the Section 10 permits at least initially. We should be done with that by mid-May, I would think, and we'll be starting work.

MR. BEAL: Good luck; thank you. Dr. Daniel.

DR. DANIEL: We don't have a presentation or anything like Georgia does for this meeting for North Carolina's Section 10. I did want to get it out for the commission to at least have that as an example from a state that has actually recently done a Section 10 permit application for sea turtles.

We are getting a lot of conflicting messages from NMFS over our take calculations, and that is something that all the states should be very cognizant of. We used a simple lognormal analysis for our sea turtle take reduction numbers. We got probably as blistering a set of comments back from the National Marine Fisheries Service as I've ever seen, and it was like a plot trying to get a publication in Fishery Bulletin when all it was just a take application. They were very critical of our technique and suggested that we use alternate techniques. We sort of took the comments that we had received back from our Section 10 on turtles and said, well, if we accommodate the issues that NMFS drew on for our turtle application, we'll make sure that we don't make those same mistakes with our sturgeon.

Well, NMFS has done the incidental take analysis for sturgeon exactly the same way they berated us for using on sea turtles. I don't what to do at this point. There was some zero-based analysis that they suggested that we do. We did that and now they're coming back and saying,

well, we used the one we told you not to use for turtles for surgeon.

It has cost us a lot of money and a lot of time to develop those number and to do those analyses and basically it was all for naught. There needs to be some consistency. There is no reason why the take numbers for turtles and sturgeons, the calculations would be any different. Before you submit anything, make sure that you're clear with your region how you're supposed to be conducting these analyses or else it's going to slow you down even farther.

Our stuff is out there. I don't know if it's right or not. I guess I'll find out once they've given it a cursory review. We tried to use the newer model and the newer techniques in this one and the numbers come out pretty extraordinary. Kelly sent me a lot of his stuff and I've forwarded it to my folks.

It looks like he has got some very good information out there that is very consistent with what we're seeing in North Carolina where our take numbers based on our calculations just for one small area is going to be in the 10,000 range. For an endangered species, our experience has been that you might get fifty or a hundred incidental takes; and if you need thousands and tens of thousands, something doesn't quite mesh there. I'm sure there will be more to discuss after Dr. Pierce gets us started, but just for your information that's why we presented what we did.

MR. BEAL: Thank you, Louis. With that, I think I'll call on Dr. Pierce and then the rest of the discussion for this meeting should focus on kind of where we go from here. I think there has been obviously a request by the public to consider a petition to delist. Pat Augustine made the same comment.

I think the delisting process and the science that leads up to a petition and the petition leads up to a delisting, that takes a lot of time and takes a lot of effort as well. I think what needs to be talked about today is even if the commission is or is not going to go down that road, I think there is a short-term or relatively short-term things that need to be done by the states with respect to Section 10 and other things that probably need to be considered prior to an assumption that something is going to occur with the delisting if

the commission even decides to pursue that. So with that said, Dr. Pierce.

DR. PIERCE: Mr. Chairman, obviously, quite a few states are already taking action and responding in the only way they can, and there were some states who are beginning to prepare that response, so that's moving forward. It's going to be important I suggest that as part of the movement forward we take a look back and we ask the National Marine Fisheries Service to provide information that it has not yet provided certainly to the technical committee to help us better understand what has happened and what should happen in the future.

At the New England Council meeting of last week I made a motion relative to sturgeon because obviously sturgeon is important to the New England Council and the Mid-Atlantic Council. This motion was specific to both councils Scientific and Statistical Committees. I actually factored into that motion a specific reference to the ASMFC Technical Committee.

The motion passed almost unanimously as an appropriate step forward by the New England Council the specific requests of the Service. I would like to make a motion. It's a little long so bear with me, but it needs to be because it's a motion that pertains to the technical committee and also to this board and the relationship we have with the Service, specifically information the Service needs to provide to us to help us understand how we got to this particular point in time and to ask the Service to provide – in a very formal way to ask the Service to provide us with important information.

I believe this is a request that has to go through the Policy Board, Mr. Chairman, move the Sturgeon Management Board request the Policy Board:

1. Send a letter to the National Marine Fisheries Service requesting a meeting of the agency's Protected Species staff with the ASMFC Sturgeon Technical Committee to receive a detailed update from the National Marine Fisheries Service staff on the Atlantic sturgeon listing under the Endangered Species Act;

- a) Following this meeting the technical committee will review the scientific basis for the listing with a

focus on the methodology and data used to generate the listing and associated conclusions; and, the methodology used to generate bycatch and discard estimates by gear type, season and area; and

- b) After this review, the technical committee will advise the board as to the appropriateness of the methodology used in the NMFS analysis and then recommend ways to improve the analysis and how the analysis can be used to reduce sturgeon bycatch;
2. Request the NMFS Protected Species staff provide the board with a detailed description of the methodology, the process, the timeline and description of any public process mechanisms NMFS will use to formulate a so-called batch biological opinion specific to Atlantic sturgeon; a detailed explanation of the baseline population data being used to estimate the condition of each DPS; the rationale that will be used to determine whether jeopardy exists for each affected fishery; and how the incidental take statements will be calculated in relation to DPS population condition for each affected fishery; and then a draft biological opinion on sturgeon following the precedent set with the Pacific Councils with the potential ESA listing involving the North Pacific groundfish in Hawaiian swordfish fisheries; and, then finally providing a time period allowing for adequate board review of and public comment on this biological opinion.

That is the motion, Mr. Chairman. I know it is rather long. It generated some discussion at the New England Council meeting; and as I said, it passed on a vote of I think it was 13 to 3.

MR. BEAL: Thank you, Dr. Pierce. Is there a second to that motion? Dr. Daniel. Discussion on the motion? Louis.

DR. DANIEL: Thank you, Dr. Pierce. I would certainly support this motion. I think this information is critical for our understanding, because it's hard to put your heart and soul into the things that we're going to have to do in order to make this work when you just simply don't understand why the decision was made or how

the decision was made or agree with the decision that was made.

Would it be your intent, Dr. Pierce, that this would be the first step and that the results of this information-gathering process would lead us to the point where we could direct our technical committee to begin working on a petition to delist? Is that your intent or would we be tasking the technical committee with trying to come up with that concurrently?

DR. PIERCE: You've taken it a bit farther than I had intended; however, it is a good suggestion. I suggest that if you would like to have as a specific intent, that it could either be an amendment to this motion or a separate motion, if indeed this passes.

DR. DANIEL: I would handle it as a subsequent motion if your motion carries, but I would fully support your motion.

MR. BEAL: That's probably better; I don't think we can comprehend anymore words in this one motion. Terry Stockwell.

MR. TERRY STOCKWELL: I seconded a very similar motion last week at the New England Council. I supported that motion and I certainly support this one. The only difference between the two is last week's motion was linked together with the two councils' SSC. I think there may be wisdom for inclusion of those two bodies in this deliberation as well. The more good minds we have looking at the data here the better the resolution we're going to have.

MR. BEAL: Other comments on the motion or questions for the maker and seconder? Seeing none, I guess we're ready to vote. All those in favor of the motion please raise your right hand – I'm sorry, caucus please.

(Whereupon, a caucus was held.)

MR. BEAL: All right, all those in favor of the motion please raise your right hand – the federal services are asking for a time out. All right, we're going to try this one last time, I hope. All those in favor of the motion please raise your right hand; those opposed like sign; abstentions, one abstention, National Marine Fisheries Service; any null votes. **The motion carries seventeen in favor, none in opposition and one abstention.** Dr. Daniel.

DR. DANIEL: I would like to have some discussion on a petition to delist. I'm assuming that our technical committee members, at least those that represent the states and possibly those that represent the Fish and Wildlife Service – I don't know at this particular stage in the game where they are – but we obviously all submitted letters in opposition to the listing, so I would assume that our technical committee does not support the listing.

It sounds to me like there is a tremendous amount of information out there that has not been used or that has been potentially mischaracterized or mis-analyzed and that we were told at the state director's meeting a month or so ago that we could indeed, even in the absence of a rebuilding plan and delisting criteria, we could submit a petition to delist. While I think Dr. Pierce's motion is a great one, I don't know all that is going to happen in a very timely fashion.

It may be that having the technical committee look at the comments and the responses from NMFS – I've got pages and pages of comments on inconsistencies in the advice we're getting from NMFS on their responses to our questions and various other concerns that I know our technical person from North Carolina will bring up.

I'm pretty certain that the technical representatives from virtually all the states are going to bring up some significant questions. **I would move that we direct the technical committee to begin at least the initial phase of developing a petition to delist for discussion at the August meeting.**

MR. BEAL: Seconded by Pat Augustine. Louis, can you clarify for me exactly what you think you want to see in that initial draft or version for the August meeting?

DR. DANIEL: Yes, I want to see inconsistencies. I want to see where we say one thing and NMFS says something else. I want to see Kelly's data analyzed. I want to be able to see where there is an estimated 300 sturgeon in Virginia and they've tagged 2,000 unique individual adult sturgeon.

I want to see things that call into serious question, if they exist, the decision that NMFS made. I think that's the beginning. That's going

to be our justification. We can't just send them a petition and say we don't like your decision, change it. We've got to have examples and reasons why this should be reopened and reconsidered.

I think our technical committee is the group that can do that by looking at the information. I think the discard mortality rates out of gill nets is going to be a big issue if you look into it deep enough. I think that's going to be a substantive issue. I think that's going to change the appearance of a lot of these numbers and a lot of these justifications.

It would be nice and I think it will be excellent to have the technical folks from the Protected Resources Section – because I'm assuming there is at least one live body out there that actually supports this and believes it's justifiable. We have not been able to find out who that person or group of people are because it won't be disclosed to us.

But at least if we meet with the Protected Resources folks maybe we'll get a sense of where they're coming from and get some indication as to why they made the recommendations to the round table that met and made this decision back in February. That would be my hope is that would come out. If the technical committee comes back and says, "You know what, those guys were right, we were wrong, these analyses are clear that we've got a major problem and those really aren't sturgeon you all are seeing all over the place," then maybe we can back off and just tuck our tail between our legs and start developing Section 10 permits.

MR. BEAL: Thank you, Louis. Brain, I'm going to put you on the spot, if that's all right. As the stand-in technical committee chair, given what Louis just described, is that something that you guys can pull together by the August meeting or a first cut at it by the August meeting, maybe?

MR. RICHARDSON: I'm sure we could do a first cut by the August meeting. That is something that we have not been tasked with yet, so I'm not sure where we things stand. We can sure give that a try.

MR. BEAL: A fair response, and I guess there may be some give and take. If the technical committee starts this and they feel it's going to

take longer than the August meeting to get something meaningful back to the board, then we can report that out to the board and give the technical committee some more time. Does that sound reasonable, Louis?

DR. DANIEL: Very.

MR. BEAL: Great, thank you. With that understanding, other comments? Doug Grout.

MR. DOUGLAS GROUT: Mr. Chairman, I was wondering if I could get a refresher from the National Marine Fisheries Service on what the process and timeline would be for a delisting request. Are we at a point where in the near future where we could propose a delisting?

MR. DANIEL MORRIS: I'm going to ask one of our headquarters staff to speak to that, if I may, Mr. Chairman.

MS. ANGELA SALMON: I'm Angela Salmon for the Endangered Species Division for NMFS at Headquarters. Once we receive a petition to delist, then we have 90 days to do a preliminary evaluation of a petition to determine whether we think it presents substantial information indicating that the petitioned action may be warranted.

If we determine that it may be warranted and make what is called a positive 90-day finding, then we would initiate a further review of the information. We are required to make a decision within 12 months of receiving a petition.

DR. GEIGER: Mr. Chairman, I'm not going to support this motion with all due respect to the motioner and the seconder. I think stepping back to Dr. Pierce's original motion here, first seek to understand. I think our technical committee, the commissioners around this table, Protected Resources staff, the various biologists and scientists that have been involved in Atlantic sturgeon conservation for these numerous years, let's have that opportunity to have that conversation so we make sure we all collectively understand and appreciate what information was utilized, what was evaluated, what was done and we were clear on the processes.

With Dr. Pierce's motion I thought we were starting on this process of seeking first to understand. Right now my sense is we don't all fully understand what was utilized, what was

considered, what was investigated and what may not. I think we owe that to everyone involved in this process.

After all, is it not the goal to conserve, protect and restore Atlantic sturgeon? This commission has done an outstanding job doing just that. I would urge, with all due fairness and understanding, to proceed on first seek to understand and get the information before we go to the next two or three steps. Thank you, Mr. Chairman.

MR. DANIEL: Dr. Daniel, in response to that?

DR. DANIEL: Yes. I understand where Jaime is coming from and think that Dr. Pierce's motion is a good one, but you don't have to develop Section 10 permit applications, Jaime. I've got to and it's going to cost me a lot of money. I don't want to see this process – and I think it's a good one that Dr. Pierce laid out – get to the end and we're still behind the eight ball.

Just because we ask the technical committee to look at the initial phases in creating a petition to delist, it doesn't mean we have to submit it, but we do need to be moving down that road and be prepared. If our technical committee comes back says, "You all aren't going to believe what we found;" then we may want to just say, "Look, we've got the information and we need to move forward with this."

I'm telling you until you get into this thing you can't imagine how much these Section 10 permits are going to cost you to implement, necessarily, because you're doing things that have interactions with endangered species and you're allowing things that would be otherwise prohibited to take place, so it's going to cost you some money, but it's going to cost you a lot of money. It takes time to put together the people and the staff and the proposals to do a lot of this work. If it's unnecessary, then I don't want to do it for any longer than I have to.

MR. AUGUSTINE: Mr. Chairman, along the same lines as Dr. Daniel is indicating, I'd like to go a little further on what he was asking the technical committee to look at in terms of if we're going to go down that road of trying to get this delisted; and that would be break out where possible the actual take of the various gear types.

If I understand correctly, the definition that is used for the ESA listing is if you caught it, it is dead. That's my understanding, there is mortality involved here. If in fact that's not true, as Dr. Daniel pointed out, you're right, one gear type could sway the whole outcome of the assessment. It seems to me that if we're going to do any comparison – not comparison but if we do any analysis, we should at least break out the gear types and what the mortality rates are there.

As far as the motion is concerned, I'm very black and white, as most of you are aware, I think the things that Dr. Pierce is asking for we need, but the real question is how much work effort is that going to generate on behalf of NMFS to respond to all of that as opposed to what it will take for our technical committee to go forward to put together the basic tools and information that we need to move forward with a delisting.

If we in fact as a board believe that there is adequate information that we say, yes, we're going to move in that direction, for what we're asking in this motion is very complex. We're asking a complete breakout section by section by section. I won't defend them because they're the federal government, but the fact of the matter is they have manpower constraints just like us.

At the end of the day, the question is what do we gain other than upsetting or putting another cog in the wheel that will slow down the process if in fact we go forward with the delisting. I think the weighty part of this is how much pressure do we put on the group that is going to have to analyze what we're asking them to do versus they spending time doing that, us spending time doing what we're doing, and then putting the two together.

They're both critical but again the point is how much time? I don't know and maybe NMFS can answer that question, Mr. Chairman, but right now sitting here approving this motion, which I think covers everything we want NMFS to do; is it going to really effectively do the job for us in the timeframe we're looking at. If I could have some answers to those questions, it would be helpful.

MR. BEAL: Dan, can you handle those questions?

MR. MORRIS: Yes, two of the points; first on the assumed mortality ratios, I'll turn to staff or they can correct me if I'm off here, but it was not 100 percent discard mortality. That was not the assumption. The data show about a 5 percent mortality across all mobile gear and about 20 percent across gill nets collectively; so, no, it was not an across-the-board mortality assumption.

Staffing capacity and our ability to be responsive is certainly a concern just as we know you have that concern. At the New England Council, when this came up, there was a lot of talk about their staff capacity as well as that of the New England SSC to be responsive and to take this on as well as the many other questions that are before them unrelated to sturgeon.

I am new at the table and I hope you'll pardon me if I'm not exactly procedurally correct but I believe it would be the technical committee that may also take on the questions of negation, what are the measures that may be in place or that may support a Section 10 or may inform us a Section 10 and the reduction of fishery interactions and mortalities; how can survivability be improved?

I think the technical committee's capacity to take on these questions and to prioritize between contemplation of a delisting which is, as Angie pointed out, a relatively long path and an uncertain path, but dealing with the certainty that it is listed now and that we need Section 10 or Section 7 or some kind of take coverage for the industry and for your researchers, so I agree it is a capacity question that will be difficult for us to sort out.

I won't oppose the commission's prerogative to send a letter or to request a delisting. I think that's part of the discourse that we should have, but I also want to make sure that we're working towards providing coverage for the industry who is out there. Thank you.

MR. ALLEN: I'm leaning towards going with this motion. I see Dr. Pierce's motion that we passed a few minutes ago and this motion as two different paths that we're on. The one thing I have a concern about how NMFS is deciding on the number of takes is how they're basing that on populations within all these different systems that we don't really have a handle on.

I see that the technical committee is going to get a lot of work here all of a sudden after not having to do much for a little while. Somewhere along the line the technical committee is responsible for a stock assessment and determining how many fish are actually in these systems. I know that's a tough call because I've been involved with that for so long.

Some of these numbers that we're talking about on these takes that we may be given through the Section 10 process are based on population estimates that are fairly outdated. A lot has changed in the timeframe since those were developed. I see this as a stock assessment being needed somewhere down the line. I know that's a big call, but I think we're at that point. We're basically asking them to give us a lot of information right now in a short timeframe, and I think we're looking at something where delisting may take a while and these Section 10s may take a while. I think that should be put on the board as something we may be wanting to look at.

MR. BEAL: Thanks, Russ. Just taking off my stand-in chair hat and talking from the staff perspective, there is not a benchmark assessment on the books or on the schedule for Atlantic sturgeon at this time. One of the things the Policy Board is going to talk about when we get to that meeting next is the long-term assessment and peer review schedule. Obviously, there are tradeoffs there and workload issues as well. With that, are there other comments on the motion?

MR. CLARK: I just had a question for the National Marine Fisheries Service about delisting. I seem to recall at the state directors' meeting, I believe it was the director of Oregon talking about the futility of trying to get some of these species delisted. I was just curious as to how many species NMFS does have listed on the ESA and how many have been delisted over the years?

MR. BEAL: Dan, do you want to take that or invite Angela back up to do it?

MR. MORRIS: Thank you for the question. I think Angela may be able to give you an actual number. I can tell that there have been no delistings in the northeast region and I think they're very, very uncommon nationwide.

MS. SALMON: We currently have 87 species that are listed. We have delisted two species and we have a proposal to delist a third, the western DPS of stellar sea lions. I will say that we have never received a petition from Oregon or any of the west coast states to delist any of the salmon species that have been listed, so I'm not sure where that comment came from.

MR. BEAL: Thank you for the clarification. Other comments on the motion? David.

MR. DAVID SIMPSON: I would rather my staff personally work on what we need to do with the reality that is in front of us than to spend time on this, so I'm opposed to the motion.

MR. BEAL: Other comments? Dr. Geiger.

DR. GEIGER: Mr. Chairman, again, I think everything has been said and done on this one, but again I think it's time now to start focusing on what we should be focusing on, recovery. Thank you.

MR. BEAL: No other comments? Thirty second caucus prior to voting.

(Whereupon, a caucus was held.)

MR. BEAL: Okay, everybody ready? Those in favor of the motion please raise your right hand; those opposed like sign; abstentions; any null votes. **The motion carries 13 in favor, five opposed.** As an editorial comment, I think the last two motions did put a lot of pretty weighty tasks on the back of the technical comment. We'll do the best we can as staff to help them out and schedule them, but please bear in mind these are going to take some time.

The first motion, as Mr. Stockwell mentioned, has some coordination with the SSCs from the councils. There is a lot of coordination and a lot of process things that probably have to happen. There are some requests for data from the National Marine Fisheries Service that have to be processed. Some of this is going to take some time. I don't think the board should be discouraged if the answers are not in your inbox by next week or even at the August meeting. Please bear with the technical committee and give them the time they need to do their work. Dr. Geiger has his hand up.

DR. GEIGER: Mr. Chairman, I believe that with Dr. Pierce's motion that we are going to have some further discussion on at least that aspect of it during the Policy Board meeting. I would hope that we could have some more elaborate and more in-depth discussion at that point in time to allow both NOAA to give some further information to us if it is available as well as have some more of this robust discussion that I think is very valuable and very appropriated. Thank you.

DR. DANIEL: Just one thing to address I think Dave's concerns, and I didn't want to bring it up until the vote, but I think we're looking at I think she said 30 days to determine whether it was warranted or 90 and then a year to make a decision. From what we heard at the state director's meeting, some of the ITP applications can be three, four or five years.

It could potentially be a savings to our staff in time and effort. I was hoping that we would get into a discussion – and I'm thinking this is coming – on Section 7s and Section 10s, that kind of direction as well. Are we going to have that discussion, Bob?

MR. BEAL: I hope so. Dr. Kray.

DR. EUGENE KRAY: Pennsylvania voted against Dr. Daniel's motion not because of the substance of it, but I think process-wise Dr. Pierce's motion appears to get at the whole process whereas these things going on simultaneously would seem to be not in sync, so to speak. Where are we now with regard to the – if these processes that we've just voted on go forward, how much time do we have before the National Marine Fisheries Service comes out and says, okay, the time is up, we're listing sturgeon on the endangered list; how much time do we have?

MR. BEAL: One month ago; it has already happened. April 6th is when the effective date of the listing took place. Frankly, there is liability right now for the states on any takes that occur.

MR. WILLIAM A. ADLER: Maybe we should put some strength on the legal – can we file an injunction against them?

MR. BEAL: Well, like I said, the effective date has already passed. It's April 6th so any legal

decisions are that of the commission and not mine. Any other comments? Dr. Daniel.

DR. DANIEL: Well, and just recall the phone conference that we had. We had talked about asking NMFS to delay the implementation for 12 months to give us time to recoup and that was not acceptable. Then our second phase and what we had talked about doing was looking at a petition to delist, and I think that's what we did.

I think what Dr. Pierce had asked for is in addition to that, to provide additional information and important information. We're kind of consistent with the way that we have been talking on our conference calls on how we were planning to move forward.

MR. BEAL: Thank you, Louis, for the reminder of those conference calls. I think where we are now is what Dr. Daniel mentioned a few moments ago, which is a discussion about Section 10 and Section 7 and how the board wants to move forward and the states want to move forward. I think some commenters have mentioned these two motions that were passed set up a work plan and a fact-finding exercise to seek some more information about sturgeon.

I think the reality is right now they're listed under the Endangered Species Act and there is liability that needs to be considered by the states and the states need to decide where they are with that and what type of response they want to have. With that, are there any thoughts on the additional pursuit of Section 7 comments from NMFS; Section 10, individual applications by the states or some coordinated Section 10 process? Louis.

DR. DANIEL: We've had a lot of discussion about this and I think there are pros and cons to all the various mechanisms that we can go down. The individual state-by-state Section 10s are going to be expensive and they're going to be time-consuming, but they will allow the states to have their incidental take numbers that they manage the way they see fit.

Some states may be able to accommodate the observer requirements in the Section 10 and other states may not. I don't know what happens in a state where you can't provide the observer coverage that you need in order to keep the fishery open. My assumption is and what we've been told is that if we can't achieve the required

observer coverage, we have to close the fishery down.

NMFS has not closed the Atlantic Ocean and inside waters to fishing to where we've got to stop fishing until we get a Section 10 application. It's kind of up to us as to which fisheries are important. If you look at North Carolina's application, what we did was we focused solely on large and small-mesh gill nets and inside waters.

We're making the assumption that crab pots are not a problem. We're making the assumption that shrimp trawls with TEDs in them are not a problem. We're making the assumption that pound nets are not a problem because they're not a problem for sea turtles, which drown far more easily than a sturgeon does.

We're making the assumption that it's the large mesh and the small-mesh gill nets that are the problem in inside waters, and so that's what our application focuses on. When we get into the ocean, that is where it gets squirrely because in the ocean you've got state fisheries, you've got ASMFC-managed fisheries and you've got federally managed fisheries.

But, I'm not sure that there are a lot of folks that are fishing in the ocean that don't have at least a federal permit of some type, shape or description, be it a open access Spanish mackerel permit, an open access bluefish permit. There should be a consistency I think in how NMFS handles the ocean fisheries for sturgeon consistent with the way that they've done turtles in that I believe all of the council plans have sea turtle mitigation measures included in them, Section 7 consultations and the like.

I'm not aware of any Section 10 permit requirements in the ocean for turtles. To me one of the big questions that we need answered is, is there even a need for us to worry about the ocean for sturgeon when we don't have to worry about the ocean for turtles. That is going to really be – the answer to that question is going to really dictate to me how we move forward. Does that make sense?

MR. BEAL: The question makes sense. What are the states obligated to do it sounds like your question.

DR. DANIEL: Well, with the understanding that we've got precedence. Shrimp trawls, fortunately TEDs work on the turtles. You have a TED; you're good. Now there are problems there with them being recaptured and various other problems. For turtles, they interact with the flounder trawl fishery maybe in areas where there are not TEDs, but there are no observer requirements for any of those ocean fisheries. There are no Section 10 requirements for those ocean fisheries.

MR. BEAL: Dan or someone from the National Marine Fisheries Service; can you shed some light on Louis' question?

MR. MORRIS: Yes, thank you for the question. The vessels that would not have take coverage are those that would be solely permitted in a state and state-only managed fishery. Those that have federal permits that are prosecuting those federal fisheries, even if they're a state vessel working in state waters, would be covered as long as that fishery management plan is covered by a Section 7 at the federal level. It's that small subset who are only in state waters and only state permits who would not be covered.

MR. BEAL: Dan, as an example if a summer flounder fisherman, which we have a joint plan with the Mid-Atlantic Council, there is a summer flounder fisherman that has a summer flounder – or there is a Section 7 consultation being worked on obviously for the summer flounder plan with the Mid-Atlantic Council – if there is a fisherman that is in state waters with a state-only permit targeting summer flounder, is that individual covered under the Section 7 or is that something the state would need to apply for coverage?

MR. MORRIS: I'm going to look for help; but if they only have state permit and they're only functioning under the state regulations, then I don't believe they would have coverage for that vessel working in state waters on a state permit.

MR. BEAL: Louis, does that help with your question?

DR. DANIEL: It does but the devil in me makes me ask this question.

MR. BEAL: Good luck!

DR. DANIEL: It would seem to me then that the appropriate thing for us to do would be to encourage and make it absolutely certain that all of our fishermen that fish in the ocean have at least some federal permit. That way if I'm a kingfish fisherman off of Onslow County in North Carolina and I'm going to say I'm bluefish fishing because I'm going to have a few bluefish probably in my nets, and so that's going to keep me from having – as long as I've got that bluefish permit or that Spanish mackerel permit and I'm in state waters, really whether I'm fishing for speckled trout or Spanish mackerel really is inconsequential because they're the same gear types.

But I don't want to go home and say that if that's something that NMFS is going to look at and say, no, you can't do that. If that's the case, most of these smaller fisheries that you're talking about that are solely prosecuted in state waters by state fishermen, we don't have any information on characterization of those fisheries to know whether we have any sturgeon interactions or not.

MS. SALMON: Can I a little bit about the turtles and where we are? For some of the state fisheries with turtle takes, the difference is that the National Marine Fisheries Service issued a special regulation under the Endangered Species Act that required the use of TEDs in certain types of fisheries, whether they're federal fisheries or state fisheries.

By doing the Section 7 consultation on that regulation, that's how those states' fisheries got covered for turtle takes. There are still state fisheries that are operating that are taking turtles that don't have take coverage. They continue to have some liability. It's not a covered take under the Endangered Species Act, but that take has not been prosecuted.

That's the difference and that's one of the options that NMFS has been interested in talking about is perhaps trying to formulate some kind of a regulation that we could promulgate a protective regulation like we did with turtles that could then be used to provide through the Section 7 process take coverage for state fisheries.

DR. DANIEL: I just want to ask her a question while she is at the table. How does that address the issue or the question as to what fisheries for

sturgeon that we need to be concerned about? Is there some guidance at this point? We know gill nets are an issue for turtles but we also know that pound nets have not been considered a problem. What about recreational interactions of sturgeon? Is there going to be guidance on which fisheries you deem a problem and that we need to be developing Section 10s for?

MS. SALMON: There is not any formal guidance but clearly what we're concerned about are fisheries where there is known to be a problem where the higher level of takes are. Those would be the gear types that we would consider priorities for states to come in and get a Section 10 permit for.

MR. BEAL: Thank you, Angela, I appreciate your answers. There may be some more questions so don't go too far. Rob O'Reilly.

MR. ROB O'REILLY: I think this is different than sea turtles and throughout our phone conversations in the past I kept thinking that at least with sea turtles – and, granted, Kemp's Ridley is endangered and loggerhead is threatened, but in Virginia it was about a five- or six-year process but it was an iterative process where the National Marine Fisheries Service worked with the state; identified a problem, gill nets in near coastal waters that turned out not to be a problem.

Pound nets were linked as a problem on the Eastern Shore. NMFS and the fishermen underwent a two-year process to devise a leader mesh that would allow escapement or a pass-through of the turtles. That's a lot different. That iterative process is a lot different. Certainly, North Carolina has experience with the Section 10 for turtles, and I know that Georgia has experience with sturgeon with going through that process.

But I think at least our opinion is we don't seem to have anything to start off with. If it is intended to be an extensive process with a lot of give and take between the state and NMFS over time, it would be nice to know there were some things to identify such as Dr. Daniel mentioned that we start off with looking at those types of interactions.

Most of the information on interactions in Virginia are research oriented. The James River is by far the more studied area, but there are a lot

of fisheries where fishermen do not have any federal permits. The inside waters are very important; and from what I heard earlier there really aren't data right now as such.

Another question would be how will NMFS be able to address the type of data it receives and is there any guidance that will come from NMFS towards which fisheries to look at? Would it be the small- and large-mesh gill net to start off with? Would it be anything the state can think of? It just sounds pretty cumbersome.

I'm also wondering at the same time with Dr. Pierce's motion and then Dr. Daniel's motion that it's almost as if we're still going to end up when we leave that everyone should be compelled to start on this process through the Section 10 either the ASMFC umbrella process or on an individual state basis regardless of where the next 12 months and 90 days leads us.

MR. BEAL: Is there a question in there, Rob, directly for Angela?

MR. O'REILLY: The question is definitely there. With turtles there was an iterative process; there was a relationship between NMFS and the state of Virginia, and there were meetings. There were meetings with fishermen, several. There were meetings with our staff, several. There was a lot of feedback in both directions to solve a problem.

Now it is open-ended, it seems. April 6th has occurred and still almost a month later I'm not sure most of the states have an idea of the next direction. The question is, is NMFS there to give us some clues as to how to approach this on a state-fishery basis?

MR. MORRIS: I can start this and probably turn it over to Angie. The Section 10 application is to gain coverage for your state fishermen. You are correct, we have more offshore data. We hear about some inshore fisheries, but most of our observer data is offshore. I think you can glean from that the gear types that are of greater interest and look at your own fisheries.

Certainly, the gill nets are a bigger concern offshore for NOAA Fisheries and I think that's a gear type that should be given higher priority in your own state work. In terms of is this at all collaborative or is there a fence; you know, you

throw your application over and we throw it back with a yea or nay; no, it is a conversation.

It is something that we need to have some interaction with you to ensure that we have a full understanding of your application, a full understanding of your fisheries, and the tools that are available. In the Section 7 process that we're looking at with the council fisheries, we are seeking input from the advisory panels, be it committees or an industry-based advisory panel on gear modifications or resuscitation or fish handling or any protocols that will help reduce interactions and reduce mortality of those interactions. We're seeking that kind relationship through those consultation processes, and we would certainly do that through this as well.

MS. SALMON: Yes, I would just echo what Dan said. Section 10 works best when it is a collaborative process, and that's why it can take a very long time. We're not looking for states to come in with a completed application. Just letting us know that you want to start working on a Section 10 permit application will be sufficient to get the process started where we can talk with you, learn a bit more about your fisheries and have a dialogue about where to start.

It's not likely we're going to be able to cover everything in one fell swoop but determine collaboratively what the priorities are, where to start, what some of the things that may be necessary to be able to get a permit, what kinds of things you can do in your fishery, what kinds of things you can't do in your fishery and still have it operate. We fully intend it to be a collaborative process.

MR. O'REILLY: A little different question; the Marine Mammal Protection Act and subsequent gill net changes as well as bottlenose dolphin; is that something that also you already take into account or are aware of what has occurred with those changes in fisheries or is that something that we would just then supply somewhere in our application?

MS. SALMON: For fisheries that have a take reduction plan under the MMPA, yes, we're aware of those, if that's what you're referring to.

MR. O'REILLY: Specific to gill nets and the changes that have occurred over the last ten years or so?

MR. BEAL: We have about 20 minutes or so in the allotted time for this management board. I think there is a fair amount of discussion that probably still needs to occur on how the states want to move forward with Section 10s under some umbrella type application or individually, so keep that in mind as we move forward and hopefully when we leave here have a course on how the states want to handle that. Tom.

MR. O'CONNELL: I echo Louis' and Rob's comments in regard to getting some guidance, and I guess this is going to be through an iterative process, just maybe switch subjects a little bit; and in regard to how we go forward with putting our plans together collectively or individual states, my question relates to how will the take levels be determined for multiple jurisdictions that are intercept in one distinct segment population?

Is it going to be determined on a first-come first-served basis? How will the Service determine the take levels across multiple jurisdictions recognizing that the conservation plans will be submitted probably at different times?

MS. SALMON: Well, to be sure, that's going to be challenging especially when we have five distinct population segments that are listed. If we get individual permit applications, we have to look at the plan itself and evaluate the plan and look at – one of the requirements under Section 10 to issue an incidental take permit is to minimize and mitigate the take.

It doesn't mean take needs to be eliminated. It will be a challenge and we will have to do a Section 7 consultation on the issuance of that permit and in that process we will probably make some assumptions about what we think the overall level of take is of that species and factor that into the analysis of each individual Section 10 permit.

MR. BEAL: Thank you. Other comments on our way out of the woods here? We've got one comment in the audience. Sean, if you can come up. While he is coming, Tom.

MR. O'CONNELL: I think this will be an easy question and I think Louis raised it. I don't know if it's black and white or not, but if a state cannot provide observer coverage; can the fishery continue? Is it black and white, yes or no or not?

MR. MORRIS: We're hopeful that any Section 10 plan relies on more than just an observer rate. We are hopeful that there will be any number of tools that the fishermen and fishery can rely on to address the taking of sturgeon, be it time area measures, gear changes and, of course, data collection. There are fisheries that use self-monitoring or that are capable of self-reporting and do so reliably.

At this moment I'm not prepared to foreclose on the fishery if coverage can't be supported, but that is a big factor. The ability to support the data collection and the monitoring to track how well the measures are working is going to be really important. I hear you and we are all aware of the constraints.

The Federal Observer Program is also feeling constraints these days. I think that's part of the dialogue that we have to have, and we would be very strongly looking for other ways to address takes in the fishery if we can't get a level of observer coverage to be fully satisfied that the takes aren't occurring or better knowing what the rate is.

MR. SEAN GIEUN: Sean Gieun with Kelley Drye and Warren. A bit of unsolicited and somewhat self-interested advice, but these are really tricky issues and they're going to take a long time to sort out. It seems to me that a federally permitted fisherman operating in a state-only fishery could be covered by a Section 7 permit if those activities had been analyzed and the takes associated with those state fisheries had been taken into account because ultimately a biological opinion is the effective federal action on fisheries.

I don't there is any limit on how broad that can be but can you imagine in the face of all this uncertainty how many takes are going to be assumed. You're going to have jeopardy opinions; the analysis is going to take forever. Just dealing with federal fisheries is going to be very difficult for the agency with limited resources.

The Section 10 permits are going to be difficult for a whole variety of issues. It seems to me that this is going to take a long time to work itself out, and in the meantime there are going to be people conducting activities that can put themselves in legal jeopardy. You've taken steps that I think are sensible.

I think the petition to delist is ambitious, but I would point out that this is a very powerful group. You represent every coastal state along here, and you all share common issues; concern about a resource and also concern about how activities, just basic activities, science, transportation, and fisheries, are going to occur. All your states have offices right across the river; you know, steps from Capital Hill.

It seems to me that this body could best serve itself by pulling together all the science that is asserted. We've heard some from New Jersey and Virginia that hadn't been considered in the process and pull together that case about information out there that needs to be considered in the next assessment and have your states or have others go to congress and say, "Look, we need a time out to address this. We need some protection while these issues are all worked out."

Maybe it's another look at the data and maybe it's just time to develop the Section 10 or Section 7 consultations, but you really need some way to protect yourselves and your citizens. I don't know what the answer is going to be at the end of the day, but I would think – I mean, you've formed a couple of working groups. It would make sense to sit down and tackle these issues, one of which is biological, and I think you're well suited for it.

Other issues, particularly with the petition are legal, and there are these questions everybody seems to have that you really should sit down and figure out how on a coastal basis you can get this legal advice. I think we could do it; I think there are others. That's why I say it's self-interested, but really these are big issues. I think you'd be well served by considering an approach like that. Thank you.

MR. BEAL: Thank you, Sean. Other comments? Dr. Daniel.

DR. DANIEL: Sorry, but I'm not going to tell you I'm not going to raise my hand again. In listening around the table and with the uncertainty I guess in exactly how we're going to handle the Section 7s in the ocean, it would seem like to me that the best course of action for the commission to take at this time is to focus on your inside fisheries in individual Section 10 applications.

If there are areas like Delaware Bay where there are joint jurisdictions maybe then can come up with some kind of a joint plan, but I think for a lot of us – you know, for North Carolina, we're in the Carolinian DPS and probably the main issue there, and the South Atlantic DPS, we've got more probably interactions in North Carolina than anywhere else. For us, I think our best approach is to move forward with our individual inside a Section 10 permit and then try to see what happens with the federal waters issues in the near term.

MR. BEAL: Thank you, Louis. I think part of that initiation of state-specific Section 10s is really to also initiate the dialogue with the National Marine Fisheries Service on what their expectations are and what their information is on your fisheries and have that two-way conversation. Dr. Laney.

DR. LANEY: Mr. Chairman, three things; first is to the point about sturgeon being captured in the inland waters of a given state, just because they're in those inland waters you can't presume that they're from that DPS. That was made clear to me when I had my discussion with the National Marine Fisheries Service last week, and it's certainly true based on the recaptures that we have gotten from fish we tagged offshore as well as the genetic analysis that was done by Dr. King of the fish that we capture offshore.

The second question is the other piece of sturgeon science that the Fish and Wildlife Service had been coordinating for the commission is that Cooperative Coastwide Atlantic Sturgeon Tagging Program. I think most of the states sitting around the table have been partners with us in that endeavor, so I would just pose the question as to how, if you want that program to continue, we get certification for that.

I presume, again, there would be the potential for some sort of umbrella application or that individual states who have been tagging fish that they capture in their own fishery-independent surveys could just note that they are part of that Cooperative Coastwide Tagging Program and include that in their Section 10 permits. Okay, that was two of them. I'm having difficulty thinking of what the third one was. Well, I can't think of it; maybe I'll remember it later.

MR. BEAL: Well, if you do, put your hand up and we'll give an opportunity to comment. Dr. Daniel has proposed a path moving forward, opening of dialogues with the National Marine Fisheries Services and starting state-specific Section 10 permits and applications. If anyone has anything to add to that or has a disagreement with that, please let's have that discussion after Wilson gives us Number 3.

DR. LANEY: This is a question to Dan or to Angela, either one. Since the species was listed on April 6th, I've already started receiving in my electronic inbox reports of Atlantic sturgeon strandings. The question is to the National Marine Fisheries Service whether they intend to set up some sort of a stranding reporting network or process whereby those of us who receive those reports can just route them to some central location. I've been routinely sending them to the southeast region since those reports generally have come from South Atlantic states.

MR. MORRIS: The answer is yes, and we will provide you and the commission with the contact information for that purpose.

MR. BEAL: Other thoughts on Dr. Daniel's process? Russ.

MR. ALLEN: Yes, I agree with Louis, I think it would be best for individual states to do their own Section 10s. That's the reason why we started our process was to get in some kind of consultation with NMFS and get that ball rolling. I think it would just take too long and too many – I don't know if staff has that much time to spend on doing a joint Section 10 up and down the coast.

We would still have to do a Section 10 for those species that aren't under an ASMFC umbrella such as white perch. That's our strategy right now. I'm willing to talk about going for the full ASMFC way, but right now I think individual states is the best way to go.

MR. BEAL: Other thoughts of comments on that? Seeing none, that seems like the course forward and I think the Sturgeon Board probably will need some time in August to get an update from the technical committee, and we can have the dialogue on where the states are and see if there is any change in course at that time. That seems like a reasonable path forward. Rob.

MR. O'REILLY: A little while ago we had some no-cost legal advice; and I'm just wondering – you know, none of us that I know of and that I've talked to as it went through from the time of this process before it was listed as endangered had great expectations that it would be endangered based on the track from 1998 to the present.

Certainly, most states I think thought there would be a listing of threatened, so it is a bit of a problem that we're already close to a month past the effective date and there is vulnerability. I'm just wondering, based on one of the calls that we all had together, could that be shifted – the legal aspects that we talked about briefly on that call among the states; could that be shifted to looking at a way to at least allow time for states to be either well underway with the Section 10s, if not finished.

This is not something that was a lot of notice. It wasn't as if before the listing that everyone had the ability to get started because I don't think most states would have gotten started without the expectation that it was going to be endangered, and that expectation wasn't there. So just pragmatically it seems that there may be a way to get some sort of buffer of time so that the vulnerability isn't so acute that it does seem in some states. I don't know whether you have a response for that, Bob.

MR. BEAL: I'll make a comment and then see if there are other things for folks to add. The commission has asked and the answer has been given from the National Marine Fisheries Service about the potential for a delay and the effective date, and the answer was essentially there is no provision under the ESA to grant that delay or postponement. Under the process under the law right now I don't know of an action that the federal government can take. I don't know if you're proposing some different legal action. Bill Adler.

MR. ADLER: I had brought this up before. The reason I had brought this up before was that as it was said we weren't sure whether we were going to have a declaration or a listing. Then after the listing we did try through the letters to stall and then we did have questions. All of these things didn't happen until after it was listed, per se.

Then I heard a gentleman from the audience say you want to go over to congress and get a time

out. This is what I was basically getting at is we tried everything we could to work this out without any legal action, and that's why my suggestion had been to look at the injunction, which is only to buy time. That's all it's good for but at least it buys the time that I heard everybody needs. That was my comment. Thank you.

DR. DANIEL: My understanding from talking to Sam was that NMFS is not going to coming after us with NMFS OLE, arresting folks for interacting with sturgeons right now, and they're going to give us the time that I think we need and recognize the time that it takes. Having dealt with the regions on Section 10 applications, the staff is great. They work very closely with you, they help you out.

That's one of the reasons why I think the individual Section 10s are good because NMFS then gets to learn your state, your people, and there is a very good relationship there. My big concern – and I don't think NMFS can control this, I don't think congress can control it; they're listed. The thing we have to be concerned about is having a citizen or a group sue us for not having the protections in place, and that could happen today.

We could all be sued collectively, individually by fishery today. That's why I think just moving forward these discussions are so important. The motion that I made, the motion that Dr. Pierce made asking these questions and trying to resolve some of these problems are very important to have on the record; so that if we are sued by some organization we'll be able to provide the timelines and the framework actions that we've been trying to do to try to resolve and clarify this. Not that we're all sitting on our hands doing nothing, but we're actually trying to do what we think is in the best interest of the resource and trying to comply with the ESA.

EXECUTIVE DIRECTOR JOHN V. O'SHEA: Mr. Chairman, along those lines we sent out an e-mail last month I think to every single commissioner with the petition from the NRDC that was filed with the National Marine Fisheries Service. I think along the lines of what Dr. Daniel said that if you read that petition you will see where their interest is.

I think that could help inform what decisions you make relative to your collective vulnerability to

citizens bringing a suit against a state. You can see where they're interested and where they feel the stock is vulnerable. That's why we sent it to you. If you didn't get it or you got it and discarded it, let us know and we can send it to you again. I think it's 70 pages; I'm not sure, but it's an easy straightforward read. Thank you.

MR. BEAL: Thanks, Vince; yes, it's about that long is my recollection. Other comments on this? Dan.

MR. MORRIS: Mr. Chairman, again I want to thank the board for the opportunity to speak with you today. I know Steve is usually here leading the conversation for NOAA Fisheries. Louis has pointed out a month ago we had some conversations with Sam Rauch and some of the state directors. I think that was an important conversation.

I think it was one in which Sam committed to having NOAA Fisheries be more accessible to the state fisheries, and I'm here to restate that. This is a very difficult topic and we acknowledge that. This has been a difficult conversation today and in previous meetings. I want you to know that we are committed to working with you.

I apologize if the comments that were on North Carolina's proposal appeared blistering. We seek a collegial relationship. I think, after all, we're all interested in the same thing. We need to preserve and promote the recovery of Atlantic sturgeon while preserving and promoting our fisheries, our research and your other coastal functions. We share that and so I want to make sure that it's on the record that we're committed to working with you towards that.

I do also, while I have the floor, want the record to indicate that there is no conspiracy to put fisheries out of business. Mr. Augustine, I don't know where that came from, but our only objective is to the best of our abilities and with the best available science comply with the Endangered Species Act and the other statutes that are upon us.

I recognize that there is disagreement about the conclusion on the listing, and, okay. We have a different frame of reference and different timelines and different constraints than you do, and we are willing to listen and to learn and to be a part of a process that promotes an understanding of Atlantic sturgeon, that

promotes an understanding that you have of the Endangered Species Act and the constraints that our agency is under and how it affects you. Again, we're committed to working with you to work on these Section 10s. If there is a Section 7 hook, we'll promote that, too. I just want you all to know that, so thank you again.

MR. BEAL: Dan, thank you for those comments, and on behalf of the board I would like to thank you and Kim for traveling down from Gloucester. It's a heavy lift to come down for this meeting – and the headquarters folks for coming over as well. Thanks for your time today. It helped out a lot with the discussion.

GEORGIA SECTION 10 APPLICATION FOR PUBLIC COMMENT

With that, I think the next agenda item is, Spud, you're going to give an update on where Georgia stands.

MR. SPUD WOODWARD: I'm going to keep this very brief. I think most folks on the management board know that Georgia has submitted a Section 10 incidental take permit application with NMFS for our American shad fishery, both for shortnose sturgeon and Atlantic sturgeon.

We had started down the road on shortnose sturgeon a couple of years ago and seeing what was likely to happen with Atlantic sturgeon we went ahead and modified our permit application to include Atlantic sturgeon. We were fortunate to have some good quantitative information on incidental takes, which gave us the basis for making this application.

It has been listed in the Federal Register and it's open for public comment through June 11th. I'd like to request that the management board recommend to the Policy Board that the commission write a letter in support of our Section 10 application if that is deemed to be appropriate.

MR. BEAL: Thank you, Spud. Spud has made the recommendation and we'll see if we need to do it through a motion or not. Is there any objection to this board making a recommendation to the Policy Board to send a letter in support of Georgia's Section 10

application? Seeing none, we'll bring that recommendation to the Policy Board in addition to Dr. Pierce's first motion that was made during this board meeting.

ELECTION OF CHAIR AND VICE-CHAIRMAN

With that, at other board meetings we get to my favorite part of the board meeting, which is the election of the chair and vice-chair. Spud, do you have a nomination?

MR. WOODWARD: I do. I'd like to nominate Russ Allen for chair and John Clark for vice-chair.

MR. AUGUSTINE: Mr. Chairman, repeat their names again.

MR. WOODWARD: That would be R-U-S-S A-L-L-E-N, so there is no confusion –

MR. AUGUSTINE: That's him for chairman.

MR. WOODWARD: And John Clark for vice-chair.

MR. AUGUSTINE: And John Clark for vice-chair and close nominations and cast one vote for both of you.

MR. BEAL: Any objection to those nominations? **Seeing none, we have new leadership for the Sturgeon Management Board for their next meeting in August.**

ADJOURNMENT

MR. BEAL: Anything else to come before the Sturgeon Board today? Seeing none, the board stands adjourned.

(Whereupon, the meeting was adjourned at 3:35 o'clock p.m., May 2, 2012.)

ATLANTIC STURGEON HABITAT ADDENDUM

Section I. Description of Atlantic Sturgeon Habitat

Part A. Atlantic Sturgeon Spawning Habitat

Atlantic sturgeon are believed to spawn in flowing water between the salt front of estuaries and the fall line of large rivers, where optimal flows are 46 to 76 cm/s, depths are 11 to 27 m, and when water temperature is 13°C to 26°C (Borodin 1925; Dees 1961; Leland 1968; Scott and Crossman 1973; Dovel 1978, 1979; Smith 1985; Crance 1987; Van Eenennaam et al. 1996; Shirey et al. 1999; Bain et al. 2000; Collins et al. 2000; Caron et al. 2002; Hatin et al. 2002). Sturgeon eggs are highly adhesive and deposited on the bottom substrate, usually on hard surfaces (Vladykov and Greeley 1963; Huff 1975; Smith 1985; Gilbert 1989; Smith and Clugston, 1997; Secor et al. 2002; Bushnoe et al. 2005). Within rivers, the areas of cobble-gravel, coarse sand, and bedrock outcrops, which occur in the rapids complex, may be considered prime habitat (Table 1). This habitat provides Atlantic sturgeon with well-oxygenated water, clean substrates for egg adhesion, crevices that serve as shelter for post-hatch larvae, and macroinvertebrates for food. In northern rivers, these areas are nearer to the salt wedge than in southern rivers.

Substrate	Activity	Location	Citation
Rock and bedrock	spawning	St. Lawrence River, Québec	Hatin et al. 2002
Rock, clay, & sand	spawning	St. Lawrence River, Québec	Caron et al. 2002
Irregular bedrock, silt, & clay	spawning	Hudson River, NY	Bain et al. 2000
Clay/silt with rocky shoreline	post-spawning	Hudson River, NY	Bain et al. 2000
Hard clay	spawning	Delaware River	Borodin 1925
Small rubble & gravel	spawning	Delaware River	Dees 1961
Clay	spawning	Delaware River	Scott & Crossman 1973
Limestone	spawning	Edisto River, SC	Collins et al. 2000
Fine mud, sand, pebbles, & shell	post-spawning	Edisto River, SC	Collins et al. 2000
Cobble/gravel	spawning	HSI Model	Brownell et al. 2001

Table 1. Spawning (and post-spawn) substrate type for Atlantic sturgeon along the Atlantic coast

Some researchers and managers have attempted to identify likely spawning areas for Atlantic sturgeon using modeling techniques. Brownell et al. (unpublished) developed a Habitat Suitability Index (HSI) model for spawning Atlantic sturgeon and early egg development, and concluded that cobble/gravel (64 mm to 250 mm) was the optimal spawning substrate for Atlantic sturgeon. Boulder (250 mm to 4000 mm) was viewed as second highest in the model, and silt/sand (<2.0mm) and mud/soft clay/fines were viewed as the lowest. The HSI curve and the data values used in this study were based on a model for shortnose sturgeon, and factors such as oxygenation, substrate embeddedness, available egg attachment sites, protection of eggs from predators, light intensity, and solar warming were also hypothesized to be available in cobble/gravel and boulder substrates.

Part B. Atlantic Sturgeon Egg, Larval, and Early Juvenile Habitat

Atlantic sturgeon eggs hatch approximately 94 and 140 hours after egg deposition at temperatures of 20°C and 18°C, respectively (Kelly and Arnold 1999; Smith et al. 1980; Mohler 2003). After hatching, Atlantic sturgeon larvae are assumed to inhabit the same areas where they were spawned (Bain et al. 2000; Kynard and Horgan 2002). Hard substrate is important to larval Atlantic sturgeon as it provides refuge from predators (Kieffer and Kynard 1996; Fox et al. 2000). A study by Kynard and Horgan (2002) showed that embryos immediately sought cover after hatching. However, larvae are also active swimmers and leave the bottom when 8 to 10 days old to swim in the water column (Kynard and Horgan 2002).

The yolk sac larval stage is completed in about 8 to 12 days, during which time the larvae move downstream to the rearing grounds (Kynard and Horgan 2002). During the first half of this migration, larvae move only at night and use benthic structure (e.g., gravel matrix) as refuge during the day (Kynard and Horgan 2002). During the latter half of migration to the rearing grounds, when larvae are more fully developed, movement occurs during both day and night. Subsequent to the yolk sac larval period, late-stage larvae settle in the demersal habitat (Smith et al. 1980, 1981; Bain 1997; Kynard and Horgan 2002). Bath et al. (1981) caught free embryos by actively netting the bottom near the spawning area, demonstrating that early life stages are benthic. Based on the intolerance of Atlantic sturgeon embryos and larvae to even low salinities, Van Eenennaam et al. (1996) speculated that Atlantic sturgeon spawning sites may require a certain amount of freshwater habitat downstream of the spawning area to allow suitable habitat for the downstream migration of larvae.

Larvae transition into the juvenile phase as they move further downstream into brackish waters, developing a tolerance to salinity as they go, and eventually become residents in estuarine waters for months to years before emigrating to open ocean (Holland and Yelverton 1973; Bath et al. 1981; Dovel and Berggen 1983; Dadswell 2006; ASSRT 2007). Nevertheless, there is a large amount of variation in the salinity tolerance of juvenile Atlantic sturgeon (Table 2).

Some Atlantic sturgeon may occupy freshwater habitats for two or more years, while others move downstream to brackish waters when the water temperature drops (Scott and Crossman 1973; Dovel 1978; Hoff 1980; Lazzari et al. 1986). Bioenergetic studies on young-of-year (YOY) juveniles indicate poor survival at salinities greater than 8 ppt, but euryhaline behaviors are exhibited by juveniles age 1 and 2 (Niklitschek 2001).

Salinity Range (ppt)	Location	Citation
>3	Hudson River, New York	Appy and Dadswell 1978
3 - 16	Hudson River, New York	Brundage and Meadows 1982
0 - 6	Hudson River, New York	Dovel and Berggren 1983
3 - 16	Hudson River, New York	Smith 1985b
3 - 16	Hudson River, New York	Haley et al. 1996
>3	Hudson River, New York	Bain et al. 2000
0 - 12	Delaware River	Shirey et al. 1999
<10	Brunswick River, North Carolina	Moser and Ross 1995

Table 2. Salinity tolerance ranges for young juvenile Atlantic sturgeon along the Atlantic coast

Temperature as well as dissolved oxygen concentration are key habitat parameters for the structuring of juvenile Atlantic sturgeon habitat (Table 3) (Niklitschek and Secor 2005; 2009a; 2010). Temperatures in excess of 28°C are judged to have sublethal effects on Atlantic sturgeon. Secor and Niklitschek (2001) report that in habitats with less than 60% oxygen saturation (4.3 mg/L to 4.7 mg/L at 22°C to 27°C), YOY fish aged 30 to 200 days will experience a loss in growth. Mortality of juvenile Atlantic sturgeon has been observed for summer temperatures at levels of less than or equal to 3.3 mg/L (Secor and Niklitschek 2001). Maximum growth and food consumption rates of captive YOY and 1-year-old Atlantic sturgeon were observed above 70% dissolved oxygen saturation, at 20°C and between salinities of 8 and 15 (Niklitschek and Secor 2009a,b). Mohler (2003) similarly found that in cultured juvenile Atlantic sturgeons, a noticeable decrease in feeding occurred when temperatures dropped to 10°C. Minimum weight gains were noticed at temperatures as low as 5.4°C, and weight loss occurring at lower water temperatures (Mohler 2003). Their low tolerance to elevated temperature and low oxygen is of particular concern during the first two summers of life when juveniles are restricted to lower saline waters, and are unable to seek out thermal refuge in deeper waters (Secor and Gunderson 1998; Niklitschek 2001; Niklitschek and Secor 2005).

Temperature may also be an important habitat parameter with regard to migration patterns, since juvenile Atlantic sturgeon appear to migrate in response to certain temperature thresholds. Dovel and Berggren (1983) stated that downstream migrations in the Hudson River began when temperatures reached 20°C, and peaked between 12°C and 18°C. By the time the temperature was 9°C, juvenile Atlantic sturgeon had congregated for the winter in deep holes (Dovel and Berggren 1983) where water temperatures can approach 0°C (Bain et al. 2000). Similar migration patterns were noted by Dovel (1979) in the Hudson River and by Brundage and Meadows (1982) in the Delaware River. In southern rivers, temperature plays a role in the movement of juvenile sturgeon during warm weather months. Moser and Ross (1995) report that juvenile Atlantic sturgeon in North Carolina use deep and cool areas as thermal refuges, particularly in the summertime.

Part C. Atlantic Sturgeon Late Stage Juvenile and Adult Marine Habitat

Atlantic sturgeon that have transitioned to the marine environment undertake a migratory existence using marine waters, including coastal bays and estuaries. Stein et al. (2004) reported that Atlantic sturgeon were found mostly over sand and gravel substrate, and that they were associated with specific coastal features, such as the mouths of the Chesapeake Bay and Narragansett Bay, and inlets in the North Carolina Outer Banks. Laney et al. (2007) found similar results off the coasts of Virginia and North Carolina. The researchers used a GIS to analyze data from the Cooperative Winter Tagging Cruise and found that Atlantic sturgeon were located primarily in sandy substrates. However, the authors state that their GIS data did not depict small-scale sediment distribution, thus only a broad overview of sediment types was used. In addition, sediment sampling done along the North Carolina coast shows that gravel substrates are found a little farther offshore from where the sturgeon were found (Laney et al. 2007).

Depth associations at sea

The greatest depth in the ocean at which Atlantic sturgeon have been reported caught was 75 m (Collette and Klein-MacPhee 2002). Collins and Smith (1997) report that Atlantic sturgeon were captured at depths of 40 m in marine waters off South Carolina. Stein et al. (2004) found that Atlantic sturgeon were caught in shallow (<60 m) inshore areas of the Continental Shelf. Sturgeon were captured in depths less than 25 m along the Mid-Atlantic Bight, and in deeper waters in the Gulf of Maine (Stein et al. 2004). Dunton et al. (2010) reported that Atlantic sturgeon in the northwest Atlantic Ocean were largely confined to water depths less than 20 m and aggregations tended to occur at the mouths of large bays (Chesapeake and Delaware) or estuaries (Hudson and Kennebec rivers).

Upon entering the marine habitat, Atlantic sturgeon have been documented near the shore in shallow waters where the depths measure less than 20 m (Gilbert 1989; Johnson et al. 1997; Johnson et al. 2005; Laney et al. 2007). The Northeast Fisheries Science Center bottom trawl survey caught 139 Atlantic sturgeon from 1972 to 1996 in waters from Canada to South Carolina. They found the fish in depths of 7 to 75 m, with a mean depth of 17.3 m. Of the fish caught, 40% were collected at 15 m, 13% at 13 m, and less than 5% at all the depth strata (NEFC, unpublished data, reviewed in Savoy and Pacileo 2003).

Section II. Habitats of Special Significance and Trends for Atlantic Sturgeon

Spawning sites/hatching grounds occur in freshwater portions of estuaries and large river tributaries along the Atlantic coast. These areas provide the habitat parameters essential for reproduction, including well oxygenated water, clean substrates for egg adhesion, and crevices that provide cover for post-hatch larvae and abundant macroinvertebrate prey items. This habitat type is very sensitive to anthropogenic impacts, including dams and other river impoundments, nutrient and sediment loading, pollution, navigational dredging, and other coastal developments (especially those with intake structures). Spawning sites are very limited and have been rendered inaccessible and/or degraded since coastal areas have become industrialized and developed.

Nursery areas are limited to freshwater/estuarine tributaries for Atlantic sturgeon age 0 to age 2; nursery areas include bays, estuaries, and nearshore ocean environments for older juveniles (age >2). Freshwater areas are important to larvae and low salinity areas are important to age 0 juveniles, because they cannot tolerate high salinity (Altinok et al. 1998; Secor and Niklitschek 2002). Nursery habitats for juvenile Atlantic sturgeon are essential for growth of this species. This habitat provides foraging grounds for juvenile Atlantic sturgeon, and in some cases, thermal refuge during the summer and winter months (Moser and Ross 1995). Nursery habitats are severely impacted by hypoxic conditions, particularly during summer months when high temperatures can combine with low oxygen levels to degrade and eliminate valuable habitat for juveniles (Secor and Niklitschek 2002; McBride 2004). Other anthropogenic impacts include navigational dredging and port development, sedimentation, nutrient loading (which leads to hypoxic conditions), and recreational and commercial vessel traffic. While nursery areas are less limited in extent than spawning areas, they are still scarce.

Estuarine inlets provide adult and intermediate/late juvenile Atlantic sturgeon with migration corridors to and from freshwater spawning habitat and estuarine nursery grounds. The importance of these areas to Atlantic sturgeon has not been researched; inlets are potentially more rare than spawning habitats. Inlets are impacted by channel alterations (deepening and stabilization) and commercial and recreational coastal development activities.

Wintering grounds for adult and late juvenile Atlantic sturgeon include the nearshore areas off the Atlantic coast from the Gulf of Maine south to at least Cape Lookout, North Carolina (Stein et al. 2004; Laney et al. 2007). These areas provide Atlantic sturgeon with foraging grounds and habitat (Johnson et al. 1997). Erickson et al. (2011) identified aggregation areas off southwest Long Island, along the New Jersey coast, off Delaware Bay, and off Chesapeake Bay. Depth distribution was seasonal: fish inhabited deepest waters during winter and shallowest waters during summer and early fall. Anthropogenic impacts include habitat degradation due to fishing activities, commercial navigation, oil and gas exploration, and construction of offshore liquefied natural gas facilities. Ghost fishing may result in sturgeon losses due to entanglement in lost gear. Winter habitat occurs in coastal nearshore waters, which is expected to not be as limited as spawning habitats and inlets.

Trends Habitat Quantity and Quality

Table 3 summarizes the current literature on Atlantic sturgeon habitat associations. Although the amount has not been quantified, Atlantic sturgeon habitat has decreased or been degraded by clear-cutting, agricultural practices, dams, and other channel and watershed modifications since the eighteenth and nineteenth centuries (Hill 1996; Secor et al. 2002; Bushnoe et al. 2005). Historically, Atlantic sturgeon were documented in 38 rivers ranging from the Hamilton Inlet on the coast of Labrador to the St. Johns River in Florida. The ASSRT (2007) most recently reported that 35 of those historical rivers have Atlantic sturgeon present, and 20 are believed to be extant reproducing populations. Once abundant in most rivers and associated estuaries within their range, Atlantic sturgeon have now either been extirpated, or are at historically low levels. Consequently, although Atlantic sturgeon still remain throughout much of their former range, their numbers have been severely reduced (ASSRT 2007). Currently the National Marine Fisheries Service has proposed that five populations of Atlantic sturgeon along the East Coast receive protection under the Endangered Species Act. The Gulf of Maine population is proposed

for listing as threatened, and endangered status is proposed for the Chesapeake Bay, New York Bight, Carolina, and South Atlantic populations.

The quality of Atlantic sturgeon habitat has been seriously impacted by human actions. Since European settlement, overfishing, habitat loss, and poor water quality have all contributed to the decline of Atlantic sturgeon stocks. Most of these impacts have been gradual and are poorly understood (Smith 1985b; ASFMC 1998; USFWS-NMFS 1998; Secor and Gunderson 1998; Secor et al. 2000; Secor and Niklitschek 2001; ASSRT 2007).

Section III. Atlantic Sturgeon Recommendations

Water Quality and Quantity

- 1) Maintain water quality and suitable habitat for all life stages of Atlantic sturgeon in all rivers with extant populations.
- 2) Reduce non-point and point-source pollution in Atlantic sturgeon habitat areas.
- 3) Implement agricultural, suburban, and urban best management practices to reduce sediment, toxicant, nutrient, and organic inputs into streams:
 - a. Utilize buffers along rivers and streams.
 - b. Restore hydrologic connectivity to wetlands.
 - c. Implement nonstructural stormwater management designs.
- 4) Upgrade wastewater treatment plants, remove biological and organic nutrients from wastewater, and prevent introduction of new categories of contaminants. Upgrade current, and eliminate future permitting for, septic tanks in Atlantic sturgeon watersheds.
- 5) Reduce thermal effluents into rivers. On larger rivers, include a thermal zone of passage or thermal discharge windows.
- 6) Time water withdrawals, releases, and discharges to reduce impacts to migrating fish; screens should be used to reduce impacts when necessary (also see item 6 under Habitat Protection and Restoration). Time water releases and duration to increase reproductive/recruitment success for spawning fishes.
- 7) Use best management practices, such as Time of Year restrictions (also referred to as environmental windows, seasonal restrictions, or moratoria), whenever navigation dredging or dredged material disposal operations would occur in a given waterway occupied by Atlantic sturgeon.

Habitat Protection and Restoration

- 1) State marine fisheries agencies should identify habitat protection and restoration needs, and coordinate habitat restoration plans with other agencies. Agencies should coordinate with public, private, and non-profit organizations to obtain funding for plan implementation and monitoring.
- 2) Map critical/key habitats for Atlantic sturgeon using the literature, existing tracking data, and expert knowledge and use existing authorities to maximize the scrutiny given to projects likely to impact key habitats. Any project that would unavoidably alter critical/key habitat (e.g., dredging, filling) should be minimized to the extent possible. Time of Year restrictions should be used to minimize impacts from activities conducted in areas where Atlantic sturgeon occur.

- 3) Map suitable, current, and historic Atlantic sturgeon habitat and prioritize for protection and restoration. Protection of critical/key habitat is the most beneficial conservation method for restoration of Atlantic sturgeon. The possibility of creating new spawning habitat in areas where hard substrate has been degraded should be investigated.
- 4) Determine the effects of dredging on Atlantic sturgeon behavior, habitat, and migration.
- 5) States should notify in writing the appropriate federal and state regulatory agencies of the locations of habitats used by Atlantic sturgeon. Regulatory agencies should be advised of the types of threats to sturgeon populations, and recommendations to avoid, minimize, or eliminate threats to current habitat quantity or quality.
- 6) Each state encompassing and federal agencies regulating dams blocking Atlantic sturgeon spawning rivers and/or producer areas should develop water use and flow regime guidelines protective of sturgeon spawning and nursery areas to ensure the long-term health and sustainability of the stocks (also see item 6 under Water Quality and Quantity).
- 7) ASMFC should support state and federal designation of important habitats for Atlantic sturgeon spawning and nursery areas.

Section IV. Atlantic Sturgeon Research Needs

Water Quality and Contamination

- 1) Determine effects of temperature, salinity, and pH changes on each life stage of Atlantic sturgeon, and use this information to forecast impacts of climate change on this species and to scope mitigation measures.
- 2) Document the concentrations at which contaminants impact the various life stages of Atlantic sturgeon.
- 3) In reference to Table 3, determine the unknown optima and tolerance ranges for depth, temperature, salinity, dissolved oxygen, pH, substrate, current velocity, and suspended solids.

Habitat Protection and Restoration

- 1) Use multi-scale approaches (including GIS) to assess indicators of suitable habitat, using watershed and stream-reach metrics if possible (it should be noted, that where site-specific data are lacking, it may not be appropriate to assess at this scale).
- 2) Use multi-scale approaches for restoring Atlantic sturgeon habitat, including vegetated buffer zones along streams and wetlands, and for implementing measures to enhance acid-neutralizing capacity.
- 3) Conduct studies on the effects of land use change, especially wetland alteration, on Atlantic sturgeon population size, density, distribution, health, and sustainability.
- 4) Examine how Atlantic sturgeon are impacted by deviation from the natural flow regimes. This work should focus on key parameters, such as rates of flow change (increase and decrease), seasonal peak flow, and seasonal base flow, so that the results can be more easily integrated into a year-round flow management recommendation by state officials.

Table 3. Significant environmental, temporal, and spatial factors affecting distribution of Atlantic sturgeon. This table summarizes the current literature on Atlantic sturgeon habitat associations. For most categories, optimal and tolerable ranges have not been identified, and the summarized habitat parameters are listed under the category reported. In some cases, unsuitable habitat parameters are defined. NIF = No Information Found. N/A = Not Applicable.

Life Stage	Time of Year and Location	Depth (m)	Temperature (°C)	Salinity (ppt)	Substrate	Current Velocity (m/sec)	Dissolved Oxygen (mg/L)
Adult (Spawning)	<p>Freshwater rivers and possibly tidal freshwater regions of large estuaries (in the north)</p> <p>Feb – Southern states April and May – Mid-Atlantic May to July – Northern States and Canada</p> <p>Sept to Dec – Second spawning documented in Southern regions</p>	<p>Tolerable: NIF Optimal: 2.4 to 8+ m (HSI model for Southern Regions) Reported: 3 to 27 m</p>	<p>Tolerable: NIF Optimal: 16-21 (HSI model for Southern Regions); 20 to 21°C for cultured sturgeon Reported: Male migrations 5.6 to 6.1°C; Female migrations 12.2 to 13°C; Spawning 13 to 23.4°C</p>	<p>Tolerable: 0 ppt Optimal: 0 ppt Reported: Above the salt wedge in fresh water.</p>	<p>Tolerable: NIF Optimal: Cobble/gravel >64mm to 250mm (HSI model for Southern Regions) Reported: Hard substrate, including rubble, gravel, clay, rock, bedrock, slag from old steel mills and limestone</p>	<p>Tolerable: NIF Optimal: 0.2 to 0.76 m/sec Reported: 0.46 to 0.76 m/sec okay (based on modeling); unsuitable if ≤0.06 m/sec, or ≥ 1.07 m/sec</p>	<p>Tolerable: NIF Optimal: NIF Reported: NIF</p>
Adult (Estuarine)	<p>Sturgeon do not spawn every year, yet may participate in an upstream migration. After spawning, some sturgeon remain in the rivers through the summer, while others migrate to sea.</p> <p>Downstream migrations occur Sept to Nov in Canada.</p> <p>Present in South March to Oct. Overwinter in the ocean.</p>	<p>Tolerable: NIF Optimal: NIF Reported: 1.5 to 60 m</p>	<p>Tolerable: NIF Optimal: NIF Reported: Adult sturgeon documented in waters with temperatures as high as 33.1°C in SC</p>	<p>Tolerable: NIF Optimal: NIF Reported: Documented summer habitat in upper/fresh/brackish interface, lower interface, and high salinity portions of estuaries in SC. Salinity ranged from 0 to 28.6 ppt.</p>	<p>Tolerable: NIF Optimal: NIF Reported: Found over fine mud, sand, pebbles, and shell substrate</p>	<p>Tolerable: NIF Optimal: NIF Reported: NIF</p>	<p>Tolerable: NIF Optimal: NIF Reported: NIF</p>

Life Stage	Time of Year and Location	Depth (m)	Temperature (°C)	Salinity (ppt)	Substrate	Current Velocity (m/sec)	Dissolved Oxygen (mg/L)
Egg and Larval	Eggs are laid in flowing water in rivers along the Atlantic coast. Larval sturgeon are found in same habitat where spawned and are benthic.	Tolerable: NIF Optimal: 2.4 to 8+ m for egg incubation (HSI model for Southern Regions) Reported: Embryos remain in deep channels. Larvae collected 9.1 to 19.8 m	Tolerable: 15 to 24.5°C Optimal: 20 to 21°C in culture Reported: Eggs hatch in 94 to 140 hours ranging from 15.0 to 24.5°C	Tolerable: <5 ppt Optimal: 0 ppt Reported: Found upstream of salt front; have a low tolerance to salinity; mortality reported 5 to 10 ppt for some sturgeon species	Tolerable: NIF Optimal: Cobble/gravel >64mm to 250mm (HSI model for Southern Regions) Reported: After 20 minutes, eggs become adhesive and attach to hard substrate. Larvae also use hard substrate as refuge	Tolerable: NIF Optimal: NIF Reported: NIF	Tolerable: NIF Optimal: NIF Reported: NIF
Juvenile (Estuarine)	Remain in natal habitats within estuary for up to a year before migrating out to sea. Migrations to other estuaries are common. Use brackish water near mouth of estuary during winter and move up-estuary during warmer months	Tolerable: NIF Optimal: Deep water and holes serve as thermal refuge Reported: 2 to 37 m	Tolerable: 3 to 28°C Optimal: ~20°C Unsuitable: >28°C are sub-lethal Reported: Downstream migration begins when water reaches 20°C and peaks between 12 and 18°C. Documented range of 0.5 to 27°C	Tolerable: NIF Optimal: ~10 ppt Reported: Large juveniles found mostly where salinity is >3 ppt; found 0 to 27.5 ppt	Tolerable: NIF Optimal: NIF Reported: Found mostly over sand substrate and mud or transitional habitats. Also found over rocks and cobble	Tolerable: NIF Optimal: NIF Reported: NIF	Tolerable: NIF Optimal: >5 mg/L Reported: Summer mortality observed at <3.3mg/L and at 26°C
Juvenile and adult (At-sea)	Utilize marine waters during non-spawning seasons. Nearshore areas off the Atlantic coast from the Gulf of Maine to at least Cape Lookout, NC. Little is known about this part of their lives	Tolerable: NIF Optimal: NIF Reported: Most found in shallow waters; greatest depth recorded = 75 m; depth range 7 to 43m	Tolerable: NIF Optimal: NIF Reported: NIF	Tolerable: NIF Optimal: NIF Reported: Marine waters on the continental shelf	Tolerable: NIF Optimal: NIF Reported: Sand, gravel, silt and clay. Suggested that they will use any substrate that supports their food resource	Tolerable: NIF Optimal: NIF Reported: NIF	Tolerable: NIF Optimal: NIF Reported: NIF

Section V. Literature Cited

- Altinok, I., S. M. Galli, and F. A. Chapman. 1998. Ionic and osmotic regulation capabilities of juvenile Gulf of Mexico sturgeon, *Acipenser oxyrinchus desotoi*. Comparative biochemistry and physiology. Part A. 120: 609-616
- Appy, R. G., and M. J. Dadswell. 1978. Parasites of *Acipenser brevirostrum* LeSueur and *Acipenser oxyrinchus* Mitchill (Osteichthyes: Acipenseridae) in the Saint John River Estuary, N.B. with a description of *Caballeronema pseudoargumentosus* sp.n. (Nematoda: Spirurida). Canadian Journal of Zoology 56: 1382-1391.
- ASMFC (Atlantic States Marine Fisheries Commission). 1998. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Sturgeon. Atlantic States Marine Fisheries Commission, Atlantic Sturgeon Plan Development Team, Washington, D.C.
- Atlantic Sturgeon Status Review Team (ASSRT). 2007. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Report to National Marine Fisheries Service, Northeast Regional Office on February 23, 2007.
- Bain, M. B. 1997. Atlantic and shortnose sturgeons of the Hudson River: Common and divergent life history attributes. Environmental Biology of Fishes 48: 347-358.
- Bain, M. B., N. Haley, D. Peterson, J. R. Waldman, and K. Arend. 2000. Harvest and habitats of Atlantic sturgeon *Acipenser oxyrinchus* Mitchill, 1815, in the Hudson River estuary: Lessons for sturgeon conservation. Instituto Espanol de Oceanografia. Boletin 16: 43-53.
- Bath, D. W., J. M. O'Connor, J. B. Alber, and L. G. Arvidson. 1981. Development and identification of larval Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*A. brevirostrum*) from the Hudson River estuary, New York. Copeia 3: 711-717.
- Borodin, N. 1925. Biological observations on the Atlantic sturgeon, (*Acipenser sturio*). Transactions of the American Fisheries Society 55: 184-190.
- Brownell, P. H., S. Bolden, and B. Kynard. (unpublished) Spawning habitat suitability index models for shortnose and Atlantic sturgeon. National Marine Fisheries Service, Southeast Region.
- Brundage, H. M., III, and R. E. Meadows. 1982. The Atlantic sturgeon, *Acipenser oxyrinchus*, in the Delaware River and Bay. U.S. Fish and Wildlife Service. Fisheries Bulletin 80: 337-343.
- Bushnoe, T. M., J. A. Musick, and D. S. Ha. 2005 (Draft). Essential spawning and nursery habitat of Atlantic sturgeon (*Acipenser oxyrinchus*) in Virginia. Provided by Jack Musick, Virginia Institute of Marine Science, Gloucester Point, Virginia.

- Caron, F., D. Hatin, and R. Fortin. 2002. Biological characteristics of adult Atlantic sturgeon (*Acipenser oxyrinchus*) in the St. Lawrence River estuary and the effectiveness of management rules. *Journal of Applied Ichthyology* 18: 580-585.
- Collette, B., and G. Klein-MacPhee, editors. 2002. Bigelow and Schroeder's fishes of the Gulf of Maine, 3rd edition. Smithsonian Institution Press, Washington, D.C.
- Collins, M. R., and T. I. J. Smith. 1997. Distribution of shortnose and Atlantic sturgeons in South Carolina. *North American Journal of Fisheries Management* 17: 995-1000.
- Collins, M. R., T. I. J. Smith, W. C. Post, and O. Pashuk. 2000. Habitat utilization and biological characteristics of adult Atlantic sturgeon in two South Carolina rivers. *Transactions of the American Fisheries Society* 129: 982-988.
- Crance, J. H. 1987. Habitat suitability index curves for anadromous fishes. Page 554 in M. J. Dadswell, editor. *Common Strategies of Anadromous and Catadromous Fishes*. American Fisheries Society, Symposium 1, Bethesda, Maryland.
- Dadswell, M. J. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. *Fisheries* 31: 218-229.
- Dees, L. T. 1961. Sturgeons. United States Department of the Interior Fish and Wildlife Service, Bureau of Commercial Fisheries, Washington, D.C.
- Dovel, W. L. 1978. Biology and management of shortnose and Atlantic sturgeon of the Hudson River. Performance Report to the New York State Department of Environmental Conservation, Albany, New York.
- Dovel, W. L. 1979. The biology and management of shortnose and Atlantic sturgeon of the Hudson River. Final Report to the New York State Department of Environmental Conservation, Albany, New York.
- Dovel, W. L., and T. J. Berggren. 1983. Atlantic sturgeon of the Hudson estuary, New York. *New York Fish and Game Journal* 30: 140-172.
- Dunton, K. J., A. Jordan, K.A. McKown, D. O. Conover, and M. G. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*) within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. *Fishery Bulletin* 108: 450-465.
- Erickson, D. L., A. Kahnle, M. J. Millard, E. A. Mora, M. Bryja, A. Higgs, J. Mohler, M. DuFour, G. Kenney, J. Sweka, and E. K. Pikitch. 2011. Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus* Mitchell, 1815. *Journal of Applied Ichthyology* 27(2): 356-365
- Gilbert, C. R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-Atlantic Bight) – Atlantic and shortnose sturgeons. United

States Fish and Wildlife Service Office of Biological Services Report No. FWS/OBS-82/11.122.

- Greene, K.E., J.L. Zimmerman, R.W. laney, and J.C. Thomas-Blate. 2009. Atlantic coast diadromous fish habitat: A review of utilization, threats, recommendations for conservation and research needs. Atlantic States Marine Fisheries Commission Habitat Management Series No. 9, Washington, D.C.
- Haley, N., J. Boreman, and M. Bain. 1996. Juvenile sturgeon habitat use in the Hudson River. Pages 1-20 in Final reports of the Tibor T. Polgar Fellowship Program. Hudson River Foundation, New York.
- Hatin, D., R. Fortin, and F. Caron. 2002. Movements and aggregation areas of adult Atlantic sturgeon (*Acipenser oxyrinchus*) in the St. Lawrence River estuary, Québec, Canada. *Journal of Applied Ichthyology* 18: 586-594.
- Hill, J. 1996. Environmental considerations in licensing hydropower projects: Policies and practices at the Federal Energy Regulatory Commission. Pages 190-199 in L. E. Miranda and D. R. DeVries, editors. Multidimensional approaches to reservoir fisheries management. American Fisheries Society Symposium 16, Bethesda, Maryland.
- Hoff, J. G. 1980. Review of the present status of the stocks of Atlantic sturgeon *Acipenser oxyrinchus*, Mitchill. Prepared for the National Marine Fisheries Service, Northeast Region, Gloucester, Massachusetts.
- Holland, B. F. Jr., and G. F. Yelverton. 1973. Distribution and biological studies of anadromous fishes offshore North Carolina. North Carolina Department of Natural and Economic Resources Special Science Report 24, Raleigh.
- Huff, J. A. 1975. Life history of Gulf of Mexico sturgeon, *Acipenser oxyrinchus desotoi*, in Suwannee River, Florida. Florida Marine Research Publications 16: 32.
- Johnson, J. H., D. S. Dropkin, B. E. Warkentine, J. W. Rachlin, and W. D. Andrews. 1997. Food habits of Atlantic sturgeon off the central New Jersey coast. *Transactions of the American Fisheries Society* 126: 166-170.
- Johnson, J. H., J. E. McKenna, Jr., D. S. Dropkin, and W. D. Andrews. 2005. A novel approach to fitting the von Bertalanffy relationship to a mixed stock of Atlantic sturgeon harvested off the New Jersey coast. *Northeastern Naturalist* 12: 195-202.
- Kelly, J. L., and D. E. Arnold. 1999. Effects of ration and temperature on growth of age-0 Atlantic sturgeon. *North American Journal of Aquaculture* 62: 60-65.
- Kynard, B., and M. Horgan. 2002. Otolith behavior and migration of Atlantic sturgeon, *Acipenser oxyrinchus oxyrinchus*, and shortnose sturgeon, *Acipenser brevirostrum*, with notes on social behavior. *Environmental Biology of Fishes* 63: 137-150.

- Kynard, B., M. Horgan, M. Kieffer, and D. Seibel. 2000. Habitat used by shortnose sturgeon in two Massachusetts rivers, with notes on estuarine Atlantic sturgeon: A hierarchical approach. *Transactions of the American Fisheries Society* 129: 487-503.
- Laney, R. W., J. E. Hightower, B. R. Versak, M. F. Mangold, W. W. Cole, Jr., and S. E. Winslow. 2007. Distribution, habitat use and size of Atlantic sturgeon captured during Cooperative Winter Tagging Cruises, 1988-2006. Pages 167-182 in J. Munro, D. Hatin, J. E. Hightower, K. McKown, K. J. Sulak, A. W. Kahnle, and F. Caron, editors. *Anadromous sturgeons: Habitats, threats, and management*. American Fisheries Society Symposium 56, Bethesda, Maryland.
- Lazzari, M. A., J. C. O'Herron II, and R. W. Hastings. 1986. Occurrence of juvenile Atlantic sturgeon, *Acipenser oxyrinchus*, in the upper tidal Delaware River. *Estuaries* 9: 356-361.
- Leland, J. G., III. 1968. A survey of the sturgeon fishery of South Carolina. Bears Bluff Laboratories Report No. 47, Wadmalaw Island, South Carolina.
- McBride, M. M. 2004. A fisheries ecosystem plan for the Chesapeake Bay. Proceedings of the 14th Biennial Coastal Zone Conference, New Orleans, Louisiana. United States Department of Commerce, NOAA Chesapeake Bay Office.
- Mohler, J. W. 2003. Culture manual for the Atlantic sturgeon. United States Fish and Wildlife Service Publication, Hadley, Massachusetts.
- Moser, M. L., and S. W. Ross. 1995. Habitat use and movements of shortnose and Atlantic sturgeons in the lower Cape Fear River, North Carolina. *Transactions of the American Fisheries Society* 124: 225-234.
- Niklitschek, E. J. 2001. Bioenergetics modeling and assessment of suitable habitat for juvenile Atlantic and shortnose sturgeons (*Acipenser oxyrinchus* and *A. brevirostrum*) in the Chesapeake Bay. Doctoral dissertation. University of Maryland at College Park, Solomons, Maryland.
- Niklitschek, E. J., and D. H. Secor. 2005. Modeling spatial and temporal variation of suitable nursery habitats for Atlantic sturgeon in the Chesapeake Bay. *Estuarine and Coastal Shelf Science* 64: 135-148.
- Niklitschek, E. J., and D. H. Secor. 2009a. Dissolved oxygen, temperature and salinity effects on the ecophysiology and survival of juvenile Atlantic sturgeon in estuarine waters: I. Laboratory results. *Journal of Experimental Marine Biology and Ecology* 381:150-160.
- Niklitschek, E. J., and D. H. Secor. 2009b. Dissolved oxygen, temperature and salinity effects on the ecophysiology and survival of juvenile Atlantic sturgeon in estuarine waters: II.

- Model development and testing. *Journal of Experimental Marine Biology and Ecology* 381:161-172.
- Niklitschek, E. J., and D. H. Secor. 2010. Experimental and field evidence of behavioural habitat selection by juvenile Atlantic *Acipenser oxyrinchus* and shortnose *Acipenser brevirostrum* sturgeons. *Journal of Fish Biology* 77:1293-1308.
- Savoy, T., and D. Pacileo. 2003. Movements and important habitats of subadult Atlantic sturgeon in Connecticut waters. *Transactions of the American Fisheries Society*. 132: 1-8.
- Scott, W. B., and E. J. Crossman. 1973. *Freshwater fishes of Canada*. Fisheries Research Board of Canada Bulletin 184, Ottawa, Canada.
- Secor, D. H., P. J. Anders, W. Van Winkle, and D. A. Dixon. 2002. Can we study sturgeons to extinction? What we do and don't know about the conservation of North American sturgeons. Pages 3-10 in W. Van Winkle, P. J. Anders, D. H. Secor, and D. A. Dixon, editors. *Biology, management, and protection of North American sturgeon*. American Fisheries Society Symposium 28, Bethesda, Maryland.
- Secor, D. H., V. Arefjev, A. Nikolaev and A. Sharov. 2000. Restoration of sturgeons: Lessons from the Caspian Sea Sturgeon Ranching Programme. *Fish and Fisheries* 1: 215-230.
- Secor, D. H., and T. E. Gunderson. 1998. Effects of hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon, *Acipenser oxyrinchus*. *Fishery Bulletin* 96: 603-613.
- Secor, D. H., and E. J. Niklitschek. 2001. Hypoxia and sturgeons: Report to the Chesapeake Bay Program Dissolved Oxygen Criteria Team. Technical Report Series No. TS-314-01-CBL. Chesapeake Biological Laboratory, Solomons, Maryland.
- Secor, D. H., and E. Niklitschek. 2002. Sensitivity of sturgeons to environmental hypoxia: A review of the physiological and ecological evidence. Pages 61-78 in R. V. Thurston, editor. *Fish Physiology, Toxicology, and Water Quality*. Proceedings of the Sixth International Symposium, La Paz, Mexico. U.S. Environmental Protection Agency Office of Research and Development, Ecosystems Research Division Report No. EPA/600/R-02/097, Athens, Georgia.
- Shirey, C. A., C. C. Martin, and E. J. Stetzar. 1999. Atlantic sturgeon abundance and movement in the lower Delaware River. Grant #A86FAO315 to NMFS. Delaware Division of Fish and Wildlife, Smyrna, Delaware.
- Smith, T. I. J. 1985. The fishery, biology, and management of Atlantic sturgeon, *Acipenser oxyrinchus*, in North America. *Environmental Biology of Fishes* 14: 61-72.

- Smith, T. I. J., and J. P Clugston. 1997. Status and management of Atlantic sturgeon, *Acipenser oxyrinchus*, in North America. *Environmental Biology of Fishes* 48: 335-346.
- Smith, T. I. J., E. K. Dingley, and D. E. Marchette. 1980. Induced spawning and culture of Atlantic sturgeon. *Progressive Fish-Culturist* 42: 147-151.
- Stein, A. B., K. D. Friedland, and M. Sutherland. 2004. Sturgeon marine distribution and habitat use along the northeast coast of the United States. *Transactions of the American Fisheries Society* 133: 527-537.
- USFWS-NMFS (United States Fish and Wildlife Service and National Marine Fisheries Service). 1998. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Special report submitted in response to a petition to list the species under the Endangered Species Act. Hadley and Gloucester, Massachusetts.
- Van Eenennaam, J. P., S. I. Doroshov, G. P. Moberg, J. G. Watson, D. S. Moore, and J. Linares. 1996. Reproductive conditions of the Atlantic sturgeon (*Acipenser oxyrinchus*) in the Hudson River. *Estuaries* 19: 769-777.
- Vladykov, V. D., and J. R. Greeley. 1963. Order Acipenseriformes. Pages 46-56 in H. B. Bigelow, editor. *Fishes of the western North Atlantic: Part three soft-rayed bony fishes*. Sears Foundation for Marine Research, Yale University, New Haven, Connecticut.



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

Paul J. Diodati, (MA), Chair

Dr. Louis B. Daniel, III, (NC), Vice-Chair

John V. O'Shea, Executive Director

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015

May 17, 2012

Angela Somma
Chief, Endangered Species Division
Office of Protected Resources
NOAA Fisheries
1315 East-West Highway, Room 13626
Silver Spring, Maryland 20910

Dear Ms. Somma:

The Atlantic States Marine Fisheries Commission (Commission) supports the Georgia Department of Natural Resources application for an incidental take permit for shortnose and Atlantic sturgeon (No. 16645), as required under Section 10(a)(1)(B) of the Endangered Species Act. The Commission recommends the requested levels of incidental take for both species and the ten-year permit length be granted.

Thank you for the opportunity to comment on this important issue.

Sincerely,

A handwritten signature in blue ink that reads "John V. O'Shea".

John V. O'Shea

cc: ISFMP Policy Board
Sturgeon Management Board

MAINE • NEW HAMPSHIRE • MASSACHUSETTS • RHODE ISLAND • CONNECTICUT • NEW YORK • NEW JERSEY •
DELAWARE PENNSYLVANIA • MARYLAND • VIRGINIA • NORTH CAROLINA • SOUTH CAROLINA • GEORGIA •
FLORIDA