Atlantic States Marine Fisheries Commission

Sturgeon Management Board

October 25, 2012
8:30 - 10:30 a.m.
Philadelphia, Pennsylvania

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)*	8:30 a.m.
2.	Board Consent • Approval of Agenda • Approval of Proceedings from August 8, 2012	8:30 a.m.
3.	Public Comment	8:35 a.m.
4.	Atlantic Sturgeon Endangered Species Petition Update • Review and discussion of petition	8:45 a.m.
5.	Atlantic Sturgeon Stock Assessment Planning • Technical Committee Report *(D. Fox)*	9:45 a.m.
6.	Draft Habitat Addendum I for Final Approval *(K. Taylor)* **Final Action** • Review changes to the habitat section • Public Comment Summary (*K. Taylor*) • Consider final approval of Habitat Addendum I	10:20 a.m.
7.	Other Business/Adjourn	10:30 a.m.

The meeting will be held at the Radisson Plaza Warwick Hotel 220 South 17th Street, Philadelphia, PA • (215) 735-6000

MEETING OVERVIEW

Atlantic Sturgeon Management Board Meeting
October 25, 2012
8:30 – 10:30 a.m.
Alexandria, Virginia

Chair: Russ Allen (Assumed 5/12)	Technical Committee Chair: Dewayne Fox (DE)	Law Enforcement Committee Rep: Brannock/Meyer
Vice Chair: John Clark	Advisory Panel Chair: Vacant	Previous Board Meeting: August 8, 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 August 8, 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 Petition Update 8:45 – 9:45 a.m.

Background

- In August the Board initiated the creation of a committee comprised of a sub-set of TC members to develop a petition to delist or downlist Atlantic sturgeon
- This committee met via conference call in September and October to begin drafting the petition.

Presentations

- Overview of draft petition by K. Taylor

Board Action for Consideration

- Provide further direction, if necessary.

6. Atlantic Sturgeon Stock Assessment Planning 9:45 – 10:20 a.m.

Background

- The Sturgeon TC met via conference call in September to discuss the timing, personnel availability and challenges in initiating a new benchmark stock assessment for Atlantic sturgeon. (**Briefing CD).**

Presentations

- Technical Committee Report by D. Fox

5. Atlantic Sturgeon Habitat Addendum 10:20 – 10:30 a.m. Final Action
Background • A habitat addendum was developed for Atlantic Sturgeon by the Habitat Committee and approved for Public comment by the Board in August **(Briefing CD).**
Presentations • Atlantic sturgeon Habitat Addendum overview and public comment by K. Taylor
Board Action for Consideration • Approve Habitat Addendum

7. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

STURGEON MANAGEMENT BOARD

Crowne Plaza Hotel - Old Town
Alexandria, Virginia
August 8, 2012

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

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ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)
Steve Train, ME (GA)
G. Ritchie White, NH (GA)
Douglas Grout, NH (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)
David Pierce, MA, proxy for P. Diodati (AA)
Bill Adler, MA (GA)
Robert Ballou, RI (AA)
Bill McElroy, RI (GA)
Rep. Peter Martin, RI (LA)
David Simpson, CT (AA)
Lance Stewart, CT (GA)
Brian Culhane, NY, proxy for Sen. Johnson (LA)
Pat Augustine, NY (GA)
James Gilmore, NY (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)
Mitch Feigenbaum, PA, proxy for Rep. Vereb (LA)
Leroy Young, PA, proxy for J. Arway (AA)
Loren Lustig, PA (GA)
Roy Miller, DE (GA)
John Clark, DE, Administrative proxy
Tom O'Connell, MD (AA)
Russell Dize, MD, proxy for Sen. Colburn (LA)
Bill Goldsborough, MD (GA)
Jack Travelstead,VA (AA)
Kyle Schick, VA, proxy for Sen. Stuart (LA)
Cathy Davenport, VA (GA)
Louis Daniel, NC (AA)
Bill Cole, NC (GA)
Ross Self, SC, proxy for R. Boyles (LA)
Spud Woodward, GA (AA)
Aaron Podey, FL (AA)
A.C. Carpenter, PRFC
Steve Meyers, NMFS
Jaime Geiger, USFWS

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

Ex-Officio Members

Bill Post, Technical Committee Chair

Staff

Robert Beal
Toni Kerns
Kate Taylor
Katie Drew

Guests

Angela Sominor, NMFS
Bob Ross, NMFS

The Sturgeon Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel, Alexandria, Virginia, August 9, 2012, and was called to order at 7:30 o'clock a.m. by Chairman Russ Allen.

CALL TO ORDER

CHAIRMAN RUSS ALLEN: Good morning, everybody. I would just like to take this time to thank Louis and all his help yesterday to pushing this meeting to this morning.

APPROVAL OF AGENDA

The first thing is approval of the agenda. Anybody have any changes to the agenda? We are going to have the technical committee report. It is going to be one report and not two, so Bill just let them go through and then move on from there.

APPROVAL OF PROCEEDINGS

Seeing no changes other than that; approval of the proceeding of the May 2nd meeting. Anybody have any changes to that? That's good.

PUBLIC COMMENT

Next up is public comment on anything that is not on the agenda for today. I don't know if anybody has anything. Seeing none, I don't think anybody signed up so we'll move right along and send it over to Bill.

ATLANTIC STURGEON ENDANGERED SPECIES LISTING
TECHNICAL COMMITTEE REPORT

MR. BILL POST: I'm Bill Post; I'm the vice-chair for the technical committee. I'm proxy for Dewayne Fox. He has a habit of scheduling his family vacations on these board meetings. The technical committee was tasked by the board at the last meeting to look at several of these issues. The first of these issues was to coordinate a meeting with the National Marine Fisheries Service Protected Resources Staff to review the data and methodology for the Atlantic sturgeon endangered and threatened listing determination.

Number 2, we were to advise the board to the appropriateness of the listing methodology and recommended methods to reduce bycatch; and the third being we were to begin the initial phase in the development of a petition to delist Atlantic sturgeon. About two weeks ago we met in Baltimore and members of the National Marine Fisheries Service were invited to that meeting and attended.

The Federal Service, mainly the National Marine Fisheries Service and U.S. Fish and Wildlife Service members and proxies, recused themselves from any discussion regarding any of the action options. ASMFC requested the National Marine Fisheries Service to provide the technical committee with data sources and methodology used in the determination for each DPS.

Prior to the workshop, the National Marine Fisheries Service sent out a list of references used in the listing. From what we could determine, the information provided and the majority of data that were available at the time of the ruling or the status review were most likely used in the listing. The technical committee could not comment on the appropriateness of the analysis used in the listing determination as the National Marine Fisheries Service did not provide adequate information to do so.
The technical committee inquired if it would be possible to request additional information in the methodology used in extinction risk modeling for the final ruling. The technical committee identified a significant amount of data now that is available which provides insight to sturgeon abundance, behavior and life history.

As far as the action items, I'll jump around because we spent the most time on the delisting action item that had. The delisting was the original technical committee tasked to us by the board. However, down listing was also included. The technical committee felt that down listing might be supported in some instances and should be considered.

Legal action was briefly discussed; however, it was determined by the technical committee in a consensus that most of the data at time of the listing was given to NMFS. If we are going to try to delist, there were potential actions that we would take; one being that we would have to maintain the current DPS designations or classifications.

If we were going to try to delist, we would have to first delist the DPS designations in order to try

to get to river-specific designations or coast-wide stock units. Any delisting or down-listing petitions would have to go through the same steps as the listing petition and would take a similar amount of time, two years.

With the delisting, the National Marine Fisheries Service has to develop Atlantic sturgeon recovery plans as part of that for each DPS. These plans, when completed, would typically include targets for delisting or down listing; and even with recovery plans in place, any petition to delist or down list would still have to develop targets to support any change request.

The most appropriate way for us to go forward to develop targets would be through a stock assessment. Even with species for a recovery plan, NMFS should conduct a five-year review for the species. However, five-year reviews are not actually held to any mandated timeframe. Just a note that it took 25 years for a shortnose recovery plan to be published, and the current status review began in 2007 and is still not completed.

In more recent examples, the five-year review was initiated thirteen years after the listing of the eastern DPS for stellar sea lion as threatened, and it is currently under consideration for delisting. You have this in the handout that we gave you, so I'm not going to go over it, but the technical committee looked at the positive and negative effects of delisting, down-listing and status quo.

The technical committee recognized that there may be some gray areas for many of these issues. As far as data needs moving forward, the technical committee felt we needed a new stock assessment. We also thought that there was the possibility that we could move forward with an independent genetic study for re-evaluation of the DPS which were included in the listing.

The genetic work in the listing focused some on sub-adult and adult fish, and we have seen through telemetry programs throughout the whole coast that these fish are moving around more than what was suspected. This study should focus on young of the year and age fish. Also, we recommend that there would be a development of delisting criteria in advance of the recovery plan. The bycatch analysis could be incorporated into the assessment, and we also had recommended that there be formation of a subcommittee to discuss this. The information on the NMFS listing analysis methodology, we would hope to receive more data.

In respect to a timeline, in addition time to develop a petition to delist or down list, it would take two-plus years to go through the required petition process. If a stock assessment was prioritized, it would take a minimum one to two years to complete. The same people who work on the delisting or down-listing petition or the stock assessment most likely would also be working on Section 10 directed permits for sampling or the incidental take permits.

States would still need to be covered by their Section 10 permits. As far as recommendations, the technical committee recommends that the Sturgeon Board initiate a benchmark stock assessment and peer review for Atlantic sturgeon as well as appropriate data analyses as necessary.

Number two, based on the results of the stock assessment and peer review, we should inform the determination on which petition type, either down listing or delisting or other action may be appropriate to address any discrepancies or concerns with the listing. Number three, the technical committee recommends the board form a subcommittee to work on the bycatch analysis, identify new data and develop ways to improve the analysis to reduce bycatch. Thanks.

CHAIRMAN ALLEN: Thank you, Bill. I think you gave us some real good thought processes there that will help us get through our next – who knows how long this will take, but, first off, if anybody has any questions on Bill's presentation or the charges that the board had given the technical committee, I will entertain those now. David.

DISCUSSION OF
TECHNICAL COMMITTEE REPORT

DR. DAVID PIERCE: Bill, thanks for your presentation and the recommendations from the technical committee. I don't know whether the National Marine Fisheries Service has actually followed through and provided information that this board requested when last we met. Specifically, we had a very long motion debated regarding things we needed to see in order for us to understand the basis for the listing and the next steps in the process the Service intends to follow.

I call the board's attention to that motion that is on the disk. It is in the minutes of our last meeting where we requested a meeting with the Protected Species staff and the technical committee to receive that detailed update. The technical committee was to review the scientific basis for the listing with the focus on the methodology and data used to generate the listing and appropriate conclusions and the methodology used to generate bycatch and discard estimates by gear type, season and area.

After this review, the technical committee will advise the board as to the appropriateness of the methodology used in the analyses and then recommend ways to improve the analyses and how the analyses can be use to reduce sturgeon bycatch. Then there is another part of that motion related to specific requests from the Protected Species staff.

I understand from your presentation that you weren't able to do or follow up on the board's task to you because NMFS did not provide adequate information. I guess the question is when will that information be provided and when will the board's other tasks or requests – I should say the NMFS Protected Species staff – going to be completed.

I believe all of that information that we requested is very germane to what we are going to do today and what we would likely do in the future. Could you elaborate a little bit on that; and if you can't provide all the details, then certainly somebody from NMFS Protected Species staff might be in a position to help answer that question. Again, I call the Protected Species staff's attention to the second part of that motion that is shown in the minutes of our meeting.

MR. POST: At the technical committee meeting, the National Marine Fisheries Service gave us an overview of the listing process. They gave us references to what was used in the listing. We did not receive the information for whatever reason that we asked for, and we were unable to make any determination of what data were used to come to any kind of consensus for the determination. We were equally frustrated.

There were several avenues talked about at how to get to those data, including FOIA, and trying to figure out how to best move forward. That being said, I don't think that – you know, when we went around the room and we polled the member states, the data that were used in the listing, there was consensus that NMFS had the data. We just didn't know how they used it. I don't know if that answered your question, but we were kind of stonewalled, too.

DR. PIERCE: If I may, Mr. Chairman, do we have any indication as to when that information will be provided to you? Indeed, you were frustrated and maybe it was timing problem, maybe a miscommunication, I don't know.

MR. POST: Right.

DR. PIERCE: But our request still stands. We need to have the technical committee, you and the rest of the committee members in a position where you can really be very effective. You're doing a good job but you're handicapped without having this information in hand. Having to have a FOIA; I mean, NMFS is our partner in this process; and maybe with a new regional administrator we will be in a better position to acquire this information in light of the spirit of his cooperation that he demonstrated yesterday at the Policy Board meeting.

Anyway, I'm frustrated by this because we all know this is going to result in a phenomenal work by this board, by all the states to deal with sturgeon listing. Do you have any insight as to when we might get this; did NMFS provide you with a timeline. Again, if NMFS could respond regarding the second part of that motion, I would appreciate it.

MR. POST: Yes, I think that might be question for NMFS. We requested it and made it clear that we didn't really receive what we were asking for. It is in their ballpark now.

CHAIRMAN ALLEN: I think we're all pretty frustrated, David. From what I gathered from the people I've talked to on the technical committee, it was more of a qualitative analysis that NMFS provided and not a quantitative, so it really makes it hard to say what data did they use and what didn't they use. I don't know if somebody from NMFS, Angela or Bob wants to respond, but they're more than welcome to do that right now.

MS. ANGELA SOMMA: I'm Angela Somma. I'm Chief of the Endangered Species Division for the National Marine Fisheries Service. I guess from our perspective we're not clear what

additional information the committee is requesting. We've provided a number of briefings on the listing. We relied on the status review as well as the analysis that is laid out in the listing document that was published in the Federal Register.
We've provided all of the references for the data and the scientific literature that we relied upon. From our perspective, we need a little more specificity of what additional information you're requesting from NMFS because we're a little bit puzzled as to what else you would like us to provide.

CHAIRMAN ALLEN: David, would you like to follow up?

DR. PIERCE: Well, it is in the motion, but if the listing occurred because of a qualitative analysis, then I don't understand how the species could have been listed. That is my major problem with this whole process. If we cannot get any kind of a quantitative analysis, if we cannot acquire what we asked for in a very detailed way through that motion, then I guess we'll continue to be frustrated and it will make our job much more difficult as we struggle over the next two years or so to determine how to fix a problem that has been created for us by the Service.

MR. POST: One of the things that might help us rather than a qualitative overview of the listing determination would be – this slide indicates what was used in the 2007 stock status review, and this is a risk matrices. We did receive an example of a risk matrices for the Pacific salmon at the meeting. It would be helpful if we could see some sort of risk matrices or what went into the listing for the current listing and not the stock status review of 2007.

DR. LOUIS DANIEL: I'm going to do my dangdest to be nice. First off, I want to say that it is difficult for me to distinguish between the processes that we're having to go through for a Section 10 permit application and the actual question before the board right now, which is the delisting issues and the discussions with the technical committee and trying to get the information from the National Marine Fisheries Service.

We've had outstanding cooperation and collaboration with NMFS in developing our Section 10 ITP, and I appreciate the efforts of OPR to work with us. I think Angela and her group is very willing to work with us and try to get through this process. I need to separate that from any comment I make on the listing because that's really frustrating.

The difficulty that I'm having with this is that we're trying to develop an ITP and we're unable to get the data we requested back in March. We actually submitted a request for the bycatch information back in March, and it took months to get a stack of papers that we had to fill out and get signed by anybody on staff that was going to even be looking at the data.

I don't know how many other states have applied for that; but if you do have any intentions of seeing that information, you need to apply for that information. I think the bottom-line problem, David, is we all disagree with listing. NMFS agrees with the listing, but there doesn't seem to be any interest on NMFS behalf of getting together and trying to resolve those differences.

For the technical committee to get a primer on the listing criteria is kind of silly. We all know what the process is. We don't agree that they should be listed as an endangered species and NMFS does. Shouldn't that be the start of this? Shouldn't we be sitting down with the NMFS scientists that believe that the listing is warranted and have that back and forth with the states as to let's get into a scientific debate on this, because we're going to get into it now or later.

I would rather get into now at a technical committee level than in court or wherever it is this thing ends up. One of the difficulties that I'm having is – and I'm not trying to be disrespectful to the technical committee, but it NMFS can list the things without a stock assessment, why do we have to wait two years for a stock assessment to request that they be delisted?

I think we have ample information. I agree that we need a stock assessment. I agree that it needs to be the top priority stock assessment for the Atlantic States Marine Fisheries Commission because of the implications, but I've got a target on my back in North Carolina; probably more so than anybody around the table.

We're going to have to put in some very significant reductions and have significant impacts to our fisheries when deep down in our

heart we're not doing it to protect the sturgeon. I don't think anybody is going to putting in regulations to protect sturgeon, deep down in your heart, because we don't think there is a problem.

The only reason we're going to be putting in regulations is to keep from getting sued by an NGO. That's the only reason, and so we're going to spend millions and millions of dollars up and down this coast simply to keep from being sued by an NGO. Now, something isn't right there. I implore the leadership in the National Marine Fisheries Service – it is far above Angela's head. I think it is far above John's head.

I implore Sam and Eric and Jane to have their staff identify those folks that think it is a good idea. I don't know who they are; can't find out who they are; but have them sit down with our technical committee and let's have a real rigorous scientific debate on what they believe are the merits of this listing and let's give them our thoughts back. That's the critical first step.

I would argue that we've got to start the delisting process as soon as possible. If we have to supplement that with assessment information down the road, so be it, but look at the delisting criteria for sea turtles. It is impossible to meet that standard. If we don't get on the ball and get our delisting petition in before they come up with the delisting criteria, we've got to back them into a corner on this. If we wait for the delisting criteria, they could be as onerous as sea turtles and we'll never see a delisting, so keep those things in mind.

CHAIRMAN ALLEN: Thank you, Louis, I feel your pain on that. I know we have started our confidentiality agreement and we're just waiting for NMFS to come back with the okay to move forward. We're getting our observer data. We've been down same road as you. We can't do anything with our Section 10 until we get that data. Jim, you had something.

MR. JAMES GILMORE: Mr. Chairman, just to add to Louis' comments and just maybe a little history on this for the Service, we go back to the state directors' meeting and we had requested information. We were trying to get the data because that is the thing that makes no sense to us. The questions asked at the state directors' meeting was 1998 the species was put up for a listing, and the population was in a lot worse shape back then, and it wasn't listed.

Now, all of a sudden we're catching sturgeon like we have never seen in years and, voila, it is listed. Now what we're going through at least in New York and I believe along the coast is that we're catching so many sturgeon and we're figuring out how we're going to do these Section 10 permits, and I will tell you what happened yesterday.

New York was at least fortunate that we had a research study going on so we got our research permit very quickly, and we appreciate your assistance on that. However, we're using that data along with – we have a utility service data set that we use to help for things beyond sturgeon. Also, we use it for our striped bass and shad adult survey and our adult stock assessment, and we use that on an annual basis.

There is a consultant, Normando, that applied to Silver Spring for their research permit and they got conditions. They sent us a letter telling us that there is a new condition in there that says if the water temperature goes about 28 degrees, they have to stop their survey because of impacts to sturgeon. As of yesterday we're not getting our data to do our striped bass and shad information.

We can't get that data so now it is going beyond sturgeon. It is affecting our other stock assessment issues and essentially our data that we're collecting to manage our fisheries. Now, this is a new one that just came out of the woodwork yesterday. We had no idea about it, and now we have a temperature criteria built in there. We're trying to get the data to help us out, but we're going back to that first point – and Louis said it very well – we need the data you guys came up with because it makes no sense to us. Thank you.

CHAIRMAN ALLEN: Yes, that is a new one. That really makes things difficult for all states up and down the coast, especially with those striped bass surveys. Hopefully, that doesn't filter our way for a while. Where are we going to go? I agree that we need to go forward with a stock assessment. I'm not sure I agree with Louis and starting the delisting process at this time, but I would like to hear from you guys and see where we're going to go. Jaime.

DR. JAIME GEIGER: Mr. Chairman, I think that was a wise suggestion. I think by all means a stock assessment would be very beneficial. I think it is very important, but for the record the Fish and Wildlife Service will not comment on any issue relating to delisting of Atlantic sturgeon. If there are any questions that come up or any comments or if this board chooses to link these various recommendations of the technical committee, if there is a delisting part of that, the Service will abstain and not participate in that discussion.

I would urge this board that certainly from the Fish and Wildlife Service perspective, we support a stock assessment. We think that would be very, very important to resolve some of these ongoing questions and concerns, but we will not participate in any decision or vote on a delisting. Thank you.

DR. DANIEL: I'll try to start you out. **I will make a motion that the Atlantic Sturgeon Board recommend to the Policy Board that a Benchmark Atlantic Sturgeon Assessment be top priority for – help me out here – 2013 or 2014. I will say 2013 and then we'll hear from staff.** That would be my first motion.

CHAIRMAN ALLEN: Do we have a second for that? Adam. Go ahead, Pat.

MR. PATRICK AUGUSTINE: I guess I'd ask Bob Beal to respond to that again, the issue we went through yesterday about what was the most important stocks that we have got to conduct and the fact that our staff is what we are; could this possibly be another assessment that would be farmed out and again where is the money coming from?
I agree that we need to do something, but to sit here on our thumbs doesn't make sense either. If Bob would respond to that; again, it is going to come up before the policy board I guess to decide which way we're going to go. Here we are at a crossroad again, which is more important, sturgeon, menhaden, what?

ACTING EXECUTIVE DIRECTOR ROBERT E. BEAL: At the Policy Board yesterday, the Policy Board asked the Assessment and Science Committee to work with staff and come back with some options on moving forward with all the list of species that are already on the schedule for 2013 and 2014 and then try to figure out menhaden and sturgeon could be slipped in there.

I think sturgeon is a little bit unique in that the scientists that sit on the Sturgeon Technical Committee and probably would be on the stock assessment subcommittee; a lot of those scientists I don't think are on other species that ASMFC does. We don't have as many sort of technical bottlenecks. The time of the technical folks is not as big a bottleneck as it is with some of the other species.

The money issue is obviously there, the data compilation issue, and the other things going into an assessment. We need some feedback from the technical committee on how quickly they can compile the data and pull together an assessment. I don't know if 2013 is feasible or not. I don't know if Bill can comment on that, but I think all these things have to be looked at together.

You can't just look at sturgeon and not consider the other – now it is I think up to nine or ten species that are on the list so all things have to be prioritized. I think the plan was to bring that back at the annual meeting and include sort of a suite of options. If this is the commission's highest priority, we can go this way. If menhaden is the highest priority, we can go this way.

We can start looking at some of the options that we were talking about yesterday such as getting contractors to do some of this work. Obviously, I'm not sure where the money comes from, but we can try to do that. It's just hard to sort of calibrate all these moving parts on the fly at one of these meetings. I think it is going to take some time and the assessment committee looking at workloads of individuals, looking t the amount of work and the amount of time it takes to get these assessments finished and the money issues are obviously there as well.

MR. AUGUSTINE: Thank you for that, Bob. That was what I thought your answer was going to be, so it looks like at the annual meeting we will reprioritize what we're going to do in the next two years and go from there. Another point was what action can we take to follow up on Dr. Pierce's comment in that we're frustrated, you're frustrated, Mr. Chairman; the information you're asking for; can we get a commitment from the National Marine Fisheries Service or from John, our new regional administrator – that he may

jump in here and muddy up the water – to get us the additional information we need, whether it is a matter of one, two or three meetings with the scientific group from NMFS that participated in this decision, then I think we should move forward and make a commitment to do that.

It is obvious to go down the trail or the path of legal action only muddies the water even more. By the time you get into a he said, she said, we said, they said, you're talking about wasting two, four, five, six, seven more years and we get nowhere. It seems to me the issue is that there was a disconnect between the information – I'm sorry, how the information was used according to what you've said, Bill, and following along that vein would it be possible to write up a letter again clarifying what we said in that motion with specifics and try to get a date certain or a commitment from NMFS, the National Marine Fisheries Service, without bending their nose out of shape too much.

But the fact is we're looking for a reasonable approach to solving a very rough issue that we're dealing is. I haven't seen an analysis yet as to what the economic impact is on commercial fishing for the areas that are going to have to be closed off and habitats that are going to have to be protected.

I still believe that deep down inside that the reason this listing was put forth was another attempt, in my humble opinion, to literally put the commercial fisheries out of business. That is a big reach; but when you stop and look at how this occurred, why it occurred and when it occurred, with the data that was made present and the doors that have been closed to our technical committee to get the information that we need to feel more comfortable with that decision or to even move forward with a delisting.

Before we go through the business of the Section 10 and Section 7, the states are going to be spending, as Louis said, millions and millions of dollars trying to figure out how to address this issue and keep our fisheries alive. If the sturgeon needs to be listed, fine, fine, but let's make sure it is the right listing, whether it is endangered, threatened or whatever and go from there.

CHAIRMAN ALLEN: Just to follow up on a couple of things, I think in the technical committee slides, they said maybe a year and a half to two years to get a stock assessment done. That was what you guys were estimating so I think that gives a little clarification on how long it is going to take.

Pat, you mentioned economic impacts to fishermen, but just remember that does not go into anything that NMFS did in their listing. Economics can't be taken into effect. We could probably move forward with a letter of some sort. We will see how the conversation goes, but I don't see any problem with that. Jaime.

DR. GEIGER: Again, this probably is a question to Bob Beal, if I can; is this an issue of funding to initiate a stock assessment; is it an issue of workload; we have too many stock assessments being requested for too few population dynamics folks; is it a combination of those? I'm trying to get a good handle on what is the limiting factor that prohibits or is inhibiting us from moving forward with reranking these particular stock assessments.

Certainly, from the Fish and Wildlife Service perspective, we would be glad to volunteer additional personnel that have stock assessment expertise to assist if that would help the commission in this process. Again, I'll just reemphasize I did ask for at some point in time a good, clear set of criteria that we can use as a commission to deal with these kinds of situations in an adaptive management perspective so that we can make what we need to do in a timely manner on these priority species. Thank you, Mr. Chairman.

ACTING EXECUTIVE DIRECTOR BEAL: I think it is a combination of both. It is the tradeoffs of different species. There are individual technical committee members, stock assessment subcommittee members that are on four or five of those species. I know Katie is probably on four or five of those species at least, and so is Genny in the back of the room.

We have got to sort out their time. Some of these assessments, even though they're not scheduled to be peer reviewed until 2014, all the lead-up work has already started for some of those. How can we calibrate all that work; and it is both, the money and the personnel issue. If there are more assessment folks that we can put on this, that may alleviate half of our problem.

MR. DOUGLAS GROUT: Mr. Chairman, first of all, to the priorities, Jaime, as Katie I believe mentioned yesterday, the Assessment and Science Committee, which is the committee that we have tasked with setting these priorities, does have criteria so there is criteria that they are using as far as at least what I thought I heard yesterday. They bring recommendations to us.

Now, here in this case if the policy board agrees, we'll say this is the top priority and then they'll figure out through their criteria what is going to be bumped, if needed. Secondly, I certainly would support this motion. Because of the listing, I think it is important we try and get an assessment together.

Thirdly, to the difference in perception between the Service and the technical committee here about whether information has been provided, I agree with Pat that what the chairman and the technical committee should do is sit down and look at our motion and look at what you got for information and say this is what was missing and be very specific about it, resend a letter to the Service and say this is the information that we feel is missing that we need to do the evaluation and ask that be done in a timely fashion, maybe even put a date when we'd like to have the information by; just so things are clear because obviously there is a discrepancy here.

CHAIRMAN ALLEN: Yes, that sounds like a good idea. Dave.

MR. DAVID SIMPSON: I just wanted quickly say we joke that the top priority is whatever board is meeting it is that species. We talked about menhaden a lot yesterday, and I had suggested that maybe we need to get a little creative in our thinking about how we fund these things and who does that work.

It is not for this board but if the policy board meets before we're done, I think we should consider – I'll throw the idea out there because it is largely the same group – writing a letter to Omega Protein and writing a letter to Pew to explore their interest in funding a stock assessment for menhaden; put them in the same room together; let them scratch it out with the details.

You've got pressure from both sides pushing to the middle. It needs to pass our muster. Obviously, we're the customer in this case so we have no less of a role in making the ultimate decision on the assessment. I think we have to get creative and let them hire a university from anywhere in the country or world that they agree to and we agree to and take the pressure off of the limited budgets that we have to work with.

They both have huge, huge investments and clearly at least one of them has huge, huge money to fund that sort of thing. We should at least explore the interest and if there is a policy board, I'll bring it up again there.

CHAIRMAN ALLEN: I think the one good thing is the technical committee for sturgeon is very unique, as Bob said, and there are a few members on there that have no state alliance and are willing to help out. I think that is going to be a key factor in moving sturgeon forward, so we'll see how that goes, too. Bob.

MR. ROBERT BALLOU: First just a point and that is I'm wondering if you, Mr. Chairman, and/or the technical committee has received a 48-page document prepared by Mr. Dadswell from the Acadia University, titled "An Analysis of the Scientific Data Used in the NOAA Listing of the U.S. Atlantic Coast Atlantic Sturgeon Population as Endangered," which I found to be a very compelling document and concluding that the listing of the Atlantic coast population of Atlantic sturgeon as endangered is based on out-of-date data, incorrect analysis and poor understanding of the life history and characteristics of the species and should be reconsidered. My first question, and then I have a follow-up comment, is has that been received by you and the technical committee and is it in the record?

CHAIRMAN ALLEN: Yes, I think everybody got a copy of that, including the technical committee. I will let Bill talk to how the technical committee handled it, but they got it just before meeting so I don't think they really had time to do anything with it.

MR. POST: Yes, we received that document the day before the meeting, and we weren't able to digest the information in it given the timeframe. Folks kind of looked at it and looked at the information in it. Andy Kahnle, who was on the phone, was going to prepare comments to that. You have read it; correct?

MR. BALLOU: I have, yes.

MR. POST: The short answer is the majority of the members of the technical committee were not given enough time to digest the information.

MR. BALLOU: Thank you; and if I could I have a followup. I'm really struggling to understand how we can move forward with a benchmark assessment which will be drawing at least in part if not large part on bycatch analysis which is now in essence saying illegal activity in a meaningful way – in a way that makes any sense at all.

I just feel that we're upside down on this issue. We're trying to undertake an analysis of a stock for which any interactions are illegal. How do you go about doing that I just don't know? I'm going to throw out a suggestion, and I'm sure it is going to be a challenging one, but I'm just going to throw it out; and that is the most rational and reasonable way to approach this issue would be to seek a suspension of the enforcement or implementation of this listing for a two-year period based on a commitment to move forward with a benchmark assessment during that timeframe.

I just feel that given the points you raised in your technical committee report, the very same people who are going to be working on these Section 10 permits are the people who are going to be called upon to conduct the assessment. We're just caught up in an impossible bind here. I feel like it should be in the Service's best interest, certainly the states interest, everyone with an interest in this species to focus on what needs to be focused on right now; and that is a new benchmark assessment to fully understand the status of this resource and devoting all resources toward that and not being diverted by the Section 10 permit process and the incredible awkwardness of being in a position now where any fisherman or any scientist – I guess you're going to need a Section 7 permit in order to undertake your assessment, because I assume you're going to want to interact with a sturgeon or two during the assessment.

I just feel like we're in a really awkward position in that it would be sound public policy to try to move forward in the way that I see suggested. I realize that current federal rules might not allow that. Maybe it would take an act of congress and maybe that is what we need. Thank you.

MS. KATE TAYLOR: Just as a reminder, in March the board did send the National Marine Fisheries Service a request for a 12-month delay in the effective date of the ESA listing, and NOAA Fisheries did respond and denied that request.

CHAIRMAN ALLEN: I guess we could always try again, but I don't thin it is going to get us anywhere. We do have a motion on the board. I would like to get through that as quick as possible. Jim, did you have something?

MR. GILMORE: Yes, just an FYI. Bob, the Dadswell Paper and also Andy Kahnle's rebuttal was put in the supplemental material, so it is all in there if you want to read all the details.

MR. BOB ROSS: Mr. Chairman, just a couple of things from NMFS perspective. We are clearly receptive and willing to continue the information exchange and the dialogue relative to our process we went through. At the same time, we've heard from the technical committee that both the stock assessment and efforts to down-list/delist will take some time.

NMFS at this point is attempting to move forward to address the concerns regarding the legal coverage in all of these fisheries. While we fully support assessments and efforts by the technical committee for data collection, at the same time our focus at this point is attempting to protect these fisheries going forward, both working with the states through the Section 10 process and also at the federal level through our Section 7 process. That is our highest priority now; and if that means further data assistance or other assistance that we can provide to the states as they attempt to shelter their fisheries through the Section 10, we are available for that. Thank you.

CHAIRMAN ALLEN: Thank you, Bob. Is there any other comment on the motion at hand? Seeing none, I will read the motion; move that the Atlantic Sturgeon Board recommend to the ISFMP Board that a sturgeon stock assessment be of top priority for 2013. Motion by Dr. Daniel; second by Mr. Augustine. Is there any dissent to that; any null votes; abstentions**. The motion passes unanimously.** All right, we have a stock assessment up on the board; where do we go from here? Louis.

DISCUSSION OF DEVELOPMENT OF DELISTING PETITION

DR. DANIEL: I'm going to try this because I do think – and I know we may disagree, Mr. Chairman, but Jim Chambers can petition NMFS to list white marlin without a stock assessment. NRDC petitioned NMFS list Atlantic sturgeon and I believe river herring without a stock assessment. Those actions have been taken without a stock assessment.

It seems like to me that based on all the discussions that I've heard from the various states and specifically maybe the information that Kelly Place has been collecting in Virginia, a lot of the fisheries-independent information that we have collected in North Carolina, it seems like there is a lot of information out there that was not considered in the listing decision by NMFS.

Now, it is difficult to know what is new information that would justify a delisting criteria when we don't know what information was used by the Service to make the decision, so that is a little bit of a quandary. But it just seems like to me that if we wait two yeas for a peer-reviewed stock assessment before we even think about a delisting decision, we're going to be way behind the eight-ball.

I just know, based on my analysis, that this Atlantic sturgeon is going to cost my agency about $1.2 million to satisfy what I believe will be the observer requirements; not withstanding the economic impacts to the fishermen that are going to be impacted by this. That is just assuming that the primary concern from the agency is gill nets and inside waters from a state perspective**. I am going to make a motion that we move forward – direct the technical committee to move forward to develop a delisting petition for discussion and review at the annual meeting; a draft.**

CHAIRMAN ALLEN: Second by Bill Adler. Just to make sure I get this; you want a delisting or a delisting and down-listing; I just want to clarify that?

DR. DANIEL: I'm sorry, both. I think the technical committee's recommendation – I think there are some people that may think threatened is more appropriate. I personally believe delisting is more appropriate, but that is just my opinion, so I would say both.

CHAIRMAN ALLEN: Okay, comments on the motion. Dave.

MR. SIMPSON: I certainly understand the motivation, but Bob Ballou's comment about dividing the same people two and three different ways; you know, I've got concerns about our ability to deal with what is right now and what is, is that they're listed and we need to do a lot of work to respond to that. We've already done some unilaterally, but there is a whole lot of work to do to get an individual take permit, so I would be concerned about the amount of time this would take and its likely fruitfulness.

MR. MITCHELL FEIGENBAUM: Being my first meeting, I'm a little nervous to wade into controversial waters, but as I hear the discussion around the room I feel compelled to share my thoughts. I heard some say perhaps it would take an act of congress to deal with the consequences of this listing.

I heard someone say that this listing can disturb or disrupt this commission's efforts to conduct stock assessments for other important species. It all comes back to a point that has been talked about, whispered about and is actually of great concern, and that is there is a political component to some of these listing efforts.

I think that at some point it needs to go on the record – I've never seen anywhere on the record the discussion about the fact that some of the petitions for listings under the Endangered Species Act are being pursued by interests that actually are hoping for a listing for the sole purpose of accomplishing exactly what is happening in this room today.

There are interests that feel that listing wide-ranging east coast species is going to have an effect of calling attention to problems in the Endangered Species Act that will hopefully result in the Endangered Species Act being seriously reformed or scrapped altogether. Now, I'm don't think I'm saying anything that most of the people if not everyone in this room hasn't heard already.

I think that it is a part of the picture here that in the back of everyone's mind, and I think it is not inappropriate to have it out on the table that this is part of either the reality or at least the perception of what is going on here. I'm not

sure how I would vote on this motion, but I'm glad that we're talking about it.

I think it would be appropriate if this board feels that parties in the public are using the Endangered Species Act process to undermine the Endangered Species Act, then we ought to take a stand or at least have the discussion about taking a stand to add our voices in opposition to that kind of effort.

CHAIRMAN ALLEN : I agree that it probably is going to be most of the same people working on a delisting and the stock assessment. It is kind of tough, and I know Jaime already mentioned that maybe the Fish and Wildlife Service and I expect NMFS wouldn't be involved in the process that is going to have a delisting or down-listing part to that. That would take away from some of our stock assessment capabilities, I would think, just remember that as we move on. Adam.

MR. ADAM NOWALSKY: Mr. Chairman, I appreciate that one of the components to this motion does put a time-specific effort point on developing the petition. When we don't know when the stock assessment work would occur, I don't think we're actually splitting resources at this time because we're tasking people with something to be done in the next ten weeks.

Without a stock assessment on the schedule right now, we're not splitting their time. I'll also focus on a couple of the specific points that was brought up by the technical committee in the written memorandum dated August 2nd. A species may be delisted again on the basis of the best scientific and commercial data available.

I think we all agree that through a delisting process or a down-listing process, that better data is going to be put forth as part of that process. I think we all agree that the data that was used, whether we agree entirely with the summaries of the Dadswell Paper, it certainly highlights a lot of the deficiencies in the data set and highlights the fact that there is better data available.

Also, that technical paper identified that the delisting and down-listing can occur because of the initial listed being in error, which again when we look at all of the data that is currently available and we feel wasn't considered, and the fact that this board hasn't been able to get specific data answers from the Service, I think we all agree that there are serious issues with the listing as it is currently written today. Therefore, I would support this motion for those reasons.

CHAIRMAN ALLEN: Seeing no more comment from the board at this point, I guess I would ask the public if they have any comment on this?

MR. ERIC BRAZER: Thank you very much, Mr. Chairman. I'm Eric Brazer. I'm with the Cape Cod Commercial Hook Fishermen's Association. I'm also a member of the New England Council's Ad Hoc Sturgeon Committee, but I'm here today to represent the Hook Fishermen's Association, the Associated Fisheries of Maine, the Northeast Seafood Coalition and the Commercial Fishery Center of Rhode Island. I want to bring to your attention the letter that was dated July 31st and the attached scientific report from Dr. Dadswell.

He did analyze the data used for the listing determination, and our organizations firmly believe that his rigorous review of the data demonstrated that a listing is not warranted. We respectfully request the consideration of the petition to delist as the motion is on the board. I won't go through the details of the research, but he does point out the last assessment was a decade and a half ago. That is a long ago to make these critical decisions.

It additionally means that there is sixteen years of recruitment that aren't included in the analysis for the listing. Dr. Dadswell also noted that the data was incomplete because it only looked at an intercept rate in a single river and was extrapolated across the entire region. A long story short, it means that effectively the analysis used for the listing misses a large portion of the adult sturgeon population.

In conclusion, Dr. Dadswell's results demonstrate that there is three to five times more adult Atlantic sturgeon than is believed than a part of the data for the listing. We believe that based on this new, credible, current information that we fully support this motion and we recommend the delisting based on that. Thank you very much for the time.

MR. DEWEY HEMILRIGHT: My name is Dewey Hemilright. I'm a commercial fisherman from North Carolina. This sturgeon issue affects us greatly in our gill net fishery in North

Carolina; predominantly in the inside waters and the state waters and the ocean. I mostly fish in the ocean.

When this listing happened, it was probably the most baffling listing I've heard to come out of fisheries because 20 years ago it should have been listed when nobody saw no sturgeons and now they're probably thicker than fleas. The comments around the room today, the majority of them, overwhelming majority were really good.

This needs to be delisted or at least it is kind of troubling that the information that listed this species or the decision to list it, the information that should be given out to the states about the reason why or the pile of information why it was listed. This has a devastating effect on North Carolina. I'm sure it will in other states up and down the coast.

As fishermen our livelihoods and jobs are important, and this is one listing that is just troubling as heck to the fishermen up and down the coast because a great majority of your interactions that you're having with sturgeon, you're not killing them. But it just seems like, as Mr. Augustine's comments were, that there is another reason for this listing.

I just ask as this board and at the states' level, because it affects the states more so than the federal government or the federal fisheries, per se, is go with delisting and stick up because it seems like the data is on your side; and the other side that decided to list it, well, it don't seem like the data was very forthcoming to give to the states.

I would ask that everybody vote for this motion and let's see if this mess can't be cleaned up because it is going to affect the livelihoods of a lot of fishermen and their jobs in our coastal communities. Thank you.

CHAIRMAN ALLEN: Thank you. Kelly, we're starting to run a little late on time, so, Kelly, if you can make it quick.

MR. KELLY PLACE: The vast majority of my comments I'm going to submit in writing at a later time so the meeting can move on. I do want to address what one gentleman from Rhode Island – I think it is Rhode Island – mentioned a moment ago about some of the restrictions on research in fisheries and other activities, if there was a possibility that they could be suspended or put into abeyance for a year or two.

That goes to another comment that was made that during a stock assessment presumably scientists will want to interact with a few sturgeon. Right now under the current research permit conditions, at least the ones that have been granted, research to fulfill NMFS data needs has become so onerous and inefficient you may as well not go out there.

For example, our project in the eighth year, while we were given what we thought was permission to continue to collect DNA and fulfill a number of NMFS long-standing data needs, on April 6th when the listing came down we were told that no longer could we tag them, no longer could we collect DNA, we can't measure them, we can't even photograph them.

Now, if we set out on a shoestring to fulfill these long-standing data needs that NMFS has, yet NMFS through their actions and inactions create a situation where those data needs cannot be fulfilled, then it is almost like a self-fulfilling prophecy that they never will be filled. As far as the previous original discussion of whether NMFS took into consideration the various data that was available before the listing, I have serious disagreement that they took into consideration major important data such years of bycatch mortality analysis that didn't square with the bycatch mortality rates that they used in determining their listing.

A lot of this that we did in the Chesapeake was also backed up by data from John Olney and other people at VIMS regarding the bycatch mortality of sturgeon in a gill net; many times lower than the Stein and other papers that they used to make their assessment. I really think the gentleman from Rhode Island suggestion that some of these onerous restrictions be put into abeyance if there is any possibility, even if it requires going to court and asking for an injunction, otherwise the research that is going to be needed to underlay the stock assessment will essentially become so inefficient that it will difficult to conduct at all.

I'm just going to leave it like that and submit a number of other comments that I have in writing, except to point out that in the stock assessment I really think that the ASMFC needs to be doing it.

I presume obviously the ASMFC plans to do that. I also assume most people know about the recent House Resolution 6096 that was an amendment to the reauthorization to the Anadromous Species Fish Conservation Act whereby congress – and whether they'll actually appropriate the money, I think was suggesting it be put forward, $4.5 million each of the next five years to do a stock assessment and to analyze all this DNA that is out there that NMFS has failed to analyze even though, for example, us, we offered it to them for eight years and they ignored that and all this other data.

Whether that money comes fruition in that bill, which obviously it is hard to see what might happen in congress, I don't know, but I do think that it should be directed to the ASMFC because I think it is a conflict of interest for NMFS to be doing a stock assessment when the ASMFC has the expertise and the institutional knowledge to do it, which NMFS doesn't have. Frankly, there is a demonstrable history of cherry-picking of data and using worse-case scenarios that were basically inaccurate when they were put forward years ago and are even more so now to underlay the fundamental assumptions that they used in this listing. Thank you.

MR. JEFF KAELIN: Thank you, Mr. Chairman, Jeff Kaelin from Lund's Fisheries in Cape May, New Jersey, and I'm going to speak for the Garden State Seafood Association, which we're very active in and which I support when I can in support of the motion. I won't take any more time than that. It is incredible to me that this animal was listed with the data that is in front of everybody.

We know that Kevin Warwick was working with Dewayne Fox in the Delaware River and catching more sturgeon than I think the agency even ever believed existed. It is a real problematic situation and we support a full court press against changing the listing. Thank you.

CHAIRMAN ALLEN: Thanks, Jeff. Is there anybody else from the audience? If not, Jaime, you had your hand up.

DR. GEIGER: The ESA is what it is, and certainly this board will do what this board is going to do, but at the same time there is another course of action, and that is certainly to move and encourage NOAA and Fish and Wildlife Service and all of us to expedite a recovery plan and get on with the business and start looking at recovering this species.

Certainly, I would encourage this board to look at doing some of these things possibly in parallel and focus the energy and efforts on all our resources to continue doing all avenues to improve the status of this particular species. I think moving forward smartly and quickly and expeditiously on putting our resources into a recovery plan would be also a very good course of action. I would strongly suggest the board to consider this option as well. Thank you.

DR. PIERCE: To the motion; it says delisting/down-listing. It is not clear to me what the maker of the motion wants. They're both separate processes, and I understand the technical committee's report to us regarding the ESA listing, provide some action options, and there is a table that shows the down-list versus the delist, so they're treated differently with positive and negatives for each one.

My question is, is the motion to delist or to down-list? My second question is in that table provided by the technical committee they note that if we want to delist, there is a negative that is not with down-listing. That negative is loss of Section 6 funding. I don't understand that; why would Section 6 funding be lost?

But if that is true, if this motion is actually to delist, then would we lose Section 6 funding that we would need from now until – well, two years from now and whenever any possible delisting or down-listing can occur, assuming it is successful. So, again, are we down-listing or delisting; and if it is delisting are we going to lose Section 6 funding?

CHAIRMAN ALLEN: I'll let Bill answer the second part first and then Louis can go.

MR. POST: The negative with the loss of Section 6 funding refers to the fact that if it were delisted and it is not an endangered species anymore, Section 6 funding only incorporates endangered species. If it's not endangered anymore, you don't have that funding source.

DR. DANIEL: I'll answer David's question in my comments, too. I agree with what Jaime said about moving forward with all this stuff, a parallel track. I'm sorry the Fish and Wildlife Service isn't interested in discussing the delisting

and down-listing side, though, because I think it is the process. That is the process that we have in the ESA.

We're not doing anything – I don't think we're doing anything that is meant to be controversial or argumentative or anything. We're just following the process, which is to delist or down-list if you don't agree with the decision that was made. I believe, David, that the technical committee, when we review their report, then I think that is when this board needs to make the decision do we delist or do we down-list.

It may be appropriate to down-list as opposed to delist; I don't know. But once we see all the information that we have put together, then I think that will be time to make the decision before the petition is submitted. But I think once the petition is submitted, it will either be delist or down-list.

CHAIRMAN ALLEN: Are you satisfied with that, David? Tom, you had your hand up.

MR. THOMAS FOTE: When I listened to Jaime's comments about we should be moving ahead, the states have been working hard. New York, New Jersey, and other states have been working hard for the recovery of sturgeon. I have sat around this table for 15 or 20 years listening to all the work. We've basically shut the fisheries down. We've done everything we have been trying to do.

A lot of what would affect sturgeon and other species we can't do anything about because the federal agencies allow for power plants to operate and things like that to go on that basically destroys our bays and estuaries. To basically help me move on, well, let's basically look at the renewing of those permits because NMFS will tell us the same thing that agencies tell me we can't affect those permits because they belong in another branch.

Well, that is our frustration here and that's the frustration sitting around the table for 22 years and trying to deal with a species that we can't control a lot of what impacts that species, but the federal government can do it. I mean, I didn't see on the endangered species they were going to go after the power plants and basically change those permits to not allow any take at all or go on because it is done by another agency.

I'm extremely frustrated as most the other people sitting around here. We will move on and we will try and do this, but it's one of those pure examples that they live by different rules at the federal agencies than we have with the state agencies, because they can quickly come in and shut us down without the necessary information that we have to put forward if we're trying to do something like that.

CHAIRMAN ALLEN: Any further comment on this? Angela.

MS. SOMMA: I just wanted to respond briefly to that. Once a species becomes endangered, any take of that species is prohibited, so for power plants take of an endangered species is prohibited for them as well. They also either have to come in for a Section 10 percent; or if they are licensed by the federal government, a Section 7 consultation would be reinitiated with them to deal with their takes.

MR. FOTE: That's the important part; they will get the permit to deal with their takes and allow the takes to go on so they can operate, and that is what I've seen before.

CHAIRMAN ALLEN: All right, no further comment, we have a motion on the board which I will read right now; move that the board direct the technical committee to develop a draft delisting/down-listing petition to be considered by the board at the annual meeting. Motion by Dr. Daniel; second by Mr. Adler.

(Whereupon, a caucus was held.)

CHAIRMAN ALLEN: If everybody is ready; all in favor of the motion please raise your hand; no's; abstentions; null votes. **The motion passes 15, 0, 2.** I think that takes care of that portion of our meeting. Ritchie.

MR. G. RITCHIE WHITE: Mr. Chairman, with you indulgence I would like to ask Louis a question. Louis, have you involved your congressional delegation in this issue at this time and do you see any benefit or need for all the states to involve their congressional delegations?

DR. DANIEL: They have contacted me. I have not sought them out at this time, but I do know that I have two congressional folks that are very interested in this. I think it would be very powerful. We are the managing agency for

Atlantic sturgeon, the states, and we've got a plan, and that plan has been usurped by a partner agency, and we disagree with that.

It seems like to me that our state delegation and our state congressional folks do need to be involved in this. What is more powerful than what we just did? All 15 states just agreed that we should pursue delisting or down-listing this decision. To me that's a pretty powerful statement coming from the Atlantic States Marine Fisheries Commission.

CHAIRMAN ALLEN: Agreed. Bill.

MR. ADLER: I agree with Louis and I know we are pursuing – the fishermen in Massachusetts will be pursuing their congressional people on this issue up there in Massachusetts. Thank you.

CHAIRMAN ALLEN: Ritchie, you have a followup?

MR. WHITE: Mr. Chairman; would there be a request from this board to all of our congressional delegations? In other words, if we're going to go down that road, should there be a unified voice in this effort?

CHAIRMAN ALLEN: Well, that's up to this board and I guess that would have to move forward to the policy board as well; so if anybody has any thoughts on that, I would be glad to hear them at this point. Louis.

DR. DANIEL: I think a respectful letter to the congressional delegations of all the member states indicating that we're following this process, that it is going to be an arduous process, it is going to be an expensive process that we have to undertake, but just to let the congressional delegations know that we're all speaking with the same voice from Maine to Florida and maybe not get into the specifics of the merits of our case or their case, but to simply inform them of what we're doing so that they all are – maybe they will all be talking amongst themselves about it.

MR. FOTE: It's a real problem because most of us – I know I do; I'll speak for myself. I support the Endangered Species Act. It has to bring animals back from extinction and it is important. You know, even though all the concerns I have with how piping plovers basically shut down a whole bunch of beaches, if is done in the right scientific manner it should happen so those birds can exist.

It is when you do something without the appropriate data or you refuse to basically work with your partners on how these things are done that it creates a problem. The letter has to be carefully worded. I mean there are a lot of people in congress that would like to scrap the Endangered Species Act altogether, and I don't think most the agencies sitting around this table could support something like that. I would see if there are any opinions on that.

But the process that they go through, they should be held to the same requirements. They should be held to the requirements of listing of species as we are to delisting of species. When they don't do their homework to do that, then that creates the problem, and I think that's more of what of what we're going for.

MR. FEIGENBAUM: I just wanted to point out although I'm in full support of the essence of what Louis is saying, that during our brief five-second caucus Pennsylvania came up with a voting decision based on the fact that we've asked the technical committee to come forward with a recommendation, that is not precisely the same thing as saying that this commission has decided to pursue a delisting or a down-listing. We've just asked the technical committee to give us advice on that and to begin the process. I think that is an important clarification because that was the basis of our vote.

MR. LOREN W. LUSTIG: Mr. Chairman, a number of minutes ago we heard the word "suspension" as a request to the federal government based upon our taking action over the next two years. We also heard the word "injunction", a more provocative word. My question is a question relating to the history of the Endangered Species Act.

Do we have any knowledge that either of those two efforts would have ever played out successfully with the federal government, either a request for a suspension or an injunction in court? I'd like to have the answer to that question.

CHAIRMAN ALLEN: Angela, do you want to touch on that?

MS. SOMMA: There is ability under the Endangered Species Act to suspend a listing. Once it has occurred, a species needs to be either changed in its classification or delisted. I'm not aware of any court cases where there have been injunctions against a listing that took it off the list.

MS. LUSTIG: I have often thought that there is wisdom in the statement what makes good common sense to the common man is probably in the world of wisdom. I feel extreme frustration in this whole process because I've dedicated my whole life to conservation and yet here I am in a struggle with a conservation organization. Perhaps the only avenue that we can take that would be effective is now in the political arena. I've been sitting here listening to words of suggestion in that arena and maybe we need to move vigorously into that arena.

CHAIRMAN ALLEN: I'm hearing arguments both ways on this so we really don't have a consensus. I'm thinking maybe it be a better idea to hold off on this issue until after we get the technical committee's recommendation on down-listing or delisting. If you agree with that, I see some heads shaking yes, I think we'll just table this until the annual meeting. Tom.

MR. THOMAS O'CONNELL: I guess this one statement first is given the partnerships that we need to fulfill our responsibilities to our constituents, it is very disappointing to listen to the discussions of the partnerships that have not been able to solve this problem. I just hope that this experience will avoid future problems as other species are undergoing the listing review process.

The point that Louis made earlier, and I would like to ask the question is Louis made a good point is that have the scientists that were involved in advising NMFS in this listing been identified – I think we have asked that question before – and have they been afforded the opportunity to sit down with our sturgeon experts on the technical committee? As our technical committee goes forward with these charges, I think if that has not occurred, that would be very beneficial to them and I would like to find out if that has occurred yet? Thanks.

CHAIRMAN ALLEN: I'm not sure who on the NMFS side actually what scientists did the work of determining the listing. I know some of the reviewers are also some of our technical committee members. I do know that so I don't know if you have insight to who actually was the scientists that were behind that, but if NMFS could handle that question, we'll see what they say.

MS. SOMMA: There were a number of staff from our southeast regional office and our northeast regional office that worked on the listing; some of whom have spoken to the committee. Damon Randall was one of those folks that were involved in the listing decision.

CHAIRMAN ALLEN: Thank you; and it would be a good idea to make sure that, as Tom said, they get together with our technical committee. Especially as we work towards the stock assessment, it might be real helpful to have them on board with that. Tom.

MR. O'CONNELL: Yes, I just echo that I would strongly encourage those opportunities to continue for that communication. It sounds like maybe one person has been involved with talking to the technical committee, and I imagine there are others that were involved in that scientific assessment that led to this listing. I think it is very important that the communication is open and continues as we go through this process. Thanks.

CHAIRMAN ALLEN: Yes, I agree with that. A.C.

MR. A.C. CARPENTER: Do we need to put that in the form of formal request to NMFS that they do that?

CHAIRMAN ALLEN: I would hope not; but I think just doing that process here, I would hope that would happen. We can make that request as we develop our stock assessment team that maybe we could have at least one of those people on board with that so we can talk about that. Pat.

MR. AUGUSTINE: Mr. Chairman, a followup on what A.C. said; we're skirting the issue again. Can we request NMFS in writing in a nice way – don't bend noses – to supply the list of their scientists that were party to that assessment and go for a date certain, either a conference call or a face-to-face sit-down with our technical people and those folks and let's get on with it.

We've talked about congressional action; we've talked about this. It's all Mickey Mouse stuff. Let's get to the crux of the issue. The crux of the issue is we need face to face with those folks. Now, if there is concern that there is going to be embarrassment on one party's side versus the other party's side because of who actually did the work; that is another issue in itself.

We've talked lawsuits, we've talked about all of this stuff and at the end of the day we've gone to another meeting and we're going to postpone anything until the next meeting. We have accomplished nothing other than made some motions that will get a process going. Mr. O'Connell, you're right on spot; you're right on spot; identify the people, try to set up a meeting ASAP, come back to the annual meeting with a report as to what the status of that activity was and then get on with our lives.

Maybe Jaime is right, just accept what we have and move on. But the outcome of where we are now, as Dr. Daniel said, the importance of getting this cleared as quickly as possible could stop a chain of events that is going to drag out for two, three, four or five years and be detrimental to the states – and when you're talking a couple of million dollars for each one.

When we heard was it Spud or someone said that they had worked on – I guess it was Tom who had said he had worked on a Section10 for how many years and then walked away with it. So let's get real and let's get genuine. Mr. Chairman, if you want it in the form of a motion, I will make it, but I want to make sure that we're abundantly clear to NMFS that we would like the names of those folks. It is not to throw stones at them; it is to get at the bottom of where we are and then we can accept what they have come up with and then move forward or reject it and then go with the delisting. Thank you, Mr. Chairman.

CHAIRMAN ALLEN: Dave, you had something?

MR. SIMPSON: Yes, I think as a fisheries conservation organization responsible for east coast fisheries we need to be really careful about the tone and temper and perception of how we're proceeding with this. We may disagree on a determination that the responsible agency made, and that's fine and we can work on that.

While I know the intent of recent suggestion was genuine and to get to the science and understanding, it can very easily be perceived as a witch hunt. I'm getting increasingly uncomfortable with a group that is supposed to be working toward conservation fighting so vigorously to prevent it and the perception that would create in the outside world.

Yes, it presents all kinds of difficulties for us. It is time-intensive but, as I said before, that is just how it is. Frankly, the interaction I've had with NOAA or the Protected Resources Division couldn't be more positive. Yes, we needed a Section 7 for our trawl survey. That took probably three weeks. The work that we had been doing prior to listing that I told staff you need to stop that immediately on April 6th in terms of extra work, tagging and forth was actually part of a requirement of our permit, so problem resolved. We have authorization to do it. You know, I just think we need to think about how this reflects on the commission and how hard we push and the tone that we set and the image that we create in the public's eye.

CHAIRMAN ALLEN: Bob and I had talked yesterday about the possibility of a conference call for the technical committee prior to the annual meeting. It sounds as if that will probably happen, so it might be just a good idea to invite NMFS again on the conference call and hopefully – you know, if we have to send a letter, we can send a letter but just an invitation to them to make sure we get the scientists that were behind the listing, get them on.

I mean, it's not a controversial piece. We're going to need that information, whatever they had, for our stock assessment, so I think we can do this very informally instead of formally. I'll task Kate and Bob and the staff to take care of that and hopefully that will end that issue. Roy.

MR. ROY MILLER: Mr. Chairman, I just wanted to take an opportunity to share some personal opinion in this regard. I fully support the motions we have taken at this meeting thus far. Certainly, an exchange of information would be nothing but helpful. However, having said that, if one of our congressional delegation came to me and asked me honestly for my opinion as to whether Atlantic sturgeon deserve "T" or "E" listing for the Delaware River population, I would hesitate. I could not give them a firm answer of yes or no.

They may deserve some sort of listing. The population hasn't been fished on intentionally in many, many years. As you know, Mr. Chairman, that population has not recovered. To the contrary, it has continued to decline during that long period of no directed fishing. I just don't want anyone in this room to feel that every single river population deserves to be delisted. Frankly, I'm not sure about the Delaware River population. Thank you for giving me that opportunity, Mr. Chairman.

MR. GROUT: Mr. Chairman, I agree with your tact here of putting together a request of NMFS to clarify the information that we want and inviting them, if they would like, when the technical committee considers this and reviews this and starts to develop the draft petition for delisting, that they could be there to discuss and be a part of that discussion.

To me it is irrelevant exactly who was involved with it, but I think it is important that the Service and their scientists be in on the conversation and the debate and discussion here. But I do think it is important that we send that letter of requesting the specific information that the technical committee felt was missing. Thank you.

MR. LEROY YOUNG: I just want to what Roy said earlier. The Atlantic sturgeon that Pennsylvania has are limited to the Delaware River. They are a state-endangered species in Pennsylvania. We're not seeing numbers recover. From our standpoint, we don't believe the actions that have been taken to date, the moratorium and so forth, has resulted in something we'd like to see and that is more Atlantic sturgeon in the Delaware. We're struggling with this, too, just in our discussions here in the short time we had to caucus. We believe that the delisting is questionable based on what we're seeing in Pennsylvania.

CHAIRMAN ALLEN: Thank you, Leroy. I assume we should be sending a letter to NMFS trying to get the data that we requested the first time. I think that is separate from a letter to get them to the table to talk about other issues. I think staff can take care of that without any further ado. I think we've pretty much beat this up today and I'd like to move on, if possible. We're starting to run a little late now, so I'm going to turn it over to Kate, who is going to talk about the Habitat Addendum for Public Comment.

HABITAT ADDENDUM FOR PUBLIC COMMENT

MS. TAYLOR: The Habitat Committee has developed an updated Habitat Addendum for Atlantic Sturgeon. This document was included in your briefing material, and it is largely based on the diadromous fish habitat document which the policy board has reviewed and approved in 2010. If approved for public comment, there will be a 30-day public comment period. Any states that are interested in holding a public hearing may do so. Final approval of the Habitat Addendum will occur at the annual meeting. Thank you, Mr. Chairman.

CHAIRMAN ALLEN: We will need a motion to send that forward. Pat.

MR. AUGUSTINE**: Mr. Chairman, move that the board accept and approve the Habitat Addendum for public comment.**

CHAIRMAN ALLEN: Seconded by Leroy Young. Any discussion? Bob.

ACTING EXECUTIVE DIRECTOR BEAL: I think technically what the board is doing is initiating the addendum and approving for public comment. We still have to craft the document. It is pretty straightforward, but I just want to make sure we're all going in the same direction.

CHAIRMAN ALLEN: Okay, the motion is move that the board initiate and approve the Habitat Addendum for public comment. Motion by Mr. Augustine; second by Mr. Young. Do we have any comment on that? If not, any dissention? **It passes unanimously**. The next issue we have is Section 10 application updates.

SECTION 10 APPLICATION UPDATE

Just to let you know where New Jersey stands at this point, just after our meeting in May, we had our Section 7 approved for our federally funded projects, so we move forward with that. We're also in the process working with the northeast getting our Section 10 completed. We've already been through a review and got some great comments back from them.

We know exactly what we're doing in the process now. We're still waiting for the data, as I said before, from the observer people. Once we get that data, we're gong to plug it in. My

Section 10 now includes all sea turtles, Atlantic sturgeon, and by the time we get done probably river herring. It is already over a hundred pages. I can't wait to see how long it gets after that, but that is where we are. If anybody else wants to give an update, please do so.

DR. DANIEL: Yes, likewise, North Carolina submitted an application on April 2nd, a draft. We're real close to getting the bycatch information that I think will help us finalize our application. We, too, have had very conversations with NMFS Protected Resources staff, and they have been working very closely with us to get comments back to us in a quick manner.

We had a very good meeting with them on Tuesday afternoon as well going over our various sturgeon and turtle issues and trying to come up with ways to consolidate some of those activities where they overlap. There seems to be a real interest by both us and NMFS to try to put something together in a good format. We're encouraged by the progress.

MR. GILMORE: We're pursuing it also just as one complication we have. I believe that New York is the one state that has a full agreement under ESA and there are some complications with just adding sturgeon onto that that affects not only marine species but our terrestrial animals also. We worked with the Service to make that happen, but there are more delays because of the bigger picture of that full agreement. Thank you.

ADJOURNMENT

CHAIRMAN ALLEN: If nobody else has anything, I don't think we have anything else to come before this board. I don't think we need a motion to adjourn either; it's over.

(Whereupon, the meeting was adjourned at 9:15 o'clock a.m., August 9, 2012.)

Atlantic States Marine Fisheries Commission

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Sturgeon TC Assessment Planning Considerations

The Sturgeon TC met via conference call on September 13, 2012 to discuss the potential timeline for a stock assessment, personnel availability, and challenges that will need to be addressed.

1. SASC volunteers

Name	State/Agency
Matt Fisher	DE
Mike Loeffler	NC
Laura Lee	NC – **Carolina DPS lead**
Dave Secor	UM – CBL
Dewayne Fox	DESU
Mike Bednarski	MA
Christine Lipsky	NMFS
Andy Kahnle	NY – **New York Bight DPS Lead**
Kathy Hattala	NY
Eric Schneider	RI
Eric Hilton	VIMS
Bill Post	SC
Gail Wippelhauser	ME

2. Expected timeline for assessment completion

Data collection was estimated to take between 3 months to one year. The TC felt that having the stock assessment completed and reviewed in late 2014 was optimistic, and that most likely an early 2015 peer review date would be more realistic. Based on the amount of time that would be necessary to pull together existing data, the TC recommended the first Data Workshop be held in March 2013, with a second Data Workshop tentatively scheduled for September 2013. Most likely this assessment will be an ASMFC External Review, as the SEDAR and SARC schedules for 2014 and 2015 are booked.

3. Areas that could potentially be challenging for the assessment

- *Bycatch.* Analysis of bycatch data, especially in southern waters, is not covered by NEFOP.
- *Genetics and stock structure.* There is currently a backlog of genetic samples of sturgeon as well as on-going collection work, and it is unclear when the analysis of those samples will be complete, but they will contribute to stock structure determination.
- *Proprietary data sets.* While many data sets available for sturgeon are collected by state or federal agencies, academic and private institutions, such as power companies, also hold data sets and the SAS will need to try and increase cooperation and participation.
- *Canada*. The range of Atlantic sturgeon includes Canadian waters, and the TC should reach out to Canadian agencies to bring them and/or their data into the assessment process.
- *Lack of data.* Some regions are very data-poor; when we reach out to other potential participants, we should be sure to include modelers with data-poor expertise as well as sturgeon experts.

Atlantic States Marine Fisheries Commission

DRAFT HABITAT ADDENDUM I TO AMENDMENT 1 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR ATLANTIC STURGEON FOR PUBLIC COMMENT

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

September 2012

Public Comment Process and Proposed Timeline

This addendum is intended to provide supporting information on Atlantic sturgeon habitat needs and concerns and does not impact current regulatory measures.

The public is encouraged to submit comments regarding this document at any time during the addendum process. The final date comments will be accepted until **5:00 PM (EST) on October 9, 2012.** Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comment, please use the contact information below.

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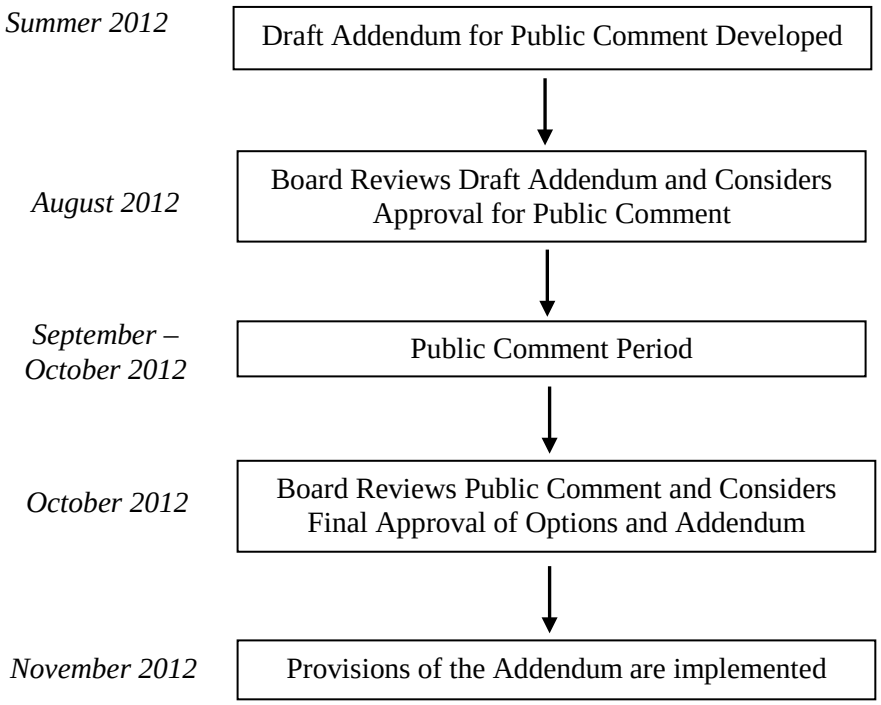

ATLANTIC STURGEON HABITAT ADDENDUM

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 to76 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 yolksac larval stage is completed in about 8 to12 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 yolksac 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 28ºC 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 (^{o}C)	Salinity (ppt)	Substrate	Current Velocity (m/sec)	Dissolved Oxygen (mg/L)
Adult (Spawning)	Freshwater rivers and possibly tidal freshwater regions of large estuaries (in the north) Feb – Southern states April and May – Mid-Atlantic May to July – Northern States and Canada Sept to Dec – Second spawning documented in Southern regions	**Tolerable:** NIF **Optimal:** 2.4 to 8+ m (HSI model for Southern Regions) **Reported:** 3 to 27 m	**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	**Tolerable:** 0 ppt **Optimal:** 0 ppt **Reported:** Above the salt wedge in fresh water.	**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	**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	**Tolerable:** NIF **Optimal:** NIF **Reported:** NIF
Adult (Estuarine)	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. Downstream migrations occur Sept to Nov in Canada. Present in South March to Oct. Overwinter in the ocean.	**Tolerable:** NIF **Optimal:** NIF **Reported:** 1.5 to 60 m	**Tolerable:** NIF **Optimal:** NIF **Reported:** Adult sturgeon documented in waters with temperatures as high as 33.1°C in SC	**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.	**Tolerable:** NIF **Optimal:** NIF **Reported:** Found over fine mud, sand, pebbles, and shell substrate	**Tolerable:** NIF **Optimal:** NIF **Reported:** NIF	**Tolerable:** NIF **Optimal:** NIF **Reported:** NIF

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 month 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

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