Atlantic States Marine Fisheries Commission

American Eel Management Board

November 3, 2015
10:15 – 11:15 a.m.
St. Augustine, Florida

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 (*J. Clark*)	10:15 a.m.
2.	Board Consent • Approval of Agenda • Approval of Proceedings from August 2015	10:15 a.m.
3.	Public Comment	10:20 a.m.
4.	Update on Endangered Species Act Listing Determination by USFWS (*M. Millard*)	10:30 a.m.
5.	Technical Committee Report (*M. Waine*) **Action** • Review Recommendations on Maine Life Cycle Survey Design	10:35 a.m.
6.	Consider Addendum IV Implementation Plans (*M. Waine*) **Action**	10:45 a.m.
7.	Consider Approval of 2015 and 2014 FMP Reviews and State Compliance (*M. Waine*) **Action**	11:00 a.m.
8.	Consider Approval of a Deadline Waiver for the Aquaculture Plan under the Sustainable Fishery Management Plan Section of Addendum IV (*L. Daniel*) **Action**	11:10 a.m.
9.	Other Business/Adjourn	11:15 a.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

Atlantic States Marine Fisheries Commission

MEETING OVERVIEW

American Eel Management Board Meeting
November 03, 2015
10:15 – 11:15 a.m.
St. Augustine, Florida

Chair: John Clark Assumed Chairmanship: 8/15	Technical Committee Chair: Sheila Eyler (USFWS)	Law Enforcement Committee Representative: Cornish
Vice Chair: Martin Gary	Advisory Panel Chair: Martie Bouw	Previous Board Meeting: August 5, 2015

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 2015 Board Meeting

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-up 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 Board Chair will not allow additional public comment. 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. Update on Endangered Species Act Listing Determination by USFWS (10:30 – 10:35 a.m.)

Background

- USFWS conducted a status review for American Eel because it was petitioned to be listed under the Endangered Species Act.
- In October 2015, the USFWS determined that a listing of American eel under the Endangered Species Act is not warranted at this time.

5. Technical Committee Report (10:35– 10:45 a.m.) Action

Background

- Addendum IV requires that any state or jurisdiction with a commercial glass eel fishery must implement a fishery-independent life cycle survey covering glass, yellow, and silver eel life stages within at least one river system.
- Maine developed an updated life cycle survey based on recommendations from the Technical Committee (TC) and a working subcommittee (**Briefing Materials**).
- The TC reviewed the updated survey design and formulated recommendations to the Board regarding approval of the life cycle survey design (**Briefing Materials**).

Presentation

- Technical Committee Report by M. Waine

Board Actions for Consideration

- Consider approval of Maine's life cycle survey design

6. Consider Addendum IV Implementation Plans (10:45 – 11:00 a.m.) Action

Background

- Addendum IV contains management triggers where if the coast wide quota (907,671) is exceeded by more than 10% in a given year (998,438 pounds), or if the quota is exceeded by any amount for two consecutive years, then state-by-state commercial yellow eel quotas will be automatically implemented as detailed in Addendum IV.
- As required by Addendum IV, states/jurisdictions submitted implementation plans for Technical Committee (TC) review that detail how a state intends to monitor and manage its quota if triggered (**Briefing Materials**).
- The TC met to formulate recommendations on Addendum IV implementation plans (**Briefing Materials**).

Presentation

- Review of Addendum IV Implementation Plans and TC recommendations by M. Waine

Board Actions for Consideration

- Consider approval of Addendum IV Implementation Plans

7. Consider Approval of 2015 and 2014 FMP Review and State Compliance (11:00 – 11:10 a.m.) Action

Background

- State Compliance Reports are due on September 1 (**Meeting Room Table**)
- Because of ASMFC staff transition both the 2015 and 2014 FMP Reviews are being presented at this meeting. The 2015 FMP Review details performance of the 2014 fishing year, which is the implementation year for Addendum III.
- The Plan Review Team reviewed each state report and drafted both the 2015 and 2014 FMP Reviews (**Briefing Materials**).
- The states/jurisdictions of New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia all requested *de minimis* status and meet the criteria.

Presentations

- Overview of the 2015 and 2014 Fishery Management Plan Review by M. Waine

Board actions for consideration at this meeting

- Consider the 2015 and 2014 Fishery Management Plan Reviews and *de minimis* requests from New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia

8. Consider Approval of a Deadline Waiver for the Aquaculture Plan under the Sustainable Fishery Management Plan Section of Addendum IV (11:10 – 11:15 a.m.) Action

Background

- Addendum IV allows states to submit Aquaculture plans that if approved allow harvest of a maximum of 200 pounds of glass eel annually from within their waters for use in domestic aquaculture facilities provided they can objectively show that the harvest will occur from a watershed that minimally contributes to the spawning stock of American eel.
- Aquaculture Plans are due by June 1st of the preceding fishing year, and are subject to TC and LEC review, and Board approval by September 1st of the preceding year.
- Aquaculture Plans are due by June 1st of the preceding fishing year, and are subject to TC and LEC review, and Board approval by September 1st of the preceding year.
- North Carolina has requested a deadline waiver to allow the submission of an Aquaculture Plan by December 1, 2015 to be considered by the Board at its February 2016 meeting with potential implementation in 2016 if approved.
- Note the plan would still be subject to TC and LEC review prior to the February 2016 meeting, and must follow the information criteria as outlined in Addendum IV.

Presentations

- Overview of Aquaculture Plan provision in Addendum IV by M. Waine

Board actions for consideration at this meeting

- Consider approval of deadline waiver for North Carolina's Aquaculture Plan

9. Other Business/ Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

AMERICAN EEL MANAGEMENT BOARD

The Westin Alexandria
Alexandria, Virginia
August 5, 2015

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

TABLE OF CONTENTS

INDEX OF MOTIONS

ATTENDANCE

Board Members

Pat Keliher, ME (AA)
Rep. Walter Kumiega, ME (LA)
Terry Stockwell, ME, proxy for S. Train (GA)
Doug Grout, NH (AA)
G. Ritchie White, NH (GA)
Dan McKiernan, MA, proxy for P. Diodati (AA)
Jocelyn Cary, MA, proxy for S. Peake (LA)
William Adler, MA (GA)
Robert Ballou, RI (AA)
Eric Reid, RI, proxy for S. Sosnowski (LA)
Rep. Craig Miner, CT (LA)
Lance Stewart, CT (GA)
Dave Simpson, CT (AA)
James Gilmore, NY (AA)
Emerson Hasbrouck, NY (GA)
Katherine Heinlein, NY, proxy for P. Boyle (LA)
Adam Nowalsky, NJ, proxy for R. Andrzejczak (LA)
Russ Allen, NJ, proxy for D. Chanda (AA)
Tom Fote, NJ (GA)
J. Thomas Moore, PA, proxy for Rep. Vereb (LA)
Loren Lustig, PA (GA)
Leroy Young, PA, proxy for J. Arway (AA)
John Clark, DE, proxy for D. Saveikis (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for W. Carson (LA)
Bill Goldsborough, MD (GA)
Lynn Fegly, MD, proxy for D. Goshorn (AA)
David Sikorski, MD, proxy for D. Stein (LA)
Rob O'Reilly, VA, proxy for J. Bull (AA)
Kyle Schick, VA, proxy for R. Stuart (LA)
Catherine Davenport, VA (GA)
Louis Daniel, NC (AA)
Doug Brady, NC (GA)
Ross Self, SC, proxy for R. Boyles, Jr. (AA)
Pat Geer, GA, proxy for Rep. Burns (LA)
Jim Estes, FL, proxy for J. McCawley (AA)
Thad Altman, FL (LA)
Sherry White, USFWS
Derek Orner, NMFS
Martin Gary, PRFC
Leroy Young, PRFC

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

Ex-Officio Members

Jon Cornish, Law Enforcement Committee Rep.
Sheila Eyler, Technical Committee Chair

Staff

Robert Beal
Toni Kerns
Mike Waine

The American Eel Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 5, 2015, and was called to order at 8:00 o'clock a.m. by Chairman John Clark.

CALL TO ORDER

CHAIRMAN JOHN CLARK: Good morning! The American Eel Board is now in session. Before we get started, I'd like to turn it over to Bob to introduce new commissioners.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I just want to introduce two new commissioners or proxies sitting at the table. Tom Moore from Pennsylvania is a proxy for Representative Mike Vereb. David Sikorski is a proxy for Delegate Dana Stein from Maryland. Thank you.

CHAIRMAN CLARK: Another commissioner note, as you know our good friend Tom O'Connell, who chaired this board so ably, is not on the ASMFC anymore. I just wanted to thank him for the superb work he did getting us through Addendum IV and the great work he did as a commissioner here. I hope we see him back here on ASMFC in the future.

APPROVAL OF AGENDA AND PROCEEDINGS

CHAIRMAN CLARK: The first item is consent to the agenda and the proceedings. Does anybody have any additions to the agenda? Seeing none; I will ask for approval of the agenda and minutes. If nobody has any objections, we will consider those approved.

PUBLIC COMMENT

CHAIRMAN CLARK: We will move on to the next item, which is public comment. We have not had anybody sign up for public comment, which brings us to Agenda Item 4, the technical committee report. I will turn it over to Sheila Eyler.

TECHNICAL COMMITTEE REPORT

MS. SHEILA EYLER: The technical committee was asked to review a life cycle survey that was submitted by the state of Maine. I just want to give some background on the life cycle survey requirements. As part of Addendum IV, a life cycle survey was required for states that have glass eel harvest that is greater than 750 pounds. At this time that only applies to the state of Maine.

The survey requirements require sampling of all life stages of eels, including the glass, yellow and silver eel. The sampling needs to be done in at least one river system within the state. There are several sampling requirements that are listed in Addendum IV; and I'll go through those later as we talk specifically about Maine's proposal.

Maine submitted this life cycle survey design to the technical committee this summer; and the technical committee reviewed that on a conference call in July. Just to give an overview of the proposed survey from Maine, it is a three-year proposed survey to be conducted on all life stages of eels, including glass, yellow and silver eels.

It is going to occur in the Cobboseecontee Stream Drainage. Just to give an idea of the intensity of sampling required for this effort, it is seven months' worth of daily sampling on various different life stages and using different gear types. Some of the details of the proposed survey is that it falls under the requirements of Addendum IV. It looks at an index of abundance by life stage, biomass by life stage, mortality, prevalence of the parasitic nematode and average length and weight of eels in all life stages. In addition, age analysis will also be done on yellow and silver eels.

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TECHNICAL COMMITTEE RECOMMENDATIONS ON THE MAINE LIFE CYCLE SURVEY DESIGN

MS. SHEILA EYLER: The technical committee commended Maine for the survey design that they had put together, but we did have some concerns over the science and the management applicability to the results from the study. The biggest concern from the technical committee was the duration of the study. Maine proposed a three-year study.

The intent from the technical committee is this would be a life cycle survey to be conducted over at least one life cycle of the American eel, which in Maine could be 15 to 20 years. The fact that it was a three-year study, we were very concerned that we couldn't do the cohort analysis that we wanted to do on the survey results.

We also had some concerns about the size of the watershed. It seemed to be relatively small. We weren't sure of the applicability of the results to the other watersheds in Maine where the glass eel harvest is occurring. We had some concerns about the tagging models that were being used in the study. Tagging early life stages of eels, both glass and elver eels has not been conducted vigorously in the field, and so a pilot study might be necessary to verify some of the model assumptions used for those tagging methods.

The technical committee is supportive of the designs at this time, but we'd like to see a little bit more development of that. We would like to reestablish a subcommittee that we had working on the life cycle survey design. Prior to the development of Addendum IV, the technical committee had a subcommittee working on an ideal life cycle survey.

We would like to work with Maine not only to develop this ideal life cycle survey that other states could use if they want to implement a life cycle survey but also refine the survey that is being proposed by Maine. We're hoping that we can follow up again with the survey approval in the November meeting and that Maine will be able to implement the survey starting in 2016. That's the end of my presentation, Mr. Chair.

CHAIRMAN CLARK: Thank you, Sheila. Do we have any questions for Sheila? Pat.

MR. PATRICK C. KELIHER: Thanks, Sheila, for that overview. I do want to just create a little clarity around the issue of the duration of the study. There was some miscommunication between myself and my technical staff regarding this. The three-year timeframe that was referred to my staff related to the budget associated with it.

As you all know, many states are budgeted on a biennium process; and so my commitment to start the life cycle study was for the remainder of the fiscal year that we were in and the following biennium year; so for FY '15 and '16. The commitment from the state of Maine is to fully follow through with the full life cycle study, which would be roughly 15 to 20 years, and to follow it through to the end.

Obviously, from a budgetary standpoint, I can't say I'm going to commit money every year for 20 years. The focus is to fully fund it. The money is within the budget through our Eel and Elver Management Fund. The funds are there for three years; and we anticipate with the continuation of this fishery and the continued sale of licenses, as well as other funds that are put into it such as fine money and the money associated with what we consider pecuniary gains – if some somebody goes over their quota, they have to actually pay the state the value of that quota back – that is what will continue to secure funding into the future for this study. Thank you, Mr. Chairman.

CHAIRMAN CLARK: Thank you for that explanation, Pat. Any other questions? Okay, seeing none, we will move right along. It is time for me to turn the meeting over to Executive

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Director Bob Beal as we have an item that affects the great state of Delaware.

UPDATE ON ADDENDUM III IMPLEMENTATION

EXECUTIVE DIRECTOR BEAL: In order to introduce the topic for this agenda item, I'm going to ask Mike Waine to go over a summary of Delaware's management program under Addendum III.

MR. MICHAEL WAINE: Just to bring everybody up to speed, this is Addendum III. It is the addendum that was implemented prior to Addendum IVA. This Addendum III was completed in 2013 and implemented on January 1, 2014. This was impacting the 2014 fishing year. Going through the requirements for Addendum III, there was a change in the minimum size for the yellow eel recreational and commercial fisheries to nine inches.

Remember these measures that I'm going through were in response to the depleted stock condition that came out of the assessment and our looking to lower the fishing mortality on the species. A nine-inch minimum size with an increase from six inches; there was a half inch by half inch minimum mesh size put in for yellow eel pots with the allowance of the four by four inch escape panel of this half by half inch mesh beginning January 1, 2014, for three years.

That was intended to give the industry some ability to transition their current gear to the new regulation that was an interim step. The recreational bag limit was decreased to 25 fish per day per angler, but there was still an allowance for crew and captains of the for-hire industry to have a 50-fish bag limit per day for charters and their clients.

For Delaware's measures with Addendum III, they maintained their six-inch minimum size limit in the commercial and recreational fisheries for yellow eel. They have no minimum mesh size for pots, and their recreational possession limit was kept at 50 fish per angler. Delaware's measures are not currently consistent with Addendum III to the American Eel FMP. Thank you, Mr. Chairman.

EXECUTIVE DIRECTOR BEAL: Thank you, Mike. Any questions for Mike on Delaware's current management program? Not seeing any questions; what is the pleasure of the board? Mike has pointed out some inconsistencies between Delaware's management program and the requirements under Addendum III. Dr. Daniel.

DR. LOUIS B. DANIEL, III: I'm prepared to offer a motion.

EXECUTIVE DIRECTOR BEAL: That would probably be good to get the conversation started.

DR. DANIEL: That should do it. **I'd move that the American Eel Management Board recommend to the ISFMP Policy Board that the State of Delaware be found out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel.** Delaware has not implemented the following regulations required by Addendum III: the nine-inch minimum size for yellow eel recreational and commercial fisheries; half by half inch minimum mesh size for yellow eel pots; allowance of four by four inch escape panel in pots of half inch by half inch mesh for 3 years (beginning on January 1, 2014); recreational 25 fish bag limit per day per angler; crew and captain involved in for-hire are exempt and allowed 50 fish bag limit per day.

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance the State of Delaware must implement all measures listed above as

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contained in Addendum III to the Fishery Management Plan for American Eel. If I get a second, Mr. Chairman, I'd like to speak to my motion.

EXECUTIVE DIRECTOR BEAL: **Is there a second; Doug Grout.** Go ahead, Louis.

DR. DANIEL: My comments here are just related to the process. This is not an indictment of the folks from Delaware. I know that the staff and our members are concerned about this issue, but Delaware's legislature has had two opportunities to implement these regulations per their process in Delaware and have failed to do so. I think this is a critical finding that we need to move forward with.

EXECUTIVE DIRECTOR BEAL: Doug, do you have any comment as seconder? Other comments around the table? Yes, John Clark.

MR. CLARK: I might just take a second, Bob, to say what we've been trying to do in the fabulous first state on the American Eel Issue. We did bring this up to the legislature in 2014, as Louis alluded to. We have a quirk in our law that eels are a separate chapter in our code and everything applying to eels is prescriptive in the code itself.

Last year we asked the legislature to consider making eels like the rest of our finfish and allow us to manage them through regulation. We had some snags in going that route. This year we tried that again, and there was still some concern in the legislature about that. Also in timing in getting the change for the prescriptive regulation to the – or change in law to the legislature this year, there was concern in the legislature they didn't have enough time to consider this; and they tabled it until January. We do know that our legislature will be re-examining this in January when the next session starts and hopefully will correct this at that time. Thank you.

EXECUTIVE DIRECTOR BEAL: Any questions for Delaware or comments on the motion that's on the board? Not seeing any; is the board ready to vote? I'll give a 30-second caucus and then we'll take a vote on this issue.

EXECUTIVE DIRECTOR BEAL: Yes, Mr. Adler.

MR. WILLIAM A. ADLER: If this passes, what is the timeline on moving forward with this versus when Delaware's legislature will have a chance to reconsider; how does that work?

EXECUTIVE DIRECTOR BEAL: John, can you answer that?

MR. CLARK: Well, I don't know the timeframe of how quickly this out-of-compliance finding will make its way through the bureaucratic process here; but I know in Delaware our legislature reconvenes in January, but I would not guess this would be like something that would happen right away. I'm guessing before the end of the session – our session ends June 30th of next year, so I'd go as far as to say something will be done before June 30, 2016, to rectify the situation.

EXECUTIVE DIRECTOR BEAL: And just to remind everyone of the ASMFC process; it has been a couple of years since we've had a non-compliance issue come before the board. If this motion were to pass, it would be forwarded to the ISFMP Policy Board; and if a similar motion passes at the Policy Board, that gets forwarded to the full commission.

If a motion passes at the commission, the timeline is that I have ten working days to send a letter to the Secretaries of Commerce and Interior notifying them of the non-compliance finding. The Departments of Interior and Commerce then have 30 days to make the determination whether the state is out of compliance.

They look at two questions. One is has the state implemented consistent regulations with the

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FMP; and if not, does the lack of those regulations impact the conservation of the species? If both those questions are answered yes, then the secretaries can implement a moratorium on fishing in that state.

The secretaries do have a six-month discretionary window on the implementation date of that moratorium. I can't comment on how long the decision would take in that 30-day period or if the six-month discretionary window would be used. That is the overall timeline since it has been a little while since the commission has dealt with a non-compliance issue. Any other questions before the states caucus? All right, seeing none, 30-second caucus, please. And just as a reminder, this is a final action of the commission so I will ask Mike to have a roll call vote.

(Whereupon, a caucus was held.)

EXECUTIVE DIRECTOR BEAL: Does anyone need more time to caucus? Seeing hands up; Mike, will you take the roll call vote, please.

MR. WAINE: Maine.

MAINE: Yes.

MR. WAINE: New Hampshire.

NEW HAMPSHIRE: Yes.

MR. WAINE: Commonwealth of Massachusetts.

MASSACHUSETTS: Yes.

MR. WAINE: Rhode Island.

RHODE ISLAND: Yes.
MR. WAINE: Connecticut.

CONNECTICUT: Yes.

MR. WAINE: New York.

NEW YORK: Yes.

MR. WAINE: New Jersey.

NEW JERSEY: Yes.

MR. WAINE: Pennsylvania.

PENNSYLVANIA: Yes.

MR. WAINE: Delaware.

DELAWARE: Yes.

MR. WAINE: Maryland.

MARYLAND: Yes.

MR. WAINE: District of Columbia. (No response) Potomac River Fisheries Commission.

POTOMAC RIVER FISHERIES COMMISSION: Yes.

MR. WAINE: Commonwealth of Virginia.

VIRGINIA: Yes.

MR. WAINE: North Carolina.

NORTH CAROLINA: Yes.

MR. WAINE: South Carolina.

SOUTH CAROLINA: Yes.

MR. WAINE: Georgia.

GEORGIA: Yes.

MR. WAINE: Florida.

FLORIDA: Yes.

MR. WAINE: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Abstain.

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MR. WAINE: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE: Abstain.

EXECUTIVE DIRECTOR BEAL: **The motion carries unanimously with two abstentions from the federal services.** I think that takes care of this. As I mentioned before, this motion will be brought forward to the Policy Board for their deliberations tomorrow morning.

ELECTION OF VICE-CHAIR

EXECUTIVE DIRECTOR BEAL: The only other agenda item to come before the Eel Board is the nomination of a vice-chair for the board. Do we have any nominations? Lynn Fegley.

MS. LYNN FEGLEY: I would like to nominate Mr. Marty Gary from PRFC for the position of vice-chair.

EXECUTIVE DIRECTOR BEAL: Is there a second to that nomination? Russ Allen, thank you. Any objection to electing Marty Gary as the vice-chair of this board? Seeing none; congratulations, Marty. I think you have about two years to get up to speed on all the eel issues.

MR. MARTIN GARY: Thank you, Mr. Chairman. If the board can tolerate back-to-back Aggies chairing the committee, I'd be honored to do so.

EXECUTIVE DIRECTOR BEAL: They'll tough it out, I'm sure. Any other business before the Eel Management Board? Seeing none; I introduced a couple of people at the beginning and I want to introduce a couple more now that we're wrapping up the Eel Board. We have Bob Steinburg from North Carolina sitting next to Louis, who is the new legislative representative from North Carolina. Louis is no longer sitting alone in the back of the room.

ADJOURNMENT

EXECUTIVE DIRECTOR BEAL: We have two new staff members that I think were introduced yesterday; but this is the first coast-wide board so I want to reintroduce those folks. Ashton Harp is the new FMP coordinator at the commission. She has been on board for two or three weeks now. We also have Kristen Anstead. Kristen is the new stock assessment person at commission, filling the vacancy that we've had for a little while. Kristen has been here three days.

Any other issues before the Eel Board? Not seeing any; the Eel Board is adjourned.

(Whereupon, the meeting was adjourned at 8:25 o'clock a.m., August 5, 2013.)

— — —

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Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 16, 2015

To: **American Eel Management Board**

From: **American Eel Technical Committee**

RE: **Update on Maine's American Eel Life Cycle Survey Proposal**

Addendum IV to the Interstate Fishery Management Plan for American Eel requires that any state or jurisdiction with a commercial glass eel fishery must implement a fishery-independent life cycle survey covering glass, yellow, and silver eel life stages within at least one river system.

In June 2015, Maine had proposed a three-year survey on glass, yellow, and silver eel life stages in the Cobboseecontee Stream drainage. However, the Technical Committee (TC) expressed concern about the use and applicability of that survey design for science and management. The TC recommended further development of Maine's life cycle survey design prior to implementation, and re-established a subcommittee to help address concerns with the survey design that were expressed by the TC.

Since the August Board meeting, the subcommittee worked with Maine to refine the proposed survey design that would meet the study objectives for this particular river system. The updated Life Cycle Survey proposal for Maine is enclosed. The recommended duration of the Life Cycle Survey is at least 17 years, representing one life cycle. The TC commended the subcommittee for the work on the survey design, and endorsed its implementation noting a few comments below to consider:

1.) Explore mechanisms to eliminate poaching of glass eels at the fyke net sampling site.

2.) Cannibalism of elvers on glass eels in the fyke net may be an issue and should be monitored if possible.

3.) The release site for the glass eels should be in a location that minimizes the potential for recapture.

4.) Glass eels may not be uniformly distributed across the channel so finding a mechanism to measure distribution would be a good way to test that assumption.

5.) For the yellow eel mark recapture methods: a commercial box pot design should be used over a Gee minnow trap; and overnight hauls should occur instead of few 2-day soaks.

6.) Subsamples of yellow eels needs to be representative for development of an age-length key.

The TC would like to receive an update from the state of Maine in spring 2017 that reports on the first year implementation of the survey design and any issues/concerns encountered. The TC would also add that this sampling framework was approved specifically for the Cobboseecontee Stream drainage in Maine. Future life cycle survey designs for other river systems will need to be reviewed and approved by the TC as sampling methodology is specific to individual river systems and survey methods may not be transferrable between river systems.

Enc: Maine Proposed American Eel Life Cycle Study

Maine Proposed American Eel Life Cycle Study

October 8, 2015

Introduction

Addendum IV to the Interstate Fishery Management Plan for American Eel requires that any states or jurisdiction with a commercial glass eel fishery must implement a fishery independent life cycle survey covering glass, yellow, and silver eels within at least one river system. If possible and appropriate, the survey should be implemented in the river system where the glass eel survey (as required under Addendum III) is being conducted to take advantage of the long term glass eel survey data collection. At a minimum the survey must collect the following information: fisheries independent index of abundance, age of entry into the fishery/survey, biomass and mortality of glass and yellow eels, sex composition, age structure, prevalence of *Anguillicoloides crassus,* and average length and weight of eels in the fishery/survey. Survey proposals will be subject to the American Eel Technical Committee (TC) review and Board approval.

Study area

The Maine Department of Marine Resources (MDMR) will conduct a fishery independent life cycle study of American eel in Cobboseecontee Stream drainage (Figure 1). West Harbor Pond, location of the glass eel survey (Figure 1) was excluded as a potential study site, because the pond has become increasingly anoxic due to salt water intrusion, and Boothbay Harbor is drawing increased amounts of water from the upper drainage. Cobboseecontee Stream drainage was selected for its configuration, its proximity to MDMR's office, and the presence of three dams (Figure 2) that provide places to monitor and sample eels. In addition, MDMR previously conducted a study of glass eels and tested upstream eel passage designs in the lower portion of this drainage. Glass eels have been harvested at the mouth of Cobbosseecontee Stream annually since 1996; therefore MDMR will close the stream to the harvest of glass eels and elvers for the duration of this study. A silver eel fishery existed at the outlet of Cobbosseecontee Lake (Figure 2) until the mid-1990s, but there is no harvest information for that fishery.

Methods –general

The life cycle study will be conducted over a period of at least 17 years, the average age at which females eels emigrate in Maine (Oliveira and McCleave 2000). Sampling typically will be conducted from April through October and life stages will be sampled with different gears at different frequencies and at different locations throughout the drainage to accomplish life stage-specific objectives. Between November and March, biological samples will be processed and data will be digitized and analyzed.

Methods – glass eels

The specific objectives for the glass eel study are to 1) develop an annual index of abundance and determine 2) biomass, 3) mortality, and 4) average length and weight of eels in the survey. Age, sex composition, and prevalence of *A. crassus* will not be determined for glass eels.

To accomplish objectives 1, 2, and 4, glass eels will be captured daily just upstream of the mouth of Cobbosseecontee Stream with fyke nets that will be set on either side of the stream. By Maine law, the net must be 30 feet or less in length from cod end to either wing tip, is fitted with netting that measures 1/8-inch bar mesh or less, contains a 1/2-inch or less bar mesh excluder panel that covers the entrance of the net, and consists of not more than one funnel end, one cod end and 2 wings. Nets will be deployed in spring when glass eels begin migrating upstream in this area (approximately mid-May through mid-June) as soon as spring flows have subsided. Sampling will occur 24 hours per day during the first year, with nets being tended during each ebbing tide. If daytime sampling indicates little to no glass eel upstream migration during that time period, daytime sampling may be eliminated in future years. Similar to the mandatory young-of-year surveys, the daily catch will be weighed to obtain total biomass, and the weight and number of glass eels in a subsample will be used to estimate the number of eels in the catch. Environmental variables including water temperature, water level, and discharge will also be recorded, as well as gear fishability (1=good to 4=void). Once a week, 60 glass eels will be individually weighed and measured and pigment stage assessed.

A secondary glass eel collection device, termed an artificial habitat collector device (Silberschneider et al. 2001), will be fished just upstream of Dam 1 to determine if any glass eels are exiting the survey area by climbing over or through the dam (Figure 3). If sampling determined that glass eels are not escaping upstream of Dam 1, this sampling effort can be eliminated after the first study year.

Assumptions of Sampling Methods:

1) Fyke nets capture a consistent proportion of the population each day and from year-to-year.
2) Migration is uniform across the width of the river. During the first year, field observations will be made to confirm this assumption.
3) There is no net-induced mortality (i.e., no predation on glass eels in the net)
4) Glass eels are captured once and there is no fall-back behavior.
5) Others?

Impacts to Survey results if Assumptions are not met:

1) Will add significant noise to the glass eel abundance index making comparisons with older ages of the same cohort difficult.
2) If more eels migrate along the sides of the river, then we may overestimate abundance by assuming the same number is passing through the middle of the river where nets are not being deployed, and underestimate natural mortality of glass eels. If the opposite is true, then we will be underestimating glass eel abundance.
3) Predation on glass eels in the net would reduce our estimate of abundance and may impact our assessment of the strength of the glass eel run if compared with other

systems. May not necessarily impact this life-cycle survey, since we are following the cohort.

4) Cause an overestimate of recruitment and overestimate of natural mortality.

Methods - yellow eels

The objectives for the yellow eel studies are to 1) develop an index of abundance; 2) determine age of entry into the survey, 3) biomass, 4) mortality, 4) age structure, 5) prevalence (percent of eels infected) of *A. crassus,* and 5) average length and weight of yellow eels in the survey. In order to accomplish these objectives, yellow eels will be sampled using one of the two methods listed below in conjunction with upstream monitoring.

Method 1:
Sample multiple sites between the mouth of Cobbosseecontee Stream and Dam 1 (actual number and size of sites to be determined). These sites will be selected in a stratified random sampling design with strata representing distinct habitat types. Sites will have block nets on the upstream and downstream ends to meet the assumptions of a closed population for a removal estimator. At each site, four electrofishing passes will be conducted. By using four electrofishing passes, capture efficiency can be allowed to vary between electrofishing passes in a generalized removal estimator (White et al. 1982), thus allowing for less biased population estimates. Catches of eels on each pass will be enumerated within length classes (appropriate length classes to be determined) and population estimates will be made for each length class. A subsample of eels from each length class will be sacrificed for otolith extraction, aging, and development of an age length key. During the first year, we will attempt to sample 10-15 eels in each 50-mm size class from 100-849 mm TL). Subsamples in subsequent years may be adjusted based on the results from year 1.

Method 2:
Mark-recapture methods may be employed to estimate yellow eel abundance if electrofishing is not feasible throughout the study reach of Cobbosseecontee Stream. Baited eel pots will be deployed for at least 48 hours for a marking period, captured eels will be enumerated within length classes and marked with a fin clip or fin punch, and then released alive. After a period of 1 week, pots will be set again for a recapture period. Eel pots will be rectangular with a single funnel entrance terminating in a cloth tube to reduce escapement. Again catches of eels in each length class will be enumerated and the number of marked eels from the previous sampling will be noted. During the recapture period, a subsample of eels from each length class will be sacrificed for otolith extraction, aging, and development of an age length key.

Upstream Monitoring:
The number of eels passing upstream of Dam 1 during the course of the year (prior to when annual electrofishing or mark recapture surveys are conducted) can also be partitioned by age classes based on the age length key. The numbers passing upstream can then be added to the number of each age class estimated via electrofishing to yield a grand total number of eels in each age class that inhabited the reach between the mouth of Cobboseecontee Stream and Dam 1.

Sampling from the first year may indicate that eels do not pass the dam until they are older than age 1 or 2. If this is the case, then population estimates of eels larger than the size classes

corresponding to age 1 or 2 would not be necessary. Population estimates of the youngest age classes are of greatest interest so that mortality from the age 0 glass eels stage can be estimated. There is no yellow eel fishery in this system, so we will have to capture older, larger eels to determine age distributions, and develop catch curves for estimating natural mortality of this life stage.

Also, population estimates of eels in the reach upstream of the mouth of Cobboseecontee Stream assume no immigration or emigration of eels from/to the mainstem of the Kennebec River. The ability to restrict population estimates to the youngest age classes would be expected to most closely meet this assumption.

At the lowermost dam (Figure 2, Dam 1), upstream migrating eels will be captured at the top of one or more eel passages from approximately May through September. This is an effective method of sampling small yellow eels; 99% of the yellow eels using upstream passage at this barrier from 1997–1999 were ≤ 150-mm TL (Wippelhauser unpublished data). For yellow eels captured at the lowermost barrier, the daily catch will be weighed to obtain total biomass, and the weight and number of eels in a subsample will be used to estimate the number of eels in the catch. Once a week, 60 eels will be individually weighed and measured and euthanized for later determination of age and examination for the presence of *A. crassus*.

Mark-recapture methods will be used to assess the abundance of yellow eels in upstream lakes and ponds. Because there are numerous large lakes in the drainage that cannot be sampled simultaneously within the three-year study period, MDMR will focus on sampling Pleasant Pond (746 acres). A total of 36 baited eel pots made of 0.5-inch mesh will be deployed in a grid pattern throughout the pond and allowed to fish for 48 hours before being tended. This mesh size is expected to provide an unbiased sample of eels ≥30-cm TL (Morrison and Secor 2003).

For yellow eels captured by electrofishing or in pots, each captured yellow eel will be weighed, measured, and PIT tagged (12 mm tag) if > 150 mm TL, with the exception of a subsample that will be euthanized for later determination of age, sex, and presence of *A. crassus*.

Assumptions of Sampling Methods:

1) All, or a significant majority of the yellow eels are captured by the passage structure.
2) Immigration and emigration from the Kennebec River are equal.
3) Catch curve assumptions apply (no trend in recruitment over time, Z is constant among age groups above a certain age (M in this case since there is no yellow eel fishery), other assumptions apply if a longitudinal catch curve is used (catchability is constant among age groups, and there is known CPUE).

Impacts to Survey results if Assumptions are not met:

1) Biased estimates of mortality if catch curve assumptions are not met.

Methods – silver eels

The objectives for the silver eel studies are to 1) develop an index of abundance; 2) determine age of entry into the survey, 3) biomass, 4) mortality, 5) age structure, 6) prevalence (percent of

eels infected) of *A. crassus*, and 7) average length and weight of silver eels in the survey. In order to accomplish the first objective, silver eels from the entire drainage will be enumerated with a DIDSON (Dual Identification SONar) at the American Tissue Project downstream eel passage (Figure 2, Dam 2). The DIDSON will be aimed at the deep gate through which eels pass downstream (the turbine intake is screened with one-inch punch plate), and will record during the nighttime. This method of visualizing migrating eels was tested successfully at the site in 2007 (Gail Wippelhauser unpublished data). A fyke net will be set downstream to capture eels for biological sampling (length, weight, otolith for ageing, and swim bladder parasite).

Assumptions of Sampling Methods:

1) Only silver eels are passing through the American Tissue Project eel passage.
2) The passage is the only way downstream.

Impacts to Survey results if Assumptions are not met:

1) Overestimating silver eel abundance if yellow eel also use the eel passage structure; we will need to know proportions if yellow eels do use the passage to reduce silver eel abundance estimates.
2) Underestimate silver eel abundance if there is another way downstream.

1. **Analysis – glass eels** The total number of glass eels recruited during each day, *p*, will be estimated by multiplying the total number of glass eels caught in each fyke net by the proportion of the width of the stream sampled. The total estimate of glass eel recruitment, *R*, will be estimated using the area-under-the-curve (AUC) method:

$$R = AUC = 0.5 \sum_{i=2}^{n} (t_i - t_{i-1})(p_i + p_{i-1})$$

   Where t_i is the number of days measured from the first day glass eels enter the stream to the *i*th sampling day. If all days are sampled, then we can simply sum the catch for each day and do not need the AUC, in fact they would be the same.

2. For each year, the average length and weight of glass eels will be calculated from the weekly measurements made on individual glass eels.

Analysis – yellow eels at upstream passage (≤150-mm)

1. If electrofishing is used to assess yellow eels, the total population estimate for each size class can be calculated as in Hankin (1984) and Sweka et al. (2006).

$$\hat{Y}_s = \frac{N}{n} \sum \hat{Y}_i$$

$$\hat{V}(\hat{Y}_s) = \frac{N_s(N_s - n_s)\sum\left(\hat{Y}_i - \hat{\bar{Y}}_s\right)^2}{n_s(n_s - 1)} + \frac{N_s \sum \hat{\sigma}_i^2}{n_s}$$

Where $\hat{Y}_s$ = the total population in stratum *s*, $\hat{Y}_i$ = the population estimate at site *i*, N_s = the number of potential sites in stratum *s*, n_s = the number of sites sampled in stratum *s*, $\hat{V}(\hat{Y}_s)$ = the variance of the stratum *s* population estimate, $\hat{\bar{Y}}_s = \sum \hat{Y}_i / n_s$ = the mean population estimate n stratum *s,* and $\hat{\sigma}_i^2$ = the variance of the population estimate in site *i*.

2. Once the total population estimates for each size class are calculated, these can be multiplied by the proportion at age in each size class to derive an estimate of the abundance of each age class within a size class. Abundance of each age class from different size classes can be summed for the total abundance of an age class.
3. If mark-recapture is used to assess yellow eel, Chapman and Bailey's modified Petersen estimator will be used to estimate the abundance of each size class (Seber 1982)

$$\hat{Y} = \frac{(M+1)(C+1)}{(R+1)} - 1$$

$$\hat{V}(\hat{Y}) = \frac{(M+1)(M-R)(C-R)}{(R+1)^2(R+2)}$$

Where *M* = the number marked in the first sample, *C* = the number of individuals captured in the second sample, and *R* = the number of individuals in the second sample that were marked.

4. For each year, the total number and biomass of eels using upstream passage at the lowermost barrier will provide an annual index of abundance of eel recruitment into inland waters of eels.
5. For each year, the average length and weight of glass eels will be calculated from the weekly measurements made on individual eels.
6. Sagittal otoliths will be aged. Annular rings in each otolith or otolith section will be counted at least twice by two readers.
7. The presence of *A. crassus* nematodes found inside the swim bladder of each subsampled eels will be recorded.
8. Because there is no commercial or recreational fishery for yellow eels in the watershed, natural losses will be estimated from catch curves.

Analysis – yellow eels ≥150-mm and silver eels

1. For each year, the abundance of yellow eels in Cobbosseecontee Stream will be estimated from multiple pass depletion (electrofishing) and of yellow eels in Pleasant Lake (baited pots) from marked and recaptured eels (equations in Lockwood and Schneider 2000).

2. For each year, the number of silver eels emigrating from the watershed at the second dam will be estimated by visual inspection of the high-resolution, DIDSON image files.
3. For each year, the average length and weight of yellow eels and silver eels will be calculated from the weekly measurements made on individual eels.
4. Sagittal otoliths from yellow eels >100-cm TL and silver eels will be aged using the sectioning and dying techniques described by Oliveira (1996). Annular rings will be counted in each otolith section at least twice by two readers.
5. The presence of *A. crassus* nematodes found inside the swim bladder of each subsampled eels will be recorded.
6. Because there is no commercial or recreational fishery for yellow eels in the watershed, natural losses will be estimated from catch curves.
7. Gonads will be examined macroscopically and by the squash method of Guerrero and Sheldon (1974) and classified as male, female, or undifferentiated. Oliveira and McCleave (2000) reported that sex in 95% of the American eels sampled in four river systems in Maine could be differentiated by 250–270 mm TL, depending on the river system.

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Table 1. Schedule of field activities to be conducted annually during the study period.

Activity	Apr	May	Jun	Jul	Aug	Sep	Oct
Glass eel fyke netting							
at stream mouth	daily	daily	daily				
at head-of-tide	daily	daily	daily				
Yellow eel e-fishing or potting							
mouth to Dam 1				1-2 weeks			
Yellow eel recruitment							
at Dam 1		daily	daily	daily	daily	daily	
Yellow eel potting							
in lakes			biweekly	biweekly			
Silver eel DIDSON							
at Dam 2					daily	daily	daily

Figure 1. Location of proposed study area for life cycle study in Cobboseecontee Stream drainage (large oval) and location of glass eel survey in West Harbor Pond drainage (small oval).

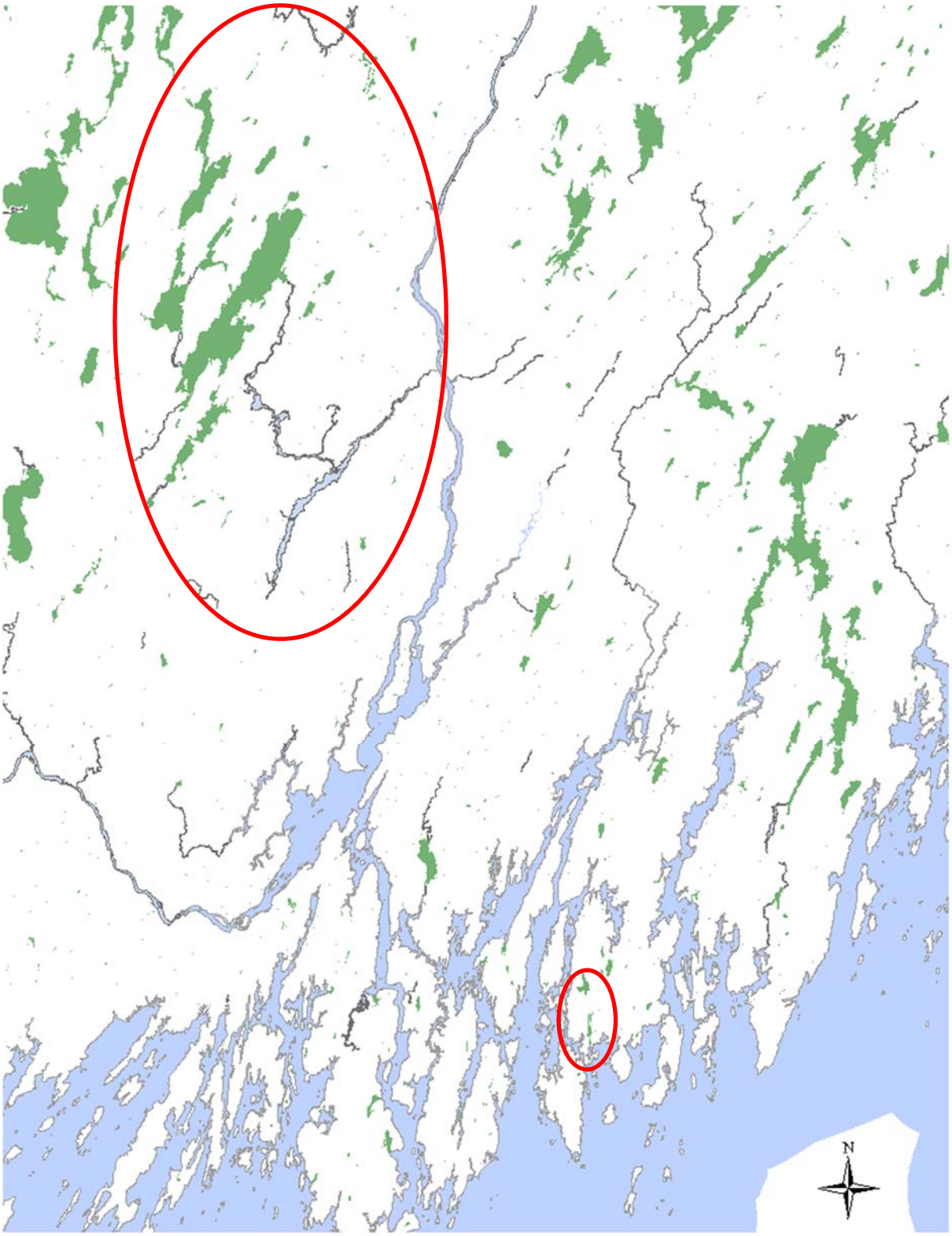

Figure 2. Detailed map of Cobbosseecontee Stream drainage showing location of major water bodies and dams (red circles). None of the dams have upstream eel passage. The American Tissue Hydropower Project (Dam 2) has a downstream eel passage facility.

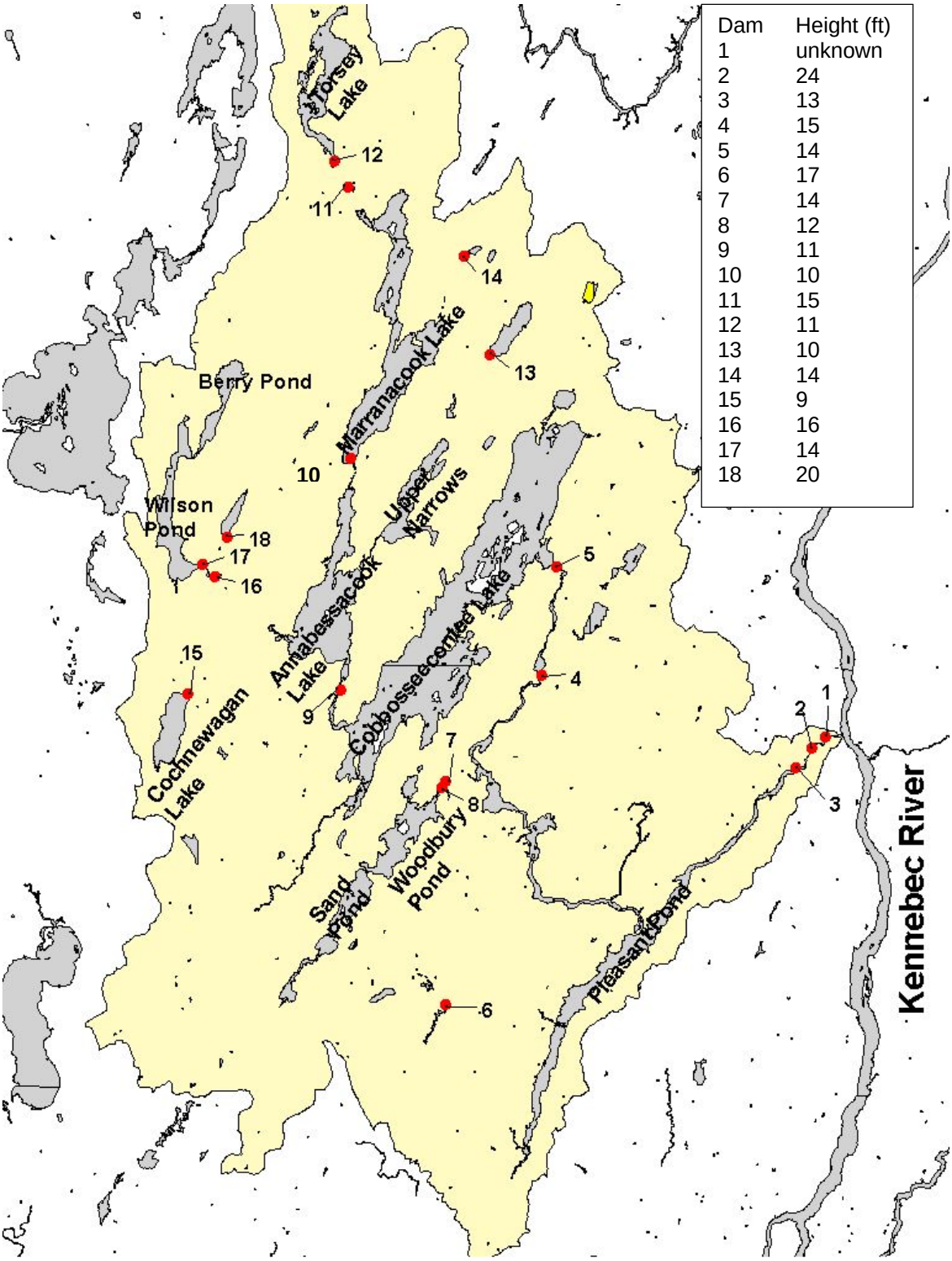

Figure 3. Artificial habitat collectors as described in Silberschneider et al. 2001. Photo credit: Sheila Eyler (USFWS).

Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 16, 2015

To: **American Eel Management Board**

From: **American Eel Technical Committee**

RE: **Recommendation on Addendum IV Implementation Plans**

Addendum IV to the American Eel Fishery Management Plan implemented a coast wide quota of 907,671 pounds for the yellow eel commercial fishery starting in 2015. Addendum IV also contains management triggers where if the coast wide quota is exceeded by more than 10% in a given year (998,438 pounds), or if the quota is exceeded by any amount for two consecutive years, then state-by-state commercial yellow eel quotas will be automatically implemented as detailed in Addendum IV.

As required by Addendum IV, states/jurisdictions submitted implementation plans for Technical Committee (TC) review that detail how a state intends to monitor and manage its quota if triggered. The implementation plans detail (1) the rulemaking process, (2) the current reporting structure for eels, (3) type of reporting used for monitoring quota, (4) a mechanism to account for quota overages, (5) a mechanism for quota transfers, and (6) any additional management measures planned to control harvest. Table 1 is a summary of all state/jurisdiction implementation plans, and Table 2 summarizes the current reporting structure within states/jurisdictions.

The TC met via conference call to review the implementation plans and formulated the following recommendations.

1.) The TC recommends that state/jurisdictions use harvester reporting to monitor state quotas because it minimizes concerns of double counting from harvesters in one state selling to dealers in another state. Also, using harvester reports should account for eels that are harvested for personal use or bait that would not be accounted for in dealer reports.

2.) To determine if the trigger is met, the TC recommends that updated landings be submitted to ASMFC by February 1st of each year, with a follow up submission of preliminary landings by March 1st. The TC notes that this is earlier than the compliance report due date of September 1st, but will allow the Board to assess whether the trigger has been met by its May Board meeting.

Table 1. Summary of state/jurisdiction implementation plans. Pennsylvania and the District of Columbia do not have a commercial yellow eel fishery, and therefore did not need to submit an implementation plan because they were not allocated quota in Addendum IV.

State	Rulemaking Process	Rulemaking Timeframe	Reporting to monitor quota	Overages and Transfers	Additonal Measures Planned
Maine	DMR Authority	up to 100 days	Monthly harvester. Likely to use swipe card system	Y	Possible seasons and days out by 2017
New Hampshire	Director Authority	at least 1 month	Monthly harvester	Y	None, but can if needed
Massachusetts	MF Advisory Commission	by March 2016	Weekly dealer (personal bait not counted)	Y	Close H&L gear Sept 1-Dec 31
Rhode Island	Director Authority	30 day public comment	Dealer twice a week	Y	None, but can if needed
Connecticut	DEEP Authority	10 days public notice	Monthly harvester	Y	None, but can if needed
New York	DEC Authority	6 months	Monthly harvester (river/marine) and weekly dealer (marine)	Y	Closing pot fishery on Delaware River. Need adjustment to quota through transfers or management addendum.
New Jersey	Commissioner/Council Rulemaking	3-4 months	Monthly harvester	Y	Limited entry based on 2007-2014 harvest. Possible pot maximum, and seasons. Some through notice process while others up to two years.
Delaware	Legislature (resumes in Jan 2016)	Legislature Session Jan-June	Daily harvester	Legislature	None, but can if needed
Maryland	DNR Authority	100 days or 48h with public notice authority	Daily harvester	Y	Harvester permit by 03/2016 with reporting requirement
PRFC	PRFC Authority	1-2 months	Weekly harvester	Y	None, but can if needed
Virginia	VMRC Authority	1 month	Monthly harvester with dealer check	Y	Possible seasonal closures and possession limits. Quota trigger to implement weekly/daily dealer reports.
North Carolina	NCDMF Authority	Immediate	Monthly dealer and harvester log books	Y	Proactive reporting trigger program to weekly/daily and closure at 85% of quota.
South Carolina	Legislature, but permitting authority	Permit cycle June 30	Montly harvester and dealer	Y	Possible gear restrictions, seasons, catch limits, or closure
Georgia	Natural Resources Authority	Up to 90 days	Monthly harvester and dealer	Y	Likely close eel commercial fishery if state by state quotas are implemented
Florida	Executive Order Rulemaking	Governor-commission meets 5 times a year	Montly harvester, weekly harvester when 50% quota is reached	Y	None, but can if needed. Issue of harvester selling to dealers outside the state and potential double counting of quota

Table 2. Summary of the current reporting timeframes for American eel by state/jurisdiction.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)
ME	Elvers – daily report with swipe card program Yellow eels – monthly report of daily data	Elvers – monthly report of daily landings Yellow eels – monthly report of daily landings	Dealer reports used to track elver quota. Yellow eel dealers can report electronically or on paper the 10th of the following month.
NH	monthly (Dealers not required to report, but monthly harvester includes identification of dealer)	monthly	No eel dealers to date. Mandatory monthly reporting for commercial eel harvesters is required.
MA	weekly	daily reports sent monthly	The present system will have at least a one month lag in reporting and not all harvester transactions will be recorded by permitted dealers. The existing daily reporting through monthly reports for harvesters will need to be augmented to improve the timing of harvester reporting.
RI	twice weekly	quarterly/daily	Dealer landings are reported directly in SAFIS and harvester logbooks are entered in to ACCSP database quarterly as submitted. Both reporting mechanisms are required by law and per our commercial licensing agreement with the dealers/harvesters.
CT	weekly/monthly	monthly	Dealer - Eel are not typically sold through seafood dealers in CT
NY	weekly	monthly	Harvester logbooks (inland) and could also call harvesters to get information. ALL licenses under marine jurisdiction
NJ	monthly (as part of the harvester reporting - no forms from actual dealers)	monthly	Mandatory monthly reporting for commercial eel harvesters is required.
DE	DE has no dealer reporting at this time	monthly/daily	Harvesters landing American eel are required to report landings monthly via individual logbooks; if needed, mandatory daily reporting via IVR will be implemented.
MD	monthly	daily reports sent monthly	On average it takes just over a month from the time the harvest report is received until it is entered into our landings database. If a quota is implemented, daily reporting as prescribed by the Department will be required.

Table 2. Continued. State/jurisdiction reporting timeframes.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)
PRFC	none	daily reports sent weekly	Mandatory daily harvest reporting submitted weekly. Quota would be tracked by date the data was entered and by date of catch.
VA	Daily purchases sent monthly	daily harvest reports sent monthly	Currently in Place: Buyers and self-marketers required to obtain a specialized permit. All buyers and harvesters report daily records by the 5th of the following month. Quota Management: Trigger that permit holders and buyers would have to report more timely by a call-in process or by weekly reports.
NC	monthly (combined reports)		Single trip ticket with dealer and harvester information submitted monthly. We could implement a permit with a quicker reporting requirement if needed but might require a rule change that could take up to 2 years to complete.
SC	monthly (combined reports)		Monthly reporting of daily information from harvester and dealer. Very little harvest.
GA	monthly (combined reports with Harvester)	daily reports sent monthly	Single trip ticket with dealer and harvester information.
FL	None (for eels)	Daily reports sent monthly	Daily trip tickets with harvester information required monthly. We could change the permit to require quicker reporting, if needed.

Maine American Eel Addendum IV Implementation Plans

Addendum IV to the American Eel Fishery Management Plan requires states to submit implementation plans for Board review at its Annual 2015 meeting. The main purpose of the plan is to detail how a state intends to implement and monitor a state specific quota for yellow eels if triggered for 2016.

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The Commissioner of Maine DMR has rulemaking authority over this species and legislative changes will not be needed. A specific quota for yellow eels in the State of Maine would be implemented through rulemaking, a process that typically requires 100 days to complete.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The eel reporting timeframes in the table for Maine are correct.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

They yellow eel harvest will be monitored by both dealer and harvester reporting. If the board moved forward with a state by state quota Maine would likely utilize its current swipe card program to monitor the fishery.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

Maine would mirror our current elver quota payback – pound over, pound payed back.

5.) Identify a mechanism to transfer quota if needed.

Maine would suggest a process such as what exists with bluefish.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Maine's yellow eel harvest is minimal at this time. We plan to continue to monitor catch and determine if seasons and days out would be appropriate to reduce harvest if needed. Any regulatory changes will be done by April of 2017.

State of New Hampshire
Addendum IV Implementation Plans for American Eel
September 15, 2015

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

-The Executive Director has the authority to establish rules relative to the taking, inspection and processing of marine species pursuant to RSA 211:62. However, because we still have a notice and hearing requirement, it generally takes a minimum of one month to implement rules.

211:62 Authority for Regulating Taking, Inspection and Processing of Marine Species. –

I. Rules relating to the taking, inspection, and processing of marine species may be made by the executive director of the fish and game department with the approval of the fish and game commission, and upon the advice and cooperation of the advisory committee on marine fisheries.

II. The rules relating to marine species may include, but are not limited to, the following:

(a) The size, number, sex, and quantity that may be taken;

(b) The areas to be opened or closed to their taking;

(c) The manner of their taking;

(d) The transportation of marine species within and through the state of New Hampshire;

(e) The sale, inspection, and processing of marine species; and

(f) Appropriate definitions.

III. Existing rules shall continue in effect until the effective date of new rules adopted in accordance with RSA 541-A.

IV. Conservation officers shall have the authority granted to public health officers and agents under RSA 143:4; RSA 143:23 through 28; and RSA 146:20, for the purpose of enforcing laws and rules pertaining to marine species.

V. Rules pertaining to marine species managed under the Atlantic States Marine Fisheries Compact under RSA 213 shall be exempt from the rulemaking requirements of RSA 541-A. The executive director may adopt such rules after notice and hearing as determined by the executive director to be practicable. Rules adopted under this paragraph shall be filed with the director of legislative services and with the joint legislative committee on administrative rules.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

-Eel reporting timeframes in the table are correct.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

-American Eel quota will be monitored using harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

- New Hampshire has *de minimis* status for the American eel. Harvest of eels in NH has been less than 1% of the coast wide total. Harvest will be monitored using monthly harvester reports and in the event of quota overages, rules will be established according to RSA 211:62.

5.) Identify a mechanism to transfer quota if needed.

- New Hampshire has *de minimis* status for the American eel. Harvest of eels in NH has been less than 1% of the coast wide total.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

- NH does not intend to implement additional management measures to control harvest. In the event that rules need to be changed, the Executive Director has the authority to establish rules relative to the taking, inspection and processing of marine species pursuant to RSA 211:62.

Massachusetts Implementation Plan

Addendum IV to the Interstate Fishery Management Plan for American Eel

Prepared by Nichola Meserve, Policy Analyst
Massachusetts Division of Marine Fisheries
September 2015

Per Addendum IV, states and jurisdictions are required to approve regulations that would allow for implementation of a state-specific commercial quota management program for yellow eels and timely monitoring of harvest, should the coastwide cap triggers be exceeded, no later than March 2016. Implementation plans are due for Board review and approval at the Atlantic States Marine Fisheries Commission's 2015 Annual Meeting.

The Massachusetts Division of Marine Fisheries (*MarineFisheries*) has commenced its regulatory process in order to fulfill the compliance measures of Addendum IV. Needed revisions to the Commonwealth's American eel regulations at 322 CMR 6.30 have been drafted that would establish a quota management program for yellow eels (see below). The draft regulations do not distinguish the quota as being for yellow eels solely; any landings reported as American eel will be counted against the quota. However, our minimum size limit prohibits the landings of elvers and our seasonal gear prohibition practically precludes the harvest of silver eel. The draft regulations take into account the requirement to address quota overages and allow quota transfers.

MarineFisheries' existing harvester and dealer monitoring programs meet the requirement for trip-level reporting submitted at least monthly. Should state-by-state yellow eel quotas be triggered, the Division will use dealer data (submitted weekly) to monitor the quota, as per usual for other quota managed species. Yellow eels harvested under the authority of a commercial permit that are kept for personal use (e.g., bait) will consequently not be counted against the quota as there is no transaction with the dealer. These landings, as reported in MA harvester reports and federal VTRs, have been minor in recent years, averaging 4% of the commercial landings for 2012–2014, although we suspect under-reporting. Counting these landings against the quota could serve to further reduce reporting compliance by harvesters. *MarineFisheries* will continue ongoing efforts to make both harvesters and dealers aware of all reporting requirements. These efforts include annual reminders sent out with permit renewal documents and following-up with specific harvesters and dealers for whom post-season accounting has indicated a failure to report correctly or fully.

Other modifications in the attached draft regulatory language seek to improve syntax or correct errors. Of note is the amendment to the list of gears exempted from the seasonal (September through December) harvest restriction intended to protect out-migrating silver eels. Our regulations allow rod & reel, although this is not actually permitted in Addendum III (only baited pots/traps and spears). We accidentally included rod & reel in the exempted gears for the same reason that baited pots/traps were included: because out- migrating silver eels don't feed, making the gear ineffective at catching silver eels (but still able to catch yellow eels). The other prohibited gears—fyke nets, pound nets, and weirs—don't have this type of selectivity. In addition, eel harvest by rod & reel occurs mainly as bycatch during shoreline fishing and is a minor contributor to total landings. We are proposing to amend our regulations to comply with Addendum III, but request an ASMFC review of the need to seasonally restrict rod & reel eel harvest in the name of protecting out-migrating silver eels.

Regarding a timeline, the Division is planning for a fall or early winter public comment period and hearing schedule. The Massachusetts Marine Fisheries Advisory Commission will need to approve the rule changes at a subsequent monthly business meeting before the Division can promulgate a final rule. Barring unforeseen circumstances, we will achieve rule implementation by the March 2016 deadline.

Proposed Regulations at 322 CMR

6.30: American Eels

(1) Definitions. The following words and terms shall have the following meanings:
American Eel means that species of eel known as *Anguilla rostrata*.
Commercial Fisherman means any person fishing under the authority of a permit issued in accordance with M.G.L. c. 130 § 80 and 322 CMR 7.01(2).
Commercial Quota means the Commonwealth's annual total allowable commercial harvest of American eel as established by the Atlantic States Marine Fisheries Commission, as modified by any quota transfer or any quota overage incurred in the previous year.
Director means the Director of the Massachusetts Division of Marine Fisheries.
Eel Pot or Eel Trap means any wire pot, trap or other device designed to catch eels that is enclosed on two or three sides with an inverted funnel or throat on one or two sides that act as openings.
Fyke Net means any bag-shaped nets designed to catch eels that are held open by hoops and can be linked together to create long chains.
Recreational Fisherman means any person authorized pursuant to M.G.L. c. 130 § 17C and 322 CMR 7.10 to take or attempt to take finfish for personal or family use, sport or pleasure and which are not sold, traded or bartered.

(2) Commercial Fishing Permit. **Without a regulated fishery permit for American eels issued by the Director pursuant to M.G.L. c. 130 § 80 and 322 CMR 7.01(2) and 322 CMR 7.01(4)(a), it** ~~It shall be~~ **is** unlawful for any person to **either: harvest and sell, barter or trade American eels; or** ~~sell or take~~ **harvest**, possess **while fishing** or land American eels in excess of the ~~non-commercial~~ **recreational** harvest limit at 322 CMR 6.30(6) ~~without a regulated fishery permit for American eels issued by the Director pursuant to M.G.L. c. 130 § 80 and 322 CMR 7.01(2) and 322 CMR 7.01(4)(a)~~.

(3) Commercial Reporting. Each holder of commercial fisherman permit, issued pursuant to 322 CMR 7.01(2), shall file a monthly catch report on forms supplied by the Division. This catch report shall include any catch of eels that were harvested to be sold or kept for bait or personal use. Failure to report shall be grounds for suspension and non-renewal of the permit.

(4) Commercial Quota Management. It is unlawful for commercial fishermen to harvest or land American eel when the Commonwealth's commercial quota has been reached and the fishery is closed through a Declaration of Closure issued in accordance with 322 CMR 6.41(2).

(~~4~~**5**) Dealers. ~~Wholesale~~ Dealers who purchase American eels from licensed fishermen shall register with the Division and report all purchases of eels from commercial fishermen to the Division.

(~~5~~**6**) Minimum Size. It is unlawful for any person to fish for, take, or have in possession American eels measuring less than nine inches in total length unless authorized by a special permit issued by the Director.

(~~6~~**7**) ~~Non-commercial~~ **Recreational** Harvest Limit. It is unlawful for ~~any person~~ **recreational fishermen** to ~~take~~ **harvest**~~, possess~~ or land more than 25 eels per calendar day, or possess more than 25 eels while ~~eel~~ fishing~~, unless said person holds a regulated fishery permit for American eel~~. This limit shall apply to the vessel regardless of the number of persons on-board.

(a) Exemption. It is lawful for for-hire permit holders, permitted pursuant to M.G.L. c. 130 § 17C and 322 CMR 7.10(5), to ~~take, possess~~ **harvest** or land up to 50 eels per calendar day, or possess up to 50 eels while fishing. This limit shall apply to the vessel regardless of the number of persons on-board.

(~~7~~**8**) Restrictions of Fishing Gear.

(a) Small Mesh Prohibition. During the period of February 15th through June 15, it is unlawful for any person, while in the coastal waters of the Commonwealth or upon the banks of rivers and streams within the coastal waters of the Commonwealth, to abandon, set, possess or have under his or her control any device capable of catching eels with openings or mesh measuring less than $^{1}/_{8}$ inch in inside diameter. These devices include, but are not limited to, dip nets, set nets, fyke nets and traps adapted for the taking of juvenile eels.

(b) Eel Pot Restrictions. It is unlawful to abandon, set, possess or have under his or her control any eel pot that does not have a wire mesh of at least ½ x ½ inch inside area.

(c) Other Gear Restrictions. During the period of September 1st through December 31st, it is unlawful **for commercial fishermen** to ~~attempt to catch or to catch~~ **harvest** American eels with any gear except for ~~rod and reel,~~ eel pots, eel traps and spears **and for recreational fishermen to harvest American eels with any gear except for rod and reel, eel pots, eel traps, and spears**.

Rhode Island
Department of Environmental Management

DIVISION OF FISH AND WILDLIFE
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MEMORANDUM

To: Michael Waine
Atlantic States Marine Fisheries Commission

From: Phil Edwards and Jason McNamee
RI Division of Fish and Wildlife

Date: September 8, 2015

SUBJECT: Implementation Plan Requirements for Addendum IV Compliance

Below are RI's revised plans for the implementation requirements for Addendum IV to the Interstate Fishery Management Plan for American eel, set forth in the format requested.

1. Regulatory Process and Timeline

a) RI has an existing mechanism to close directed commercial fisheries in state waters. RI promulgated regulations to meet Addendum III mandates on December 19, 2013. RI publishes notice of all regulatory closures through our secretary of states office and through our marine fisheries listserve, which the ASMFC is on. RI can add any additional ASMFC staff that may need to be added to this listserve, please contact Jason McNamee to accomplish this (Jason.mcnamee@dem.ri.gov). The closures will also be incorporated in to the annual compliance report, as is done with the current management plan in RI state waters.

b) For our regulatory process, RIDEM publishes a legal notice for regulatory changes. After 30 days a public hearing will occur on the proposed amendments. After the public hearing the Rhode Island Marine Fisheries Council (RIMFC) advises the Director of RIDEM as to their recommendations and then the Director promulgates regulations. The Director has regulatory authority, the RIMFC is advisory, and therefore any American eel amendments that would come forward would not have to go to a legislative process.

2. Timeframes and Table Accuracy

a) American eel reporting timeframes are correct in the table, and the information in the notes column is accurate. The Director of RIDEM has the authority to manage any species quotas without any further regulatory amendments needed.

3. Dealer or Harvester Reporting-Monitoring Requirements

a) Rhode Island currently uses and will continue to use SAFIS to report all commercial landings in the state including eel. All dealers, state and federal are required to report trip level data for all fishermen landing any marine product twice a week.

b) Beginning in 2007, RI implemented a catch and effort logbook. This requirement captures the eel harvesting information from any commercial harvester who would fish and land in this state. Catch and effort log books are required to be submitted to the state quarterly. In addition, many state fishers are using electronic log book reporting (etrips).

c) The state monitors all of its quotas through electronic dealer reporting.

4. Mechanism to account for quota overages

By using electronic dealer reporting, if an overage were to occur the state would identify this overage and deduct it from the following year's quota prospectively. The Director has the authority to manage quotas without the need for further regulatory measures.

5. Mechanism to transfer quota

The Rhode Island system of quota monitoring and management is flexible enough to identify any quota that would be available for transfer. The Director has the authority to enact a transfer if needed.

6. Additional management measures and implementation date

Rhode Island does not need any additional management measures to manage an eel quota. Amendment III measures were implemented in December 2013 and no American eel may be commercially harvested from the marine or freshwaters of the state and offered for sale without a valid commercial fishing license per Rhode Island Marine Fisheries (RIMF) regulations.

A. Copy of the State of Rhode Island's 2015 regulations for the management of American eel fisheries.

Rhode Island
Department of Environmental Management
Division of Fish and Wildlife
FISHING REGULATIONS

Part I – Freshwater Fisheries Regulations - 2015

1.5 The minimum size limit for American Eel *Anguilla rostrata* shall be nine (9) inches (measured from the tip of the snout to the end of the tail).

Rhode Island
Department of Environmental Management
Division of Fish and Wildlife
MARINE FISHERIES STATUTES AND REGULATIONS

Part VII - Minimum Sizes of Fish/Shellfish - 2014

7.6 Minimum sizes, other species -- Except as specifically noted, no person shall possess or take any of the following species which are less than the following minimum size
EEL: Commercial and Recreational - 9"

7.16 American Eel
7.16.1 Recreational:
(A) Minimum size: Nine (9) inches.
(B) Season: January 1 through December 31, annually.
(C) Possession limit: Twenty-five (25) fish per angler per day.

7.16.2 Licensed Party and Charter vessel season and possession limit:

(A) Season: January 1 through December 31, annually.
(B) Possession limit: Fifty (50) fish per angler per day for the licensed captain and any employed crew member; and twenty-five (25) fish per angler per day for any paying customer.

7.16.3 Commercial:

(A) Minimum size: Nine (9) inches.
(B) Season: January 1 through December 31annually.
(1) Closed season: September 1 through December 31 annually for any gear type other than baited traps/pots or spears.
(C) Possession limit: Unlimited.
(D) Commercial Eel pot restrictions: Eel pots shall have a minimum mesh size of ½ by ½ inches or shall have a 4 by 4 inch escape panel constructed of a mesh size of at least ½ by ½ inch mesh. The escape vent allowance will be in effect from January 1, 2014 – December 31, 2016, after which the entire pot must meet the ½ by ½ inches mesh requirement.

State of Connecticut
American eel Addendum IV FMP Implementation Plan
September 15, 2015

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The DEEP Commissioner has declaration authority under RCSA Sec. 26-159a-22that enables the department to implement elements of a quota management program including setting trip limits, trip limit adjustment values, and establishing and adjusting closed seasons upon 10 days public notice.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The table is correct however for eels it is important to recognize that the dealer reporting requirement applies only to Seafood Dealers. For eels and other species taken and sold as bait Connecticut relies on monthly harvester reporting. Most eels harvested in Connecticut are sold directly to retail bait customers and do not pass through an intermediate dealer. Consequently, a dealer reporting requirement would not serve as an independent verification of landings/sales as occurs with most seafood products.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

Monitoring would be accomplished through harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

As with any other state quota managed species this state manages the quota specified in the Commission or federal FMP. For eels the Commission would need to formally deduct any overage from the previous year to set the current year quota. Connecticut would manage the net quota.

5.) Identify a mechanism to transfer quota if needed.

RCSA Sec. 26-159a-27. Transfer of quotas. Authorizes the DEEP Commissioner to transfer commercial quota to another state upon request subject to a determination that Connecticut will not be able to utilize the transferred amount.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

No further management measures are contemplated at this time.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Bureau of Marine Resources
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American Eel Addendum IV Implementation Plan for New York

Regulatory Process and Timeline for American Eels:

The Department of Environmental Conservation has the authority to establish seasons, catch limits, and taking of fish**.** Necessary regulatory changes to American eel will be carried out by established rule making procedures, in accordance with the New York State Administrative Procedures Act (SAPA). Rule Makings take an average of six months to be permanently adopted.

Quota Management:

Delaware and Hudson Rivers: Hudson and Delaware River quotas will be monitored with harvester reporting. Harvesters are required to report their total harvest whether eels are sold or kept for personal use.

Harvesters on the Delaware River are required to check their weirs once daily after their rack has been installed, and record for each day: date, time, species and number of fish caught and released, and number and/or pounds of eels harvested. The catch reports must be submitted to the NY DEC by the harvester, within 15 days after the end of each month, for the duration of the issued license. Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Commercial harvesters on the Hudson River are required to record trip level reports which must be submitted monthly by the harvester to the NY DEC for the duration of the issued license. Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Marine District: Marine District landings and quota usage will be monitored weekly through dealer and harvester reports. Trip level reporting is required by marine district commercial harvesters, within 15 days after the end of each month, and they must send their reports to the NY DEC (or record electronically on the ACCSP eTrips database). Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Food Fish and Crustacea Dealer and Shipper license holders must report weekly to the NY DEC (or report electronically on the ACCSP eDR database).

All Landings (Marine/Hudson/Delaware R) will be checked weekly, and monitored for discrepancies. If harvester and dealer reported landings do not agree, New York will use the larger number to count toward its quota.

Under both the catch cap and quota systems outlined in Addendum IV, all New York American eel landings (i.e. from both the yellow and silver eel fisheries) are included, unless they can otherwise be shown to be precluded.

Quota Overages:

	Initial Allocation	Final Quota
Maine	0.48%	3,907
New Hampshire	0.01%	2,000
Massachusetts	0.04%	2,000
Rhode Island	0.16%	4,642
Connecticut	0.19%	2,000
New York	4.26%	15,220
New Jersey	10.19%	94,899
Delaware	6.97%	61,632
Maryland	56.72%	465,968
PRFC	4.67%	52,358
Virginia	9.58%	78,702
North Carolina	4.94%	107,054
South Carolina		2,000
Georgia	0.11%	2,000
Florida	1.69%	13,287
Total	100%	907,669

This quota would only be implemented if either management trigger is tripped:

Management Triggers
1. The coastwide catch cap of 907,669 lbs. is exceeded by more than 10% in a given year (i.e., $\geq$ 998,438 lbs.).
2. The coastwide catch cap of 907,669 lbs. is exceeded for two consecutive years, regardless of percent overage.

State Quota Transfer: If the state quota system is implemented, and New York exceeds its quota, then we will seek to obtain transferred quota from another state before reducing our quota for the following year. New York will request quota transfer from any state that has not fished its state quota. In order to do this, any state or jurisdiction may request approval from the ASMFC Board Chair or Commission Chair to

transfer all or part of its annual quota to one or more states, including states that receive the automatic 2,000 pound quota. Requests for transfers must be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved. The Chair will notify the requesting states within ten working days of the disposition of the request. In evaluating the request, the Chair will consider: if the transfer would preclude the overall annual quota from being harvested, the transfer addresses an unforeseen variation or contingency in the fishery, and if the transfer is consistent with the objects of the FMP. Transfer requests for the current fishing year must be submitted by December 31 of that fishing year.

The transfer of quota would be valid for only the calendar year in which the request is made. These transfers do not permanently affect the state-specific shares of the quota, i.e., the state specific shares remain fixed. Once quota has been transferred to a state, the state receiving quota becomes responsible for any overages of transferred quota.

Adjusted Quota for the Following Year: NY will first try to implement quota management through the use of quota transfers. However, based upon the recent performance of the fishery, quota transfers are unlikely to be available since the coastwide quota was exceeded in 2014 and possibly in 2015. With the pound for pound payback provision, this would result in a complete closure of New York's eel fishery which was never the intent of Addendum IV. If this situation occurs, New York would seek consideration through the American eel Board at its next meeting to correct this unanticipated consequence.

Other Management Measures: The Chief of the Bureau of Marine Resources has the authority to establish quota periods, allocations, directed fishery thresholds, trip limits, closures, and gear restrictions for quota-managed species in the Marine District. Delaware River pot licenses were issued in 2014 and 2015. Zero (0) American eels were caught by pot on the Delaware River in 2014. Therefore, NY will discontinue issuing Delaware River pot licenses in 2016.

New Jersey Addendum IV Draft Implementation Plan for American Eel

The following is New Jersey's draft implementation plan as of September 28, 2015 for American eel in regards to Addendum IV to the FMP. Items are subject to change pending final actions by the Commissioner of the New Jersey Department of Environmental Protection (Commissioner) and New Jersey's Marine Fisheries Council (Council).

Regulatory Process and Timeline

The Commissioner, in conjunction with the Council, has authority to modify regulations pertaining to American eel. The majority of future regulatory actions expected for eel will be completed through our Notice of Administrative Change Process (Notice) and would likely take a maximum of three to four months after any ASMFC action regarding state by state quotas. Other actions not covered under the Notice process would require full rule making following the New Jersey Administrative Procedures Act (APA) process. This process is more involved and may take somewhat longer to complete but none of the quota monitoring portions of any regulatory action would be affected. Most regulations, including all American eel regulations can be found in N.J.A.C. 7:25, subchapter 18.

Reporting Timeframe

Currently all American eel harvesters/dealers are required to report monthly with harvesters/dealers reporting daily harvest information through their monthly reports. With the implementation of a limited entry license/permit for commercial eel harvest through regulatory action expected in early 2016, New Jersey could require weekly/daily reporting through the Notice process pending any ASMFC action regarding state by state quotas.

Monitoring Process

At this point New Jersey intends to monitor any potential quota through our current dealer reporting system. This includes monthly reporting of daily harvest. As noted above, we could require weekly/daily reporting through the Notice process pending any ASMFC action regarding state by state quotas. We will also continue to use harvester reporting, as needed, as a cross referencing tool to ensure accuracy of dealer and harvester reporting.

Quota Overages

The easiest and most expeditious mechanism to account for quota overages will be to insert regulatory language through the Notice process that allows the Commissioner to administer any NJ eel quota as determined by ASMFC. If the quota for any year is exceeded, the amount overharvested will be deducted from the following year's quota. This will allow for the ability to be flexible should it be necessary to deal with a quota overage. Similar language is already found in existing regulations for other quota managed species (ex. summer flounder, black sea bass and bluefish).

Quota Transfers

The quota transfer process is fairly straightforward and does not need to go through the regulatory process in order to implement a transfer. For ASMFC and Mid-Atlantic Fishery Management

DRAFT

Council quota managed species, the Marine Fisheries Administrator currently has the ability to make decisions on quota transfers (either transferring quota to a state or receiving quota from a state) on a case by case basis.

Additional Measures

The Council and its advisors are currently developing regulatory specifications that will institute a limited entry program based on harvest from 2007 to 2014. Other potential changes include a pot limit (maximum of 300), fishing seasons (spring/fall), and other management measures to control harvest and effort. This will ensure that New Jersey's eel harvesters are in-line with ASMFC recommendations. Some of these items will be implemented through the Notice process while others will need to take a longer regulatory route of up to two years to implement. This regulatory process will likely begin in late 2015 or early 2016.

DRAFT

American Eel Addendum IV Implementation Plan for Delaware

1.) *Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).*

American Eel limits are prescribed by Delaware state law (7 Delaware Code Chapter 18) and must be changed by the Legislature. Changes associated with Addendums III and IV of the American Eel Fishery Management Plan were tabled during the last General Assembly session. The Delaware General Assembly will resume in January 2016.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

Eel reporting timeframes and changes to reporting under quota management have been updated in the supplied table for DE.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

Under quota based management, American Eel landings will be called in daily to the DDFW's IVR (Interactive Voice Response) system. The DDFW uses this system for all quota based fisheries (striped bass, black sea bass, horseshoe crab, Atlantic menhaden) and all data is backed up and time-stamped.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

Should commercial harvesters exceed the quota in any given year, the overage (pounds) will be deducted from the following year's quota and distributed evenly among eligible harvesters.

5.) Identify a mechanism to transfer quota if needed.

Only eligible commercial eel harvesters with a valid commercial eel license will be allowed to transfer their individual quota to another eligible participant.

American Eel Addendum IV Implementation Plans

Purpose: To detail how a state intends to implement and monitor a state specific quota for yellow eels if triggered for 2016.

State of Maryland by Keith Whiteford

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

Maryland Department of Natural Resources has statutory authority to implement all necessary regulatory actions. It takes approximately 100 days to implement a regulatory change, unless the Department has authority to make changes through a public notice.

The process to make a regulatory change is as follows: the regulation is first submitted to a legislative review committee (AELR) and a committee housed in the Maryland Department of Business and Economic Development (DBED). The AELR review takes two weeks. The DBED review is a new legislative requirement that will begin on October 1, 2015. DBED will have the same two week period as AELR to review the proposed regulations. Upon approval by those two committees, the regulation is published in the Maryland Register, with a 30-day comment period. After the comment period, the Department reviews the comments and makes a decision on whether to move forward. A final regulation is generally sent to be published in the Maryland Register roughly two weeks after the close of the public comment period, with an effective date 2-3 weeks after that.

If the Department has authority to make changes through a public notice, the change can be made with very short notice. Public notices must be issued at least 48 hours prior to the effective date and time of the change and can usually be published on the Department's website.

Maryland Department of Natural Resources will submit a regulatory package in early November 2015 (effective by March 2016) that will propose to manage eel quotas, seasons, and catch limits through public notice in order to streamline the management process.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The eel reporting timeframes reported in this table are correct for Maryland. Harvester reporting will begin in 2016 under the requirements listed in the table. However, if a state quota is implemented, daily reporting as prescribed by the Department will be required.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

Maryland intends to monitor the eel quota through harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.
5.) Identify a mechanism to transfer quota if needed.

Maryland's regulations would allow the Department to manage quotas, which would include the ability to transfer quota or modify quota in the result of previous year overage.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Maryland will establish an eel harvester permit that will be required for all commercial eel harvesters, This includes commercial finfish and crab license holders (allowed to harvest eels for crab bait). If a state quota is implemented, all eel permit holders will be subject to new reporting requirements as prescribed by the Department. These reporting requirements will comply with Addendum IV. The implementation date for the establishment of an eel harvester permit will be March 1, 2016.

MARYLAND - VIRGINIA
"Potomac River Compact of 1958"

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American Eel Implementation Plan

September 30, 2015

The Potomac River Fisheries Commission's (PRFC) has regulatory authority over the fishery resources in the main stem of the Potomac River from the Woodrow Wilson Bridge downstream to the mouth of the river. No regulation shall be adopted by the PRFC unless a public hearing is held thereon, notice of the proposed regulation has been advertised on a timely basis in local newspapers, a copy of the proposed regulation is mailed to each clerk of court in the counties adjacent to the Potomac River on a timely basis, and the regulation is approved by at least six members of the eight-member Commission. No regulation shall become effective until at least 30 days after its adoption by the PRFC. The PRFC may also issue Orders of the Commission, which shall have the same force, effect, be published, and be enforceable and punishable in the same method and manner as regulations of the Commission. An Order of the Commission may become effective ten days after its adoption or such later date as set by the PRFC.

The PRFC will maintain the daily harvester reporting on a weekly basis. We would closely track the American eel commercial harvest from the Potomac River. Since the eel pot fishery accounts for about 99 percent of the eel harvest, eel pot fishermen could be required to call-in their weekly total eel harvest each Sunday once 70 percent of the quota is projected to be landed. All eel pot fishermen and significant buyers would be notified when 90 percent of the catch limit is reached and when the fishery shall be closed. A closure notice will be mailed to all PRFC licensed fishermen and the ASMFC.

The PRFC can establish an Order to set the American eel quota. Any overage of the PRFC quota will be subtracted from the following year's quota. In the event that the ASMFC needs to adjust the allocation for the Potomac, the PRFC can revise this Order and it will become effective ten days after its adoption.

Quota transfers, if any, will be on a case by case basis as needed. The ASMFC will be notified as to the date, amount, the transferor and the transferee of any such transactions.

Virginia American Eel Addendum IV Implementation Plans

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

In the case of regulatory changes, the Virginia Marine Resources Commission (VMRC) must provide the intent of the regulatory action and allow for 15 days of public comment before it is reviewed at a formal public hearing at the monthly Commission meeting. Commission meetings are held on the fourth Tuesday of every month. The VMRC also has the ability to establish an emergency regulation at any Commission meeting. If the Commission adopts an emergency regulation, that regulation must be advertised at least 15 days before the day of the subsequent public hearing.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

Modifications were made in the notes section.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

If state specific quotas are established, the VMRC will monitor harvest monthly through the Mandatory Harvest Reporting Program. Landings will be monitored monthly through the Mandatory Eel Buyers Reports. Both of these reports are due the fifth of the following month. A regulatory trigger will be implemented that will require more timely reporting by both harvesters and buyers.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

The regulatory process described in section one, above, allows Virginia to modify quota adjustments within one month of receiving the adjustment.

5.) Identify a mechanism to transfer quota if needed.

Virginia recommends the transfer process utilized in other ASMFC quota managed species of a formal request to the director of the ASMFC from both parties. Virginia's regulatory structure described in section one, above, allows a timely adjustment of the state specific quota in such cases.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Virginia proposes a series of industry and advisory meetings to discuss effort control strategies in order to optimize opportunities for Virginia harvesters. These strategies may include seasonal closures or possession limits.

North Carolina Implementation Plan for Addendum IV to the Interstate Fishery Management Plan for American Eel

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries
PO Box 769
Morehead City, NC 28557

September 2015

Background

In October 2014 the Atlantic States Marine Fisheries Commission (ASMFC) adopted Addendum IV to the Interstate Fishery Management Plan for American Eel (http://www.asmfc.org/uploads/file//55318062Addendum_IV_American_Eel_oct2014.pdf). Addendum IV implemented a coast wide catch cap of 907,671 pounds for the American eel yellow eel fishery. Under the catch cap, there are two management triggers:

1. The coast wide catch cap is exceeded by more than 10% in a given year (998,438 pounds), or
2. The coast wide catch cap is exceeded for two consecutive years, regardless of percent over.

If either trigger is activated then state-by-state commercial yellow eel quotas will be implemented. The annual coast wide quota is set at 907,669 pounds, with allocation levels varying among states. North Carolina's allocation for the commercial yellow eel fishery is 107,054 pounds. See Appendix A in Addendum IV for a description of the allocation methodology (ASMFC 2014). The coast wide catch cap has been exceeded from 2010 through 2013 and recently was exceeded by more than 10 percent in 2011 and 2012 (Figure 1).

States and jurisdictions were required to approve regulations to allow implementation of a quota management program and timely monitoring of harvest no later than March 2016. This was to ensure if a management trigger is activated in the first year of implementation (2015) the required management action could be taken. The quota management program must include a provision to address quota overages and allow quota transfers. If the state-by-state quota system is implemented and a state or jurisdiction has an overage in a given fishing year, then the state or jurisdiction is required to reduce their following year's quota by the same amount the quota was exceeded, pound for pound.

Implementation Plan

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The North Carolina Marine Fisheries Commission has delegated to the Fisheries Director the ability to issue proclamations to suspend or implement rules that may be affected by variable conditions. The proclamation authority includes the ability to open and close seasons and fishing areas, set harvest and gear limits, and establish conditions governing various fishing activities. Regulations implemented by proclamation can be effective immediately for quota-managed fisheries. Previously, to constrain harvest of some quota-managed fisheries in North Carolina, harvest seasons were established and adjusted by proclamation.

2.) Please check that eel reporting timeframes are correct in this table for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)	Done By:
NC	Monthly (combined reports)	Monthly (logbooks)	Currently we monitor eel landings with a single trip ticket with dealer and harvester information submitted monthly. We also monitor eel landings through eel pot logbooks that each harvester is required to submit monthly. If a quota is implemented, we could use existing authority to require more frequent reporting (daily or weekly).	Jason Rock

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

North Carolina intends to monitor an American eel yellow eel quota through mandatory monthly dealer reporting already required by the North Carolina Trip Ticket Program. Currently most American eel landings are reported using paper tickets but some dealers are reporting electronically (Table 1). Over time more dealers should begin to report electronically, decreasing the time it takes for landings data to become available. North Carolina may also use existing authority to require dealers or harvesters to report landings more frequently if the current monthly reporting requirement is deemed inadequate.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

Open and closed harvest seasons may be established and adjusted by proclamation to constrain American eel landings to North Carolina's quota and to account for any overages in a previous year.

5.) Identify a mechanism to transfer quota if needed.

North Carolina will follow the quota transfer procedure outlined in Addendum IV (summarized below) to transfer quota to and from North Carolina and other states, if necessary.

The mechanism to transfer quota would be:

- A formal letter will be sent requesting approval from the Board Chair or Commission Chair to transfer all or part of one states annual quota to one or more states, and
- Requests for transfers will be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Previously, North Carolina would have exceeded the 107,054 pound state quota five times since 1998 (Figure 2). In the last 10 years, North Carolina would have exceeded the state quota once, in 2010 (Table 1). Over the last five years (2010-2014) annual landings have averaged 68,322 pounds, approximately 64% of the North Carolina quota (Figure 3). For 2010-2014, the highest daily landings average in the North Carolina American eel yellow eel fishery was 4,131 pounds (Figure 4)

To monitor for higher than normal landings, a landings threshold for the spring fishery (January – April) of 10% of the North Carolina quota (approximately 10,705 pounds) will be established. Typically, this level of landings in the spring fishery is a good indicator of above average landings in the fall fishery (Table 2; Figure 5). In years where the spring fishery exceeded 10% of the quota, landings averaged 106,384 pounds. If the landings threshold is reached for the spring fishery, North Carolina would use existing authority to require more frequent dealer or harvester reporting (e.g., daily or weekly) to more closely monitor the fall fishery. Once landings reach approximately 85% of the quota (roughly 91,000 pounds) the fishery will be closed. This value was chosen to reduce the risk of the quota being exceeded and due to the pulse reporting nature of the fishery. The highest daily landings recorded in the fall fishery was 15,200 pounds in October 2010 (Figure 6). Once the preliminary landings are tallied, after the closure is in effect, the fishery may be reopened in short windows depending on how much, if any, quota is left.

Table 1. North Carolina American eel yellow eel landings including the percent of landings from paper and electronic trip ticket submission and the number of dealers reporting by paper and electronic trip tickets.

	Landings		Dealers		
Year	% Paper	% Electronic	# Paper	# Electronic	Total Landings (lb.)
2004	99.94	0.06	22	1	128,875
2005	100	0	17	0	49,278
2006	99.98	0.02	11	1	33,581
2007	100	0	15	0	37,937
2008	100	0	11	0	23,833
2009	99.92	0.08	13	2	65,481
2010	99.97	0.03	11	1	122,104
2011	100	0	12	0	61,960
2012	99.99	0.01	15	1	64,110
2013	53.77	46.23	12	4	33,980
2014	91.43	8.57	12	3	59,458

Table 2. North Carolina annual American eel landings in the spring (January-April) yellow eel fishery. Bold years are years where the quota would have been exceeded if it were in place.

Year	January-April Landings (lb.)	January-April Percent of Quota	Total Landings (lb.)	January-April Percent of Total Landings
1998	22,257	20.8%	91,084	24%
1999	23,058	21.5%	99,939	23%
2000	***47,375***	***44.3%***	***127,099***	***37%***
2001	***38,923***	***36.4%***	***107,070***	***36%***
2002	21,402	20.0%	59,940	36%
2003	***26,059***	***24.3%***	***172,065***	***15%***
2004	***29,229***	***27.3%***	***128,875***	***23%***
2005	14,074	13.1%	49,278	29%
2006	4,507	4.2%	33,581	13%
2007	2,874	2.7%	37,937	8%
2008	2,407	2.2%	23,833	10%
2009	4,606	4.3%	65,481	7%
2010	***13,538***	***12.6%***	***122,104***	***11%***
2011	8,688	8.1%	61,960	14%
2012	5,375	5.0%	64,110	8%
2013	1,302	1.2%	33,980	4%
2014	1,329	1.2%	59,458	2%
2010-2014 Average	6,924	6.5%	68,322	10%

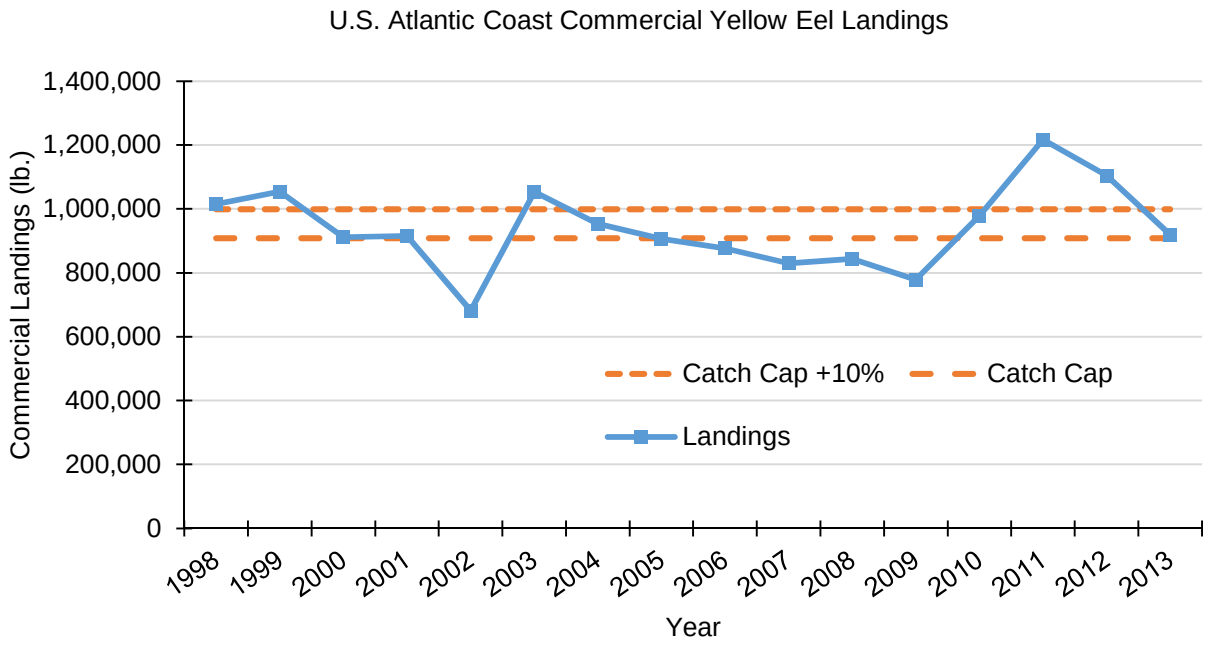

Figure 1. Commercial yellow eel landings along the U.S. Atlantic Coast, 1998–2013. The dashed lines represent the two management triggers for state-by-state quotas.

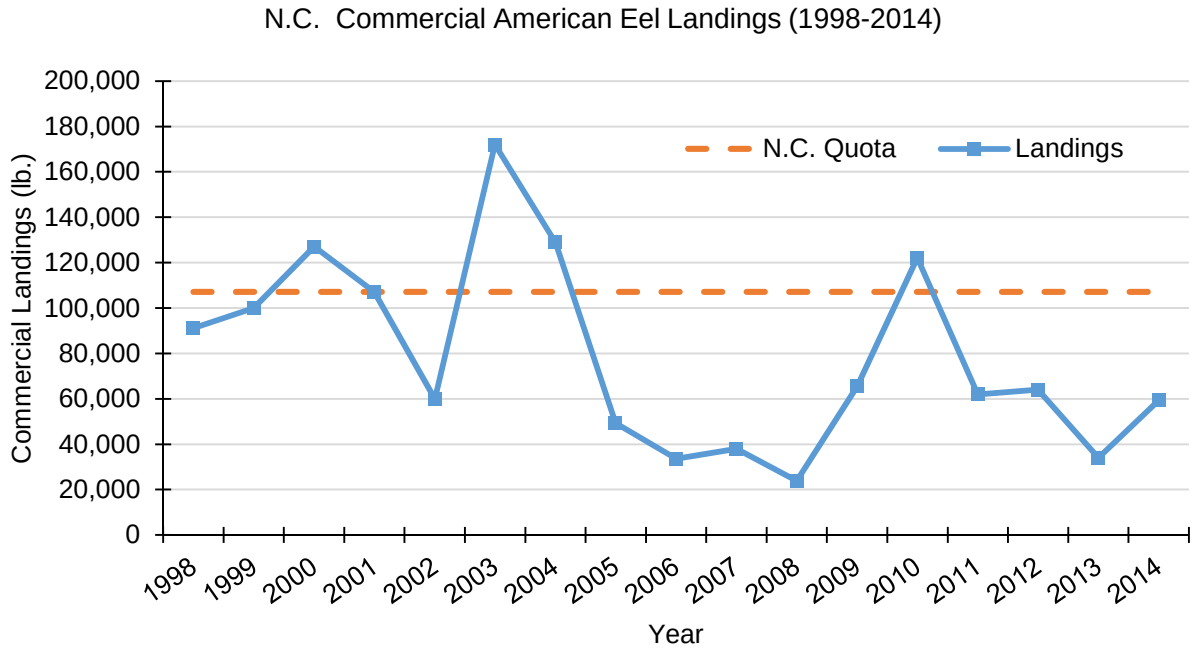

Figure 2. American eel landings in North Carolina, 1998 to 2014. The dashed line represents North Carolina's quota allocation for the commercial yellow eel fishery (107,054 pounds).

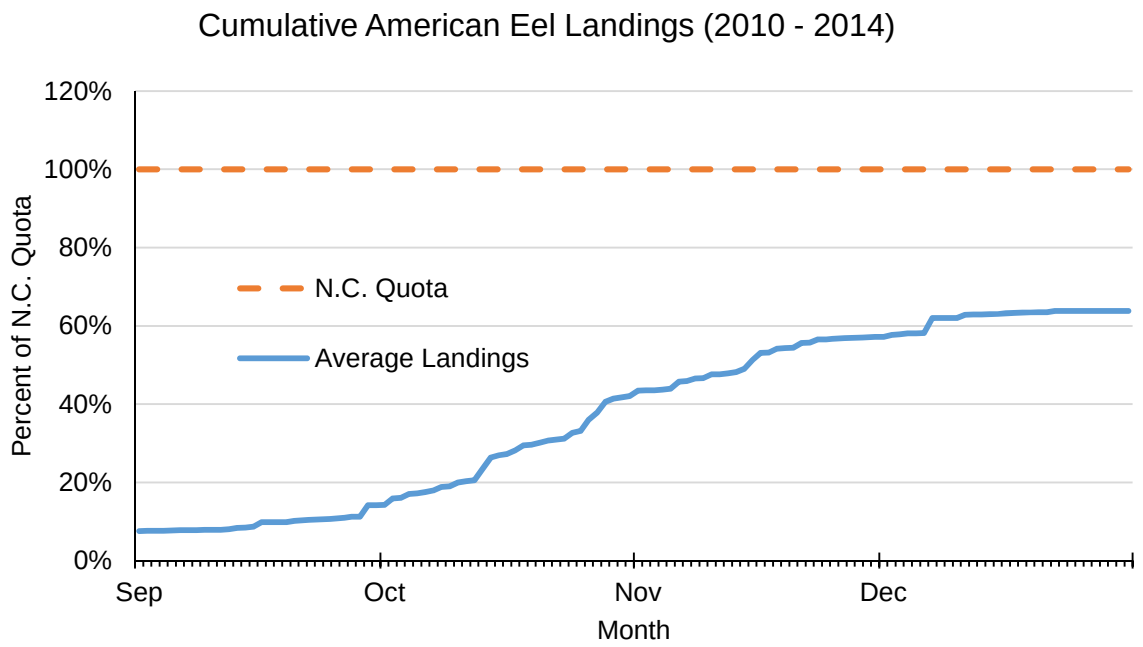

Figure 3. Average cumulative daily landings for the North Carolina American eel yellow eel fishery, 2010-2014.

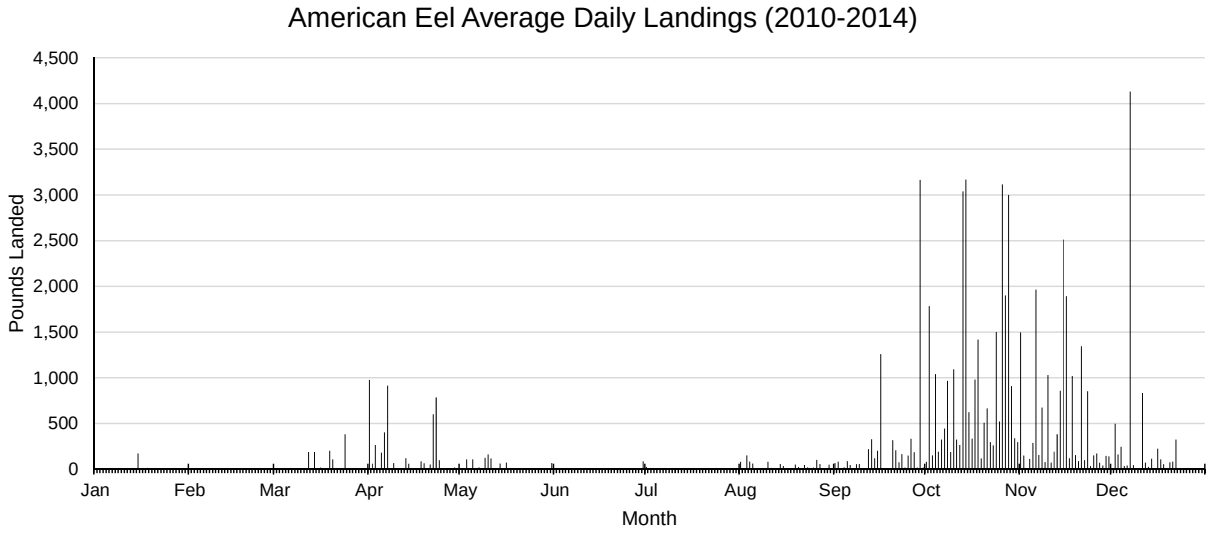

Figure 4. Average daily landings for the North Carolina American eel yellow eel fishery, 2010-2014.

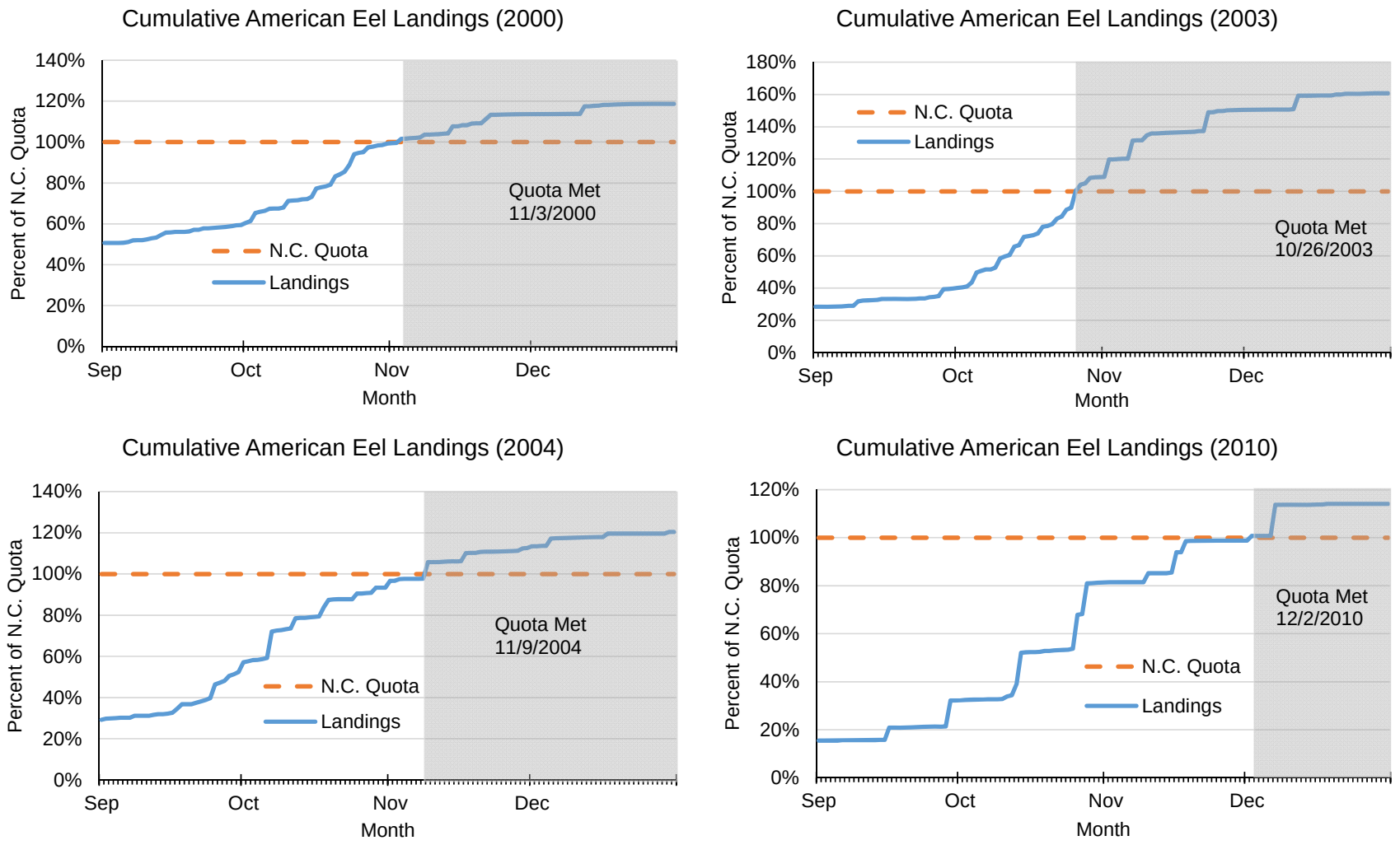

Figure 5. Cumulative daily American eel yellow eel landings for selected years (2000, 2003, 2004, and 2010) when North Carolina would have exceeded the quota (usually by the end of October/beginning of November).

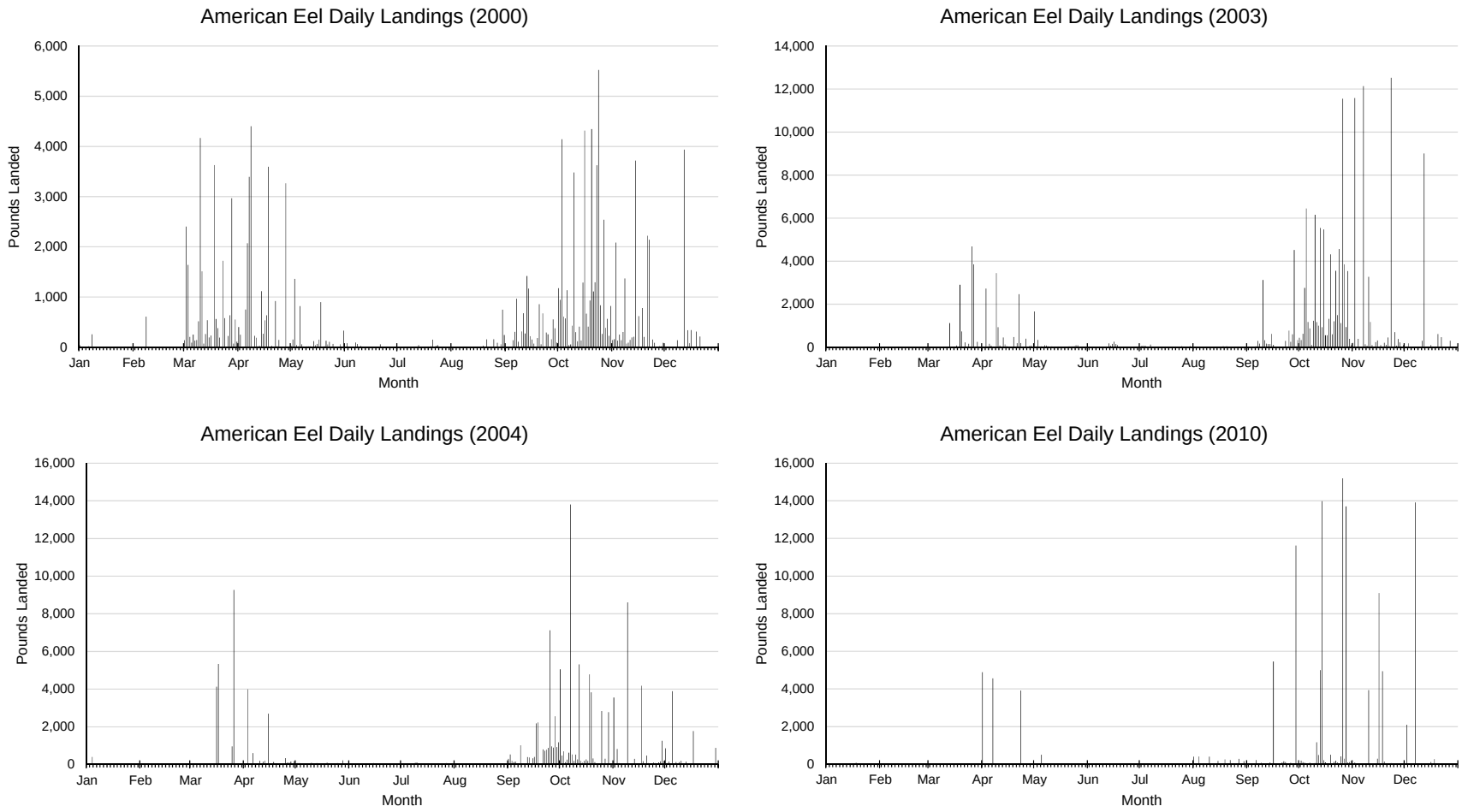

Figure 6. Daily landings for the North Carolina American eel yellow eel fishery for years the North Carolina quota would have been exceeded.

American Eel Addendum IV Implementation Plan for SC

In order to monitor annual harvest of American eel, South Carolina initiated a permit system in 1996. Permitees must purchase a proper freshwater or marine commercial fishing license, as well as a license for each gear type to be fished in order to take American eel in any State waters. Individuals may be permitted by water area, season and gear type. Permitees are also required to supply monthly reports of catch and effort by gear and water area which along with dealer reports is a mechanism to monitor quota limits. Additionally, South Carolina State Law (50-5-1556) allows SCDNR to manage fishing effort by water area and gear type. Permitted legal gear consist of pots or traps for adult eel and dip and fyke nets for glass eel and elvers. Specifications and restrictions for these gears may be included in individual permits. Currently, South Carolina Law does not allow the use of recreational eel pots in marine waters and beginning during the 2012 fishing season all individuals (recreational or commercial) using gear types deemed commercial must obtain a permit by gear type and water area.

Addendum IV of the Fishery Management Plan for American Eel establishes a 907,671 pound coastwide quota for yellow eel fisheries. Under this Addendum, South Carolina would be allocated a yellow eel quota of 2000 pounds. In South Carolina harvesting American eels has mainly been an elver/glass fishery using fyke nets, not pots and South Carolina historically had a very small yellow eel fishery. The combined catch of yellow eels in South Carolina for the last 17 years, has not exceeded the proposed yearly quota. Therefore, it is highly unlikely that South Carolina's yellow eel harvest will exceed 2000lbs. In the unlikely event that quota overages do occur we will require a pound-for-pound payback. Potential management actions to control harvest may include gear restrictions, season changes, catch limits, or closure, In South Carolina all changes in fisheries laws must go through the legislative process. If a quota is put into effect for yellow eels, South Carolina would implement that quota through the permitting process until new regulations could be passed through the General Assembly.

State of Georgia Catch Quota Implementation Plan
As Required in Addendum IV of the American Eel Fishery Management Plan

Introduction

Addendum IV to the American Eel Fishery Management Plan requires that states must submit implementation plans (Plan) for the management board to review. Per this requirement, the Plan is to identify how each state intends to implement and monitor state specific catch quotas for yellow eels. State specific quotas will be implemented when the coastwide catch cap (presently set at 907,671 lbs) is: 1) exceeded by more than 10% in any given year (998,438 lbs); or 2) exceeded for two consecutive years, regardless of the percent. Georgia's state specific catch quota is presently 2,000 lbs.

Regulatory Process

The Georgia Department of Natural Resources (GADNR) regulates the fishing of American eels under Chapter 391-2-4-.01, Rules of Saltwater Fishing Regulations (Rule). Per this Rule, the Board of Natural Resources is authorized to promulgate rules and regulations for certain finfish, including American eels, based on sound principles of wildlife research and management. This authority includes establishing the seasons, methods of fishing and disposition, size, creel and possession limits, and gear and landing specifications.

Currently in 2015, there is no closed season on American eels in Georgia. Recreational fishermen are allowed a daily creel/possession limit of 25 fish and may take eels with any approved gear in all waters (fresh or salt) open to the harvest of finfish. All harvested fish must have a minimum size of 9 inches, total length, regardless if caught recreationally or commercially. Commercial fishing for eels is allowed in all state waters except those specifically identified in Rule 391-2-4-.01. No harvest limit exists for commercial eel fishermen. Commercial fishermen may use pots/traps as described in Rule 391-2-4-.01 to target eels, though no other fish other than eels may be retained during fishing efforts.

In the event that changes to the American eel fishery in Georgia were needed, all proposed changes would be presented to the Board of Natural Resources for their approval. Once approved, the changes would become effective by a prescribed date. Such changes would not require legislative approval and thus could occur at any time during the calendar year. The process can take up to 90 days.

Reporting

Presently in Georgia, dealers report harvest of eels monthly, while fishermen report daily trip tickets by the 10th day of each month. Over the past five years (2010 – 2014), no dealer has reported eel landings that were not directly associated with the commercial fisherman harvesting the catch (ie., harvester is the dealer). During that same period only four commercial fishermen reported eel landings.

Quota Monitoring and Management

Under Addendum IV, Georgia has been provided an annual **st**ate specific, catch quota of 2,000 lbs. That amount has not been exceeded since 2012 (2,043 lbs) and only three times since 1989 (1989, 1990, and 2012) (Table 1). The five-year harvest average (2010-2014) is just 735 lbs with the long-term average (1989-2014) only slightly higher (813 lbs) (Table 1). The number of reported trips averages just 3.6 per year (1989-2014) with no more than three fishermen reporting landings in any given year (Table 1). Given the low participation and irregular and minimal harvest, the Department believes it would be best to close the American eel commercial fishery in Georgia if state-specific catch quotas are implemented in accordance with Addendum IV.

This decision is based in part on the unreasonable financial and personnel resources burden necessary to manage and enforce such a small catch quota. Over the past five years, 86.1% of the harvest was reported over a five month period (August – December) while historically (1989-2014), 96.6% of the harvest was spread over eight months (August – April) (Figure 1). Managing such a small catch quota over such a protracted period is not practical.

The hardship to commercial fishers should be minimal since only four fishers have reported American eel landings since 2010, (only fisher for more than one year). Total reported harvest for this five-year period was 3,676 lbs, from 298 traps (pots) set during 16 trips (Table 1).

Quota Transfer

Georgia's allocated quota would be considered for transfer to another state should it be requested. Protocols established in Section 3.1.2 of Addendum IV will be followed if a transfer request is received: [*Requests for transfers must be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved. The Chair will notify the requesting states within ten working days of the disposition of the request. In evaluating the request, the Chair will consider: if the transfer would preclude the overall annual quota from being harvested, the transfer addresses an unforeseen variation or contingency in the fishery, and if the transfer is consistent with the objects of the FMP. Transfer requests for the current fishing year must be submitted by December 31 of that fishing year.*].

Georgia presently does not have a glass or silver eel fishery, nor aquaculture facilities capable of rearing glass eels. As such, Georgia's implementation plan in accordance with Addendum IV will prohibit these activities in state waters.

Table 1. Georgia's reported annual American eel commercial catch and effort statistics, long-term (1989-2014) and 5-year (2010-2014) averages.

YEAR	Pounds	Value	Trips	Traps	Fishers	CPUE (lb/trip)
Avg(89-14)	813	3,306	3.4	59.6	1.1	237.6
Total(89-14)	21,148	85,959	89	298	7	
Min(89-14)	0	0	0	0	0	3.5
Max(89-14)	5,420	22,266	14	115	3	865.0
Avg(10-14)	735	8,466	3.2	59.6	1.2	229.8
Total(10-14)	3,676	42,330	16	298	4	
Min(10-14)	0	0	0	0	0	25.8
Max(10-14)	2,043	22,266	6	115	2	681.0

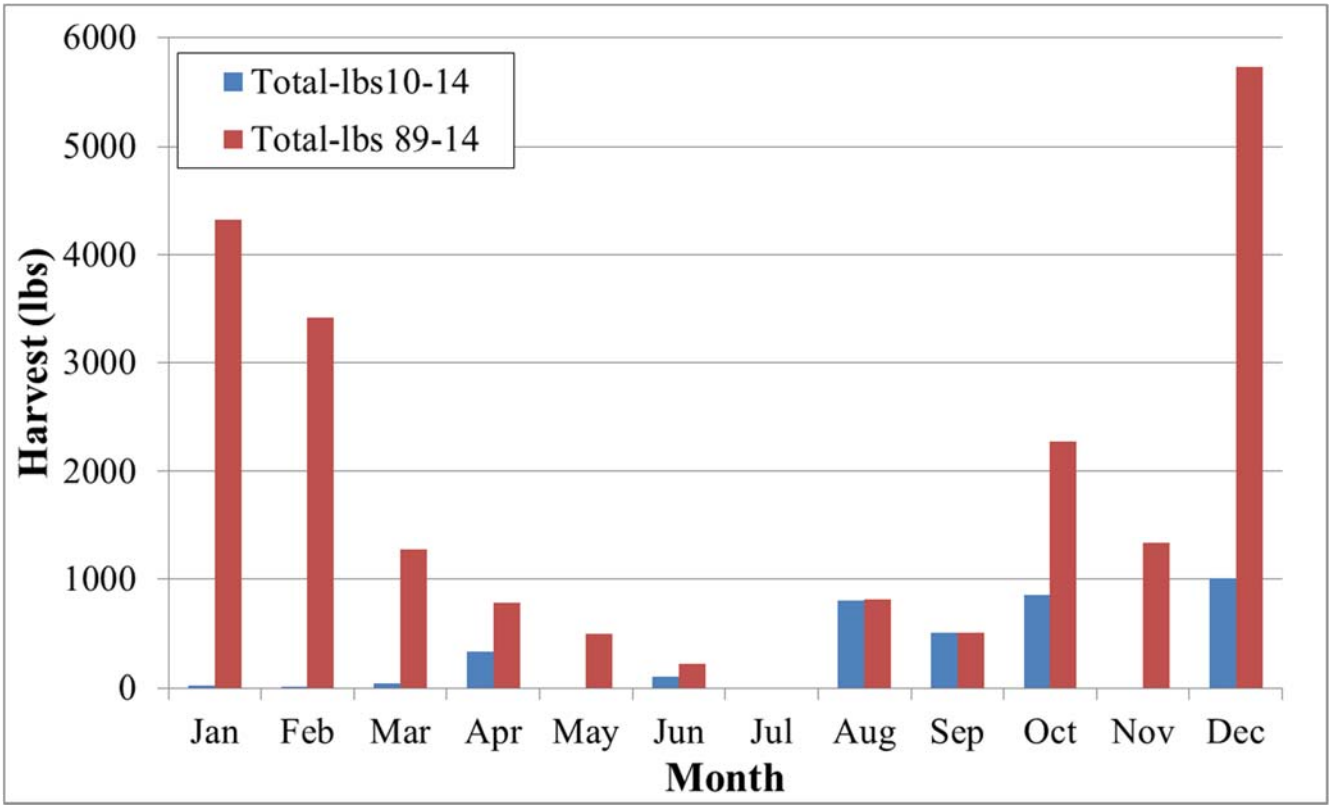

Figure 1. Georgia's total American eel harvest by month, 1989-2014, and 5-year (2010-2014)

MEMORANDUM

To: Michael Waine
From: Kimberly Bonvechio
Date: 9/28/2015
Re: Florida Implementation Plan for Amendment IV of the Interstate Fishery Management Plan for American Eel

1) Regulatory Process and Timeline
In Florida, fisheries are opened and closed by executive order for emergency measures and by rule as codified in the Florida Administrative Code (FAC). The Florida Fish and Wildlife Conservation Commission (FWC) abides by Ch. 120, Florida Statutes for due process procedures when making rules. The public is notified of rulemaking activity through the Florida Administrative Register. Rulemaking often includes direct contact with those who may be affected, extensive discussions with stakeholder groups, and public meetings to gather input from interested parties. Final rulemaking authority is held by the Governor-appointed Commission, which meets five times a year in locations throughout the State.

Should a management trigger be tripped and state quota implemented during the 2016 fishing season, the American eel commercial fishery will be closed by Executive Order when the commercial harvest is projected to reach Florida's 2016 quota allotment (13,287-lb). A copy of the Executive Order closing the fishery will be submitted as part of Florida's compliance report.

2) Reporting Timeframe
Per the American eel commercial harvest permit, submission of daily trip tickets with harvester information are required monthly.

Should the state by state quota be implemented, we will begin making weekly phone calls to permitted harvesters once 50% of the quota has been reached, until the quota is predicted to be filled. A rule change will eventually need to be made, as the current provisions of the commercial American eel harvest permit dictate monthly reporting.

3) Reporting Structure
Florida currently has harvester reporting only and does not plan to implement any other structure at the present time. Concerns about double reporting from out-of-state dealers that purchase commercially caught eels reported in Florida still need to be addressed. Futhermore, commercial eel harvesters in Florida typically keep fish live in holding tanks before selling them to dealers. There is some uncertainty as to whether eels should be considered landed and counted toward the quota once harvested or only after eels are sold to dealers.

4) Quota Overage Adjustment
If applicable, Florida's annual quota will be reduced by the same amount the previous year's quota was exceeded, pound for pound. In this case, the American eel commercial fishery will be

closed by Executive Order when the commercial harvest is projected to reach this adjusted quota allotment.

5) Transfer Quota
Transfers of American eel quota will be done pursuant to a letter signed by the Florida Director of Freshwater Fisheries Management and sent to the appropriate regulatory agency personnel.

Additional Management Measures
None

2015 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR **AMERICAN EEL** ***(Anguilla rostrata)***

2014 FISHING YEAR

Prepared by the American Eel Plan Review Team
September 2015

2015 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR AMERICAN EEL
(Anguilla rostrata)

I. Status of the Fishery Management Plan

Date of FMP approval:	November 1999
Addenda:	Addendum I (February 2006) Addendum II (October 2008) Addendum III (August 2013) Addendum IV (October 2014)
Management unit:	Migratory stocks of American Eel from Maine through Florida
States with a declared interest:	Maine through Florida, including the District of Columbia and the Potomac River Fisheries Commission
Active committees:	American Eel Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel.

The ASMFC American Eel Management Board first convened in November 1995 and finalized the Fishery Management Plan (FMP) for American Eel in November 1999 (ASMFC 2000a). The goal of the FMP is to conserve and protect the American eel resource to ensure ecological stability while providing for sustainable fisheries. In support of this goal, the following objectives are included:

The FMP requires all states and jurisdictions to implement an annual young-of-year (YOY) abundance survey to monitor annual recruitment of each year's cohort. In addition, the FMP requires a minimum recreational size and possession limit and a state license for recreational fishermen to sell eels. The FMP requires that states and jurisdictions maintain existing or more conservative American eel commercial fishery regulations for all life stages, including minimum size limits. Each state is responsible for implementing management measures within its jurisdiction to ensure the sustainability of its American eel population.

In August 2005, the American Eel Management Board directed the American Eel Plan Development Team (PDT) to initiate an addendum to establish a mandatory catch and effort monitoring program for American eel. The Board approved Addendum I at the February 2006 Board meeting.

In January 2007, the Management Board initiated a draft addendum with the goal of increasing escapement of silver eels to the spawning grounds. In October 2008, the Management Board approved Addendum II, which placed increased emphasis on improving the upstream and downstream passage of American eel. The Management Board chose to delay action on management measures in order to incorporate the results of the 2012 stock assessment.

In August 2012, the Management Board initiated Draft Addendum III with the goal of reducing mortality on all life stages of American eel. The addendum was initiated in response to the findings of the 2012 Benchmark stock assessment, which declared American eel stock along the US East Coast as depleted. The Management Board approved Addendum III in August 2013.

Addendum III requires states to reduce the yellow eel recreational possession limit to 25 eel/person/day, with the option to allow an exception of 50 eel/person/day for party/charter employees for bait purposes. The recreational and commercial size limit increased to a minimum of 9". Eel pots are required to be ½" by ½" minimum mesh size or have at least a 4" by 4" escape panel of ½" by ½" mesh escape panel. The

glass eel fishery is required to implement a maximum tolerance of 25 pigmented eels per pound of glass eel catch. The silver eel fishery is prohibited to take eels from September 1st to December 31st from any gear type other than baited traps/pots or spears. The addendum also set minimum monitoring standards for states and required dealer and harvester reporting in the commercial fishery. The Board chose to act on glass eel management measures in Addendum IV, which comes into effect in the 2015 fishing year.

II. Status of the Stock

In 2009, the Management Board initiated the start of a new assessment. After reviewing over 100 surveys and studies, the American Eel Stock Assessment Subcommittee selected 19 young-of-year surveys and 15 yellow eel surveys along the East Coast for use as indices of abundance in the assessment. Despite the large number of surveys and studies available for use, the American eel stock is still considered data-poor because very few surveys target eels and collect information on length, age, and sex of the animals caught. Additionally, eels have an extremely complex life history that is difficult to describe using traditional stock assessment models. Therefore, several data-poor methods were used to assess the American eel resource.

The first set of analyses (trend analyses) aimed to determine if there was a statistically significant trend in the fishery-independent survey data and whether or not there was evidence for significant trends on the regional and coast-wide scales. The second approach involved a Depletion-Based Stock Reduction Analysis (DB-SRA) model, which uses trends in historical catch to estimate biomass trends and maximum sustainable yield. Both the trend analyses and DB-SRA results indicate that the American eel stock has declined in recent decades, and the prevalence of significant downward trends in multiple surveys across the coast is cause for concern. Therefore, the stock status for American eels is depleted. The Benchmark Stock Assessment was peer reviewed in March 2012 and was approved for management use in May 2012.

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fisheries Commission (GLFC) highlighted concerns regarding the health of eel stocks worldwide. In 2010, Canada Department of Fisheries and Oceans (DFO) conducted a stock assessment on American eels in Canadian waters and found that region-specific status indices show that abundance is very low in comparison to levels in the 1980s for Lake Ontario and upper St. Lawrence River stock, and is either unchanged or increasing in the Atlantic Provinces. A joint stock assessment by both Canada DFO and the Commission was recommended by the American Eel Stock Assessment Subcommittee as an approach for the next assessment.

III. Status of the Fishery

American eel currently support commercial fisheries throughout their range in North America, with significant fisheries occurring in the US Mid-Atlantic region and Canada. These fisheries are executed in riverine, estuarine, and ocean waters. In the US, commercial fisheries for glass eel/elver exist in Maine and South Carolina, whereas yellow/silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

Although eel have been continuously harvested, consistent data on harvest are often not available. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that the harvest fluctuated widely between 1970 and 1980, but showed an increasing trend that peaked in 1979 at 3,951,936 pounds. Harvest has declined since then, with the lowest harvest of 641,225 pounds occurring in 2002. Because fishing effort data are unavailable for the entire time series, finding a correlation between population numbers and landings data is difficult.

Commercial

Commercial landings have decreased from the high of 3.95 million pounds in 1979 to a low of 641,000 pounds in 2002, and have only recently begun to exceed one million pounds. State reported landings of yellow/silver eels in 2014 totaled 1,052,514.40 pounds[1] (Table 1), which represents a 4.4% increase in landings from 2013 (1,008,003 pounds). Yellow eel landings increased in Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Maryland, PRFC, North Carolina, and South Carolina, and declined in New York, Delaware, and Florida. In 2014, state reported landings from Maryland and Virginia each totaled over 100,000 pounds of eel, and together accounted for 69% of the coastwide commercial total landings. Landings of glass eels were reported from Maine, South Carolina, and Florida and totaled 12,515 pounds.

Table 1. 2014 Commercial Landings by state and Life Stage[1]

	State Reported	
	Glass	**Yellow**
Maine	9,690.19	7,368.4
New Hampshire	No Fishery	0
Massachusetts	No Fishery	3,903
Rhode Island	No Fishery	2,378
Connecticut	No Fishery	4,386
New York	No Fishery	34,142
New Jersey	No Fishery	91,225
Pennsylvania	No Fishery	No Fishery
Delaware	No Fishery	62,388
Maryland	No Fishery	610,585
D.C.	No Fishery	No Fishery
PRFC	No Fishery	49,293
Virginia	No Fishery	112,199
North Carolina	No Fishery	59,458
South Carolina	Glass: 245.43 Elver: 1,614.8	Confidential
Georgia	No Fishery	Confidential
Florida	Glass: 311 Elver: 654	15,057
Total	**G: 10,246.62 E:2,268.8**	**1,052,514.40**

[1] Harvest data for 2014 comes from the 2015 State Compliance Reports. All landings are preliminary and some are incomplete.

Table 2. State commercial regulations for the 2014 fishing year.*

State	Min Size Limit	License/Permit	Other
ME	Glass no min size	Daily dealer reports/swipe card program; monthly harvester report of daily landings. Tribal permit system in place for some Native American groups.	Harvester license lottery system.
	Yellow 9”	Harvester/dealer license and monthly reporting. Tribal permit system in place for some Native American groups.	Seasonal closures. Gear restrictions. Weekly closures.
NH	9”	Commercial saltwater license and wholesaler license. No dealer reports. Monthly harvester reporting includes dealer information.	Gear restrictions in freshwater.
MA	9"	Commercial permit with annual catch report requirement. Registration for dealers with purchase record requirement. Dealer/harvester reporting.	Traps, pots, spears, and angling only. Mesh restrictions.
RI	9"	Commercial fishing license. Dealer/harvester reporting.	Gear restrictions.
CT	9"	Commercial license (not required for personal use). Dealer/harvester reporting.	Gear restrictions.
NY	9"	Harvester/dealer license and reporting.	Gear restrictions. Maximum limit of 14” in some rivers.
NJ	9"	License required. No dealer reports. Monthly harvester reporting includes dealer information.	Gear restrictions.
PA	NO COMMERCIAL FISHERY		
DE	6"	Harvester reporting, no dealer reporting. License required.	Commercial fishing in tidal waters only. Gear restrictions.
MD	9"	Dealer/harvester license and monthly reporting.	Prohibited in non-tidal waters. Gear restrictions. Commercial crabbers may fish 50 pots per day, must submit catch reports.
DC	NO COMMERCIAL FISHERY		
PRFC	9"	Harvester license and reporting. No dealer reporting.	Gear restrictions.
VA	9"	Harvester license required. Dealer/harvester monthly reporting.	Mesh size restrictions on eel pots. Seasonal closures.
NC	9"	Standard Commercial Fishing License for all commercial fishing. Dealer/harvester monthly combined reports on trip ticket.	Mesh size restrictions on eel pots. Seasonal closures.
SC	Glass no min size	Fyke and dip net only permitted. Dealer/harvester monthly combined reports on trip ticket.	Max 10 individuals. gear and area restrictions.

	Yellow 9”	Pots only permitted. Dealer/harvester monthly combined reports on trip ticket.	Gear restrictions.
GA	9"	Personal commercial fishing license and commercial fishing boat license. Dealer/harvester monthly combined reports on trip ticket.	Gear restrictions on traps and pots. Area restrictions.
FL	9”	Permits and licenses. Harvester reporting. No dealer reporting.	Gear restrictions.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

Recreational

Available information indicates that few recreational anglers directly target eel. For the most part, hook-and-line fishermen catch eel incidentally when fishing for other species. Eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch their own eels to utilize as bait.

The National Marine Fisheries Service (NMFS) Marine Recreational Information Program (MRIP, formerly the Marine Recreational Fisheries Statistics Survey) shows a declining trend in the catch of eel during the latter part of the 1990s. As of 2009, recreational data are no longer provided for American eel, due to the unreliable design of MRIP that focuses on active fishing sites along coastal and estuarine areas.

Table 3. State recreational regulations for the 2014 fishing year.*

State	Size Limit	Possession Limit	Other
ME	9"	25 eels/person/day	Gear restrictions. License requirement and seasonal closures (inland waters only). Bait limit of 50 eels/day for party/charter boat captain and crew.
NH	9"	25 eels/person/day	Coastal harvest permit needed if taking eels other than by angling. Gear restrictions in freshwater.
MA	9"	25 eels/person/day	Nets, Pots, traps, spears, and angling only; mesh restrictions.
RI	9"	25 eels/person/day	
CT	9"	25 eels/person/day	
NY	9”	25/eels/person/day	Maximum limit of 14” in some rivers. Bait limit of 50 eels/day for party/charter boat captain and crew.
NJ	9"	25 eels/person/day	Bait limit of 50 eels/day for party/charter boat captain and crew.
PA	9"	25 eels/person/day	Gear restrictions. Bait limit of 50 eels/day for party/charter boat captain and crew.
DE	6"	50 eels/person/day	Two pot limit/person.
MD	9"	25 eels/person/day	Gear restrictions.

DC	9"	10 eels/person/day	
PRFC	9"	25 eels/person/day	
VA	9"	25 eels/person/day	Recreational license. Two pot limit. Mandatory annual catch report. Gear restrictions. Bait limit of 50 eels/day for party/charter boat captain and crew.
NC	9"	25 eels/person/day	Gear restrictions. Non-commercial special device license. Two eel pots allowed under Recreational Commercial Gear license. Bait limit of 50 eels/day for party/charter boat captain and crew.
SC	9”	25 eels/person/day	Gear restrictions. Permits and licenses. Two pot limit
GA	9”	25 eels/person/day	
FL	9”	25 eels/person/day	Gear restrictions. Wholesale/Retail purchase exemption applies to possession limit for bait.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

IV. Status of Research and Monitoring

The FMP requires states and jurisdictions with a declared interest in the species to conduct an annual young-of-the-year (YOY) survey to monitor annual recruitment of each year's cohort. In 2014, the states of Maine, New Hampshire, Rhode Island, Connecticut, Delaware, Maryland, and South Carolina had above average YOY counts. Maine measured second highest in the time series. New Hampshire, Rhode Island, and Delaware show above average YOY counts, though counts are lower than those of 2013. Connecticut counted higher YOY than in 2013, but levels remain below a spike seen in 2012.

In 2014, Massachusetts, New York, New Jersey, PRFC, Virginia, and Florida had below average survey counts. Massachusetts showed the second lowest survey counts of the time series, and New York and Florida had the lowest survey counts in the time series. PRFC counted slightly average YOY at one location, but an all-time low at the other of its two locations. Pennsylvania, D.C., North Carolina, and Georgia do not have YOY surveys, but instead have yellow eel surveys.

The FMP does not require any other research initiatives in participating states and jurisdictions. Nonetheless, the American Eel TC has identified several research topics to further understanding of the species' life history, behavior, and biology. Research needs for American eel include:

High Priority

- Accurately document the commercial eel fishery to understand participation in the fishery and the amount of directed effort.
- Investigate, develop, and improve technologies for American eel passage upstream and downstream at various barriers for each life stage. In particular, investigate low-cost alternatives to traditional fishway designs for passage of eel.
- A coastwide sampling program for yellow and silver American eels should be formulated using standardized and statistically robust methodologies.
- Regular periodic stock assessments and the establishment of sustainable reference points for eel are required to develop a sustainable harvest rate and to determine whether the population is stable, decreasing, or increasing.
- Research the effects of the swim bladder parasite *Anguillacolla crassus* on the American eel's growth and maturation, migration to the Sargasso Sea, and the spawning potential.

- Evaluate the impact, both upstream and downstream, of barriers to eel movement with respect to population and distribution effects. Determine relative contribution of historic loss of habitat to potential eel population and reproductive capacity**.**

Medium Priority

- Investigate survival and mortality rates of different life stages (leptocephalus, glass eel, yellow eel, and silver eel) to assist in the assessment of annual recruitment. Continuing and initiating new tagging programs with individual states could aid such research.
- Tagging Programs: A number of issues could be addressed with a properly designed tagging program. These include:
    - Natural, fishing, and/or discard mortality; survival
    - Growth
    - Validation of aging method(s)
    - Reporting rates
    - Tag shedding or tag attrition rate
- Research contaminant effects on eel and the effects of bioaccumulation with respect to impacts on survival and growth (by age) and effect on maturation and reproductive success.
- Investigate fecundity, length, and weight relationships for females throughout their range; growth rates for males and females throughout their range; predator-prey relationships; behavior and movement of eel during their freshwater residency; oceanic-behavior, movement, and spawning location of adult mature eel; and all information on the leptocephalus stage of eel.
- Assess characteristics and distribution of eel habitat and the value of habitat with respect to growth and sex determination.
- Identify triggering mechanism for metamorphosis to mature adult, silver eel life stage, with specific emphasis on the size and age of the onset of maturity, by sex. A maturity schedule (proportion mature by size or age) would be extremely useful in combination with migration rates.

Low Priority

- Perform economics studies to determine the value of the fishery and the impact of regulatory management.
- Review the historic participation level of subsistence fishers in wildlife management planning and relevant issues brought forth with respect to those subsistence fishers involved with American eel.
- Examine the mechanisms for exit from the Sargasso Sea and transport across the continental shelf.
- Research mechanisms of recognition of the spawning area by silver eel, mate location in the Sargasso Sea, spawning behavior, and gonadal development in maturation.
- Examine age at entry of glass eel into estuaries and fresh waters.
- Examine migratory routes and guidance mechanisms for silver eel in the ocean.
- Investigate the degree of dependence on the American eel resource by subsistence harvesters (e.g., Native American Tribes, Asian and European ethnic groups).
- Examine the mode of nutrition for leptocephalus in the ocean.
- Provide analysis of food habits of glass eel while at sea.

V. Status of Management Measures and Issues

The FMP requires that all states and jurisdictions implement an annual young-of-the-year (YOY) abundance survey by 2001 in order to monitor annual recruitment of each year's cohort. Addendum III requires a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, as well

as the use of ½ by ½ mesh in the commercial yellow eel pot fishery. The recreational bag limit is 25 fish/angler/day, and the silver eel fishery is restricted, as is the development of pigmented eel fisheries.

Proposed Endangered Species Act Listing of American Eel

The USFWS reviewed the status of American eel in 2007 and found that, at that time, protection under the Endangered Species Act was not warranted. The issue rose once again when American eel were petitioned for listing as threatened under the Endangered Species Act (ESA) in April 2010 by the Center for Environmental Science, Accuracy, and Reliability (CESAR, formally the Council for Endangered Species Act Reliability). The USFWS published a positive 90 day finding on the petition in September 2011, acknowledging that the petition may be warranted and that a status review would be conducted. CESAR filed a lawsuit in August 2012 against the USFWS for failure to comply with the statutes of the ESA, which specifies a proposed rule based on the status review be published within one year of the receipt of the petition. A Settlement Agreement was approved by the court in April 2013, which required the USFWS to publish a 12-month finding by September 30, 2015. In the published finding, the USFWS determined that a listing under the ESA was not warranted.

VI. Current State-by-State Implementation of FMP Compliance Requirements

The PRT reviewed the state compliance reports for 2014. The PRT found the following issues with states implementing the required provisions of the American Eel Fishery Management Plan:

- Connecticut's implementation of escape panel gear requirement of Addendum III was delayed due to an oversight. Steps have been taken to bring gear into compliance by October 31, 2015.
- Massachusetts does not prohibit hook and line as a commercial gear from Sept 1 – Dec 31, but MA questions the need for restricting this gear because outmigrating silver eels do not feed.
- Delaware has not implemented the requirements of Addendum III. ASMFC found Delaware out of compliance with the American eel FMP at its August 2015 meeting, and forwarded that finding to the Secretaries of Commerce and Interior. NOAA fisheries agreed with the Commission finding and announced a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date (Appendix 1).
- The District of Columbia still has a 6" minimum size, but is in the process of changing to a 9" minimum size for its recreational fishery.
- The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. In 2013 and 2014 glass eel harvest occurred, but FL imposed a 9" min size in both the recreational and commercial fisheries to end the emerging glass eel fishery in 2015.
- Florida does not have a regulation preventing harvest of eels from pound nets from September 1 through December 31, but the state is unaware of any active pound net fishery in the past 10-15 years.
- New Hampshire and New Jersey do not have dealer reporting, but harvesters report some information on dealers. Delaware, the Potomac River Fisheries Commission, and Florida do not have dealer reporting.

The following monitoring program changes occurred in 2014, in addition to those implemented with Addendum III:

- New Hampshire – An Irish elver trap was installed on the Lamprey river and a box trap was installed on the Oyster river in order to expand the YOY monitoring program.
- Pennsylvania – In lieu of the YOY survey, PA continues to conduct the small yellow eel survey.
- District of Columbia – A pre-existing backpack electrofishing survey served to replace the YOY survey in 2012, and continues to be conducted.

- Georgia – Due to changes in the American eel FMP, Georgia ceased to conduct the YOY survey in 2014. It was replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River. GA has decided to cease creel survey sampling on the Satilla River starting in 2015 and solely concentrate on sampling on the Altamaha River.

The following regulatory changes for 2014 were documented in the compliance reports, in addition to those implemented with Addendum III:

- Maine- Authority was established to suspend or revoke glass eel fishing licenses for violating glass eel fishing laws.
- Massachusetts increased the penalty for harvesting or possessing undersized eels from $100 to $10,000.

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

Qualification for *de minimis* is determined from state reported landings found in compliance reports. In 2014, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. All states that applied for *de minimis* of the yellow eel fishery meet the *de minimis* criteria. The state of South Carolina requested *de minimis* status for its glass eel fishery, but does not meet the 1% landings criteria for this life stage.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends the Board consider state compliance issues as detailed in Section VI.

2. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia for their yellow eel fisheries.

3. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.

4. The PRT requests that states collect biological data from both commercial and recreational landings.

5. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.

6. The PRT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.

7. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

Appendix 1: NOAA Fisheries non-compliance finding and announcement of a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910
THE DIRECTOR

SEP 1 8 2015

Mr. Robert E. Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Dear Mr. Beal:

In accordance with the delegation of authority under the provisions of the Atlantic Coastal Fisheries Cooperative Management Act (Act), 16 U.S.C. §§ 5101 et seq., from the Secretary, NOAA's National Marine Fisheries Service (NMFS) completed its independent review of the Commission's determination and concurs with the Commission that the State of Delaware is not in compliance with the Interstate Fishery Management Plan for American Eel (Plan). NMFS also finds that the management measures Delaware failed to implement are necessary for the conservation of American eel.

I have notified the State of Delaware of NMFS' finding by letter (enclosed). A moratorium on fishing for, possession of, and landing of American eel within Delaware waters will be imposed effective March 18, 2016.

We chose the March implementation date after consulting with the relevant staff from Delaware, and reviewing the facts of this situation, including the Commission deliberations from this past August. Based upon our analysis, we found that a March implementation date is appropriate for two principal reasons. First, a March 18 closure date will give Delaware the time necessary for its legislature to bring these regulations back into compliance. Second, although the involved measures are necessary for conservation, the immediacy of that need is less critical given that Delaware's fall eel fishery appears to not target eels that are the subject of Addendum III's protection.

Delaware indicated to us that they expect to have appropriate regulations protecting American eel in place by early next year. If the State of Delaware does enact such measures, and the Commission determines that the measures are compliant with the Plan, under the Act, the Commission would immediately notify the Secretary that the State is in compliance with the Plan. If NMFS concurs, the moratorium in the state waters of Delaware will be rescinded. If Delaware is unable to put in place appropriate regulations prior to March 18, 2016, then a federal moratorium on eel fishing in Delaware waters would be immediately implemented and continue until the Secretary concurs with a determination from the Commission that the State has come into compliance with the Plan. I encourage the Commission to continue to monitor Delaware's process to implement the Plan.

If you need additional information on this determination, please contact Alan Risenhoover, Director of the Office of Sustainable Fisheries, at 301-427-8500, or by mail/e-mail at 1315 East-West Highway, Silver Spring, Maryland 20910/alan.risenhoover@noaa.gov. I look forward to continuing to work with you on this matter.

Sincerely,

Eileen Sobeck

Enclosures

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THE ASSISTANT ADMINISTRATOR FOR FISHERIES

Appendix 1: NOAA Fisheries non-compliance finding and announcement of a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date

Plan Review Team Report

Prepared for the American Eel Management Board by the American Eel Plan Review Team
October 2015

Introduction

The Interstate Fishery Management Plan for American eel requires that states submit annual reports detailing each state's regulations, catch, harvest, bycatch, fishery-dependent and independent surveys, and characterization of other losses for American eel. These reports are utilized by the ASMFC Plan Review Team to determine compliance and must be submitted to the ASMFC by September 1 of each year.

2014 Compliance Review

The Plan Review Team (PRT) reviewed 2015 state annual compliance reports for the 2014 fishing year to determine compliance status. As described in Section 5.2 of the Fishery Management Plan, under Procedures for Determining Compliance, the PRT has summarized the compliance on a state-by-state basis below.

All states were required to make changes outlined in Addendum III. These changes include: a yellow eel recreational possession limit reduction to 25 eel/person/day, with an exception of 50 eel/person/day for party/charter employees for bait purposes. The recreational and commercial size limit increased to a minimum of 9 inches. Eel pots are now required to include at least a 4" x 4" escape panel of ½" by ½" mesh. The glass eel fishery was required to implement a maximum tolerance of 25 pigmented eels per pound of glass eel catch. The silver eel fishery is prohibited to take eels from September 1st to December 31st from any gear type other than baited traps/pots or spears. The addendum also set the minimum monitoring standards for states and required increased reporting in the commercial fishery.

State-By-State Evaluation

MAINE

Comments or trends highlighted in state report:

- In 2014, Maine implemented all necessary regulatory changes mandated by Addendum III.
- Glass eel dealers reported landings of 9,690.19 lbs; 3,525.85 lbs by dipnet; 5,753.34 lbs by fyke net; and 411 lbs by combined gear. Glass eel harvesters reported landings of 9,338.23 lbs of glass eels; 3,386.78 lbs by dip nets; and 5,951.45 lbs by fyke nets.
- Yellow eel dealers reported 228.8 lbs from the pot fishery (not identified as coastal or inland waters). Yellow eel harvesters reported a total of 7,368.4 lbs
- In the YOY survey a total of 140,706 YOY were caught in 2014 which represents the second highest catch on record. The catch in 2011 was the fourth smallest catch on record, while the highest catch occurred in 2012.
- Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.
- Approximately 83 lbs of glass eels were seized by law enforcement.

Unreported information and areas of concern:

- No mention of any additional life stage surveys besides the YOY survey.
- No biological data were collected for any life stage of the commercial catch.
- No estimate of recreational harvest was provided.
- Estimate of exports by dealers not provided.
- No estimate was provided on yellow eel permitted catch for personal use.
- Marked differences between dealer and harvester reports make quota monitoring difficult.
- Besides a law enforcement report of glass eel seizure, no information on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW HAMPSHIRE

Comments or trends highlighted in state report:

- In 2014, New Hampshire implemented all necessary regulatory changes mandated by Addendum III.
- No individual sold commercially in 2013 or 2014.
- There were 20 individuals permitted to recreationally harvest; 6 individuals harvested a total of 35 lbs, all were used for bait.
- 8,449 YOY were caught in the required fisheries independent sampling in the Lamprey River. This is over a four-fold drop from last year's count, but remains above average since monitoring began in 2001.
- An improvement is seen in the characterization of other losses of American eel in New Hampshire.
- Two additional traps were added in the Lamprey and Oyster rivers to expand the fishery-independent monitoring program.

Unreported information and areas of concern:

- No biological data were collected from the recreational fishery.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- New Hampshire does not have dealer reporting, but NH does not have any known dealers for eel.

Recommendations for action by the American Eel Management Board:

- The State of New Hampshire requests *de minimis* for American eel. New Hampshire meets the requirements for *de minimis* for their eel fishery.

MASSACHUSETTS

Comments or trends highlighted in state report:

- From 2010-2012 the eel fishery has landed less than 500 lbs. In 2014, landings increased to 3,903 lbs. It is believed that underreporting is occurring as eels are kept for bait. 179 commercial eel permits were issued in 2014.
- The YOY survey reported the second lowest survey counts in the 14 year time series.

- The fine for illegal harvest, or possession of undersized eels was raised from $100 to $10,000

Unreported information and areas of concern:

- No biological data were collected from the commercial fishery.
- Percent of harvest to food v. bait and CPUE were not reported.
- Catch for personal use was not reported.
- It seems that that some fishermen are not reporting catches used personally for striped bass bait under the false interpretation that only eels sold must be reported.
- The sharp decline in landings during 2010-2012 appears to be most influenced by reduced fishing effort in response to low eel abundance.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should be a high priority as this information would be helpful and informative to have.

Compliance issues:

- MA's commercial fishery currently allows harvest using hook and line from Sept 1-Dec 31. Gears from Sept 1-Dec 31 are supposed to be restricted to baited pots and spears.

Recommendations for action by the American Eel Management Board:

- The Commonwealth of Massachusetts requests *de minimis*. Massachusetts meets the requirements for *de minimis*.

RHODE ISLAND

Comments or trends highlighted in state report:

- In 2014, Rhode Island implemented all necessary regulatory changes mandated by Addendum III.
- 2,378 lbs of yellow eels were landed in 2014 in pots or traps.
- It is estimated that all eels are shipped/sold for food.
- No recreational landings were reported.
- A total of 7,649 YOY American eel were observed in RI's 2014 recruitment survey. This is a decrease from 2013, but is above average since the current monitoring program was adopted in 2004.
- Rhode Island continues to place a high priority on fish passage. New eel ramps were recently placed and continue to be planned in various rivers for improved continuous passage.

Unreported information and areas of concern:

- Reporting requirements are not included in the compliance report.
- Harvest landed by life stage, gear type, and month are not available.
- No biological data were collected from the commercial fishery.
- Estimates of export, CPUE, and personal use data are not available.
- No information is provided on the characterization of other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

CONNECTICUT

Comments or trends highlighted in state report:

- In 2014, Connecticut implemented all necessary regulatory changes mandated by Addendum III except for the escape panel requirement. Compliance with the escape panel requirement of Addendum III was delayed due to an oversight. Steps have been taken to bring gear into compliance by October 31, 2015.
- State reported commercial landings are 4,386 lbs.
- A total of 15,770 YOY were captured in 2014, almost double that of 2013, but still a significant decrease from 2012 levels.

Unreported information and areas of concern:

- Commercial harvest by gear type, month, or region is not included.
- Biological data is not taken from commercial or recreational fisheries.
- Percent harvest for food v. bait cannot be estimated and permitted catch for personal use information is not available.
- No mention of exports by season.
- Two pots are allowed to be fished without a license for personal use. There are no reporting requirements and therefore there are no estimates of catch and harvest. The PDT recommends CT be required to permit these pots in order to be able to provide an estimate of participation as well as require reporting to estimate catch.

Compliance issues:

- Connecticut has not implemented the ½" by ½" escape panel requirement of Addendum III, but this is currently being corrected.

Recommendations for action by the American Eel Management Board:

- None

NEW YORK

Comments or trends highlighted in state report:

- In 2014, New York implemented all necessary regulatory changes mandated by Addendum III. The mesh size required by New York is listed as 1" by ½", a more conservative measure than the ½" by ½" mesh required by Addendum III.
- Reported commercial landings in 2014 were 34,142 lbs including the Delaware River weir fishery. 8 of 9 licensed weir fishers reported harvesting from the Delaware River.
- No recreational harvest is estimated to have taken place.
- 332 glass eels and 38 pigmented elvers were caught in the YOY survey. These numbers are at an all time low.

Unreported information and areas of concern:

- Biological data is not taken from recreational harvest.
- No information on percent of harvest going for food vs. bait or permitted catch for personal use is provided.
- No estimates on other losses were provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW JERSEY

Comments or trends highlighted in state report:

- In 2014, New Jersey implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 91,225 lbs of yellow eels from pots.
- The majority of eels (59%) were commercially harvested as food, followed by bait (13%) and personal use (3%).
- Biological samples were collected from the commercial fishery (n= 197 yellow eels).
- CPUE was lower than the time series average and has been declining since 2007.
- 8,359 glass eels were collected in the YOY survey. This catch is a sharp decline in comparison to the almost 300 thousand glass eels collected in 2012.

Unreported information and areas of concern:

- Directed harvest is not estimated by month or region.
- Recreational harvest is unknown.
- No information is provided on the characterization of other losses due to bycatch or mass mortalities.

Compliance issues:

- New Jersey does not have dealer reporting, but harvesters report some dealer information.

Recommendations for action by the American Eel Management Board:

- None

PENNSYLVANIA

Comments or trends highlighted in state report:

- In 2014, Pennsylvania implemented all necessary regulatory changes mandated by Addendum III.
- There is no commercial fishery.
- In lieu of the YOY survey, a small yellow eel survey continues to be conducted at four stations in the lower, non-tidal Delaware river. 334 small yellow eels were counted in 2014.

Unreported information and areas of concern:

- Recreational harvest data is not available; biological data was not taken.
- The compliance report does not characterize other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Pennsylvania requests *de minimis*. The state of Pennsylvania meets the requirements of *de minimis* status.

DELAWARE

Comments or trends highlighted in state report:

- The Delaware Legislature did not amend the Delaware Code in 2014 or 2015 to implement the management changes required by Addendum III of the Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan (FMP) for American eel.
- Commercial eelers in Delaware landed 62,388 lbs in 2014, a 23% increase from 2013 landings and 41% less than mean landings from 1999 through 2014 (104,863 lbs).

- Eels harvested for consumption comprised 71% of total landings, and bait eels comprised the remaining 29% of the total.
- Of the commercial subsample, 82% of eels sampled were between the ages of 3-5.
- MRIP reports a total of 2,932 eels were recreationally caught in 2014.
- YOY sampling captured 292,766 glass eels during 26 sampling days in 2014. The geometric mean was 1,819 glass eels per sample day (Table 3), sixth highest in the fifteen year time series, and a decrease from the past two years..

Unreported information and areas of concern:

- Reporting requirements are not included in the compliance report.
- Delaware did not require dealers to report the final destination of commercially caught eels.
- Permitted harvest for personal use information is not available.

Compliance issues:

- The State of Delaware has not implemented minimum pot mesh size, minimum length, and possession limits of the FMP. NOAA fisheries announced a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date.
- Delaware does not have dealer reporting for eels.

Recommendations for action by the American Eel Management Board:

- At its August 2015 meeting, the Board found DE out of compliance with the requirements of the American Eel FMP. No further action is necessary.

MARYLAND

Comments or trends highlighted in state report:

- In 2014, Maryland implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 610,585 lbs. Landings in 2014 were second highest since 1994, when eel harvest was required to be reported on crab forms.
- A total of 597 commercially harvested American eels were sampled from the eel pot fishery in Chesapeake Bay mainstem and a total of 798 commercially harvested American eels were sampled from the eel pot fishery in the Wye East River.
- Licensed commercial crabbers harvested 2,397 lbs of American eel for use as trotline bait (personal use). These landings are not reported to NMFS.
- A total of 117,327 glass eels and elvers were captured over the YOY sampling period with a CPUE of 146.8 elvers/hour. CPUE for 2014 was slightly above the time series average of 142.2 and higher than 9 of the last 12 years.
- In addition to Maryland's primary YOY site in Turville Creek, a site located at Bishopville Prong, a coastal bay tributary to the St. Martin River, was sampled in 2014. A total of 45,307 glass eels and elvers were captured over the entire sampling period. Bishopville Prong CPUE in 2014 was the lowest since sampling was reinstituted in 2011, yet significantly above 2000 and 2001 averages.
- Prevalence rate of swimbladder parasite *Anquillicolla crassus* for males and females since 2006 was 56% and 79%, respectively.

Unreported information and areas of concern:

- Estimates of directed harvest are not reported by region.
- Data is not available to estimate percent going to food v. bait.
- Estimates of export by season are not provided by dealers.

- No information on characterization of other losses (impingement, bycatch, poaching, etc.) is provided.
- Eel harvest data from crabbers was not reported to NMFS and ACCSP, although this is what the PDT recommends.
- Weights are not taken from directed harvest samples.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Report eel harvest data from crabbers to NMFS and ACCSP.

DISTRICT OF COLUMBIA

Comments or trends highlighted in state report:

- In 2014, the District of Columbia implemented all necessary regulatory changes mandated by Addendum III except for the increase in minimum size. Steps are being taken to bring the minimum size into compliance for their recreational fishery.
- Due to the lack of success achieved with the Irish elver traps set in Rock Creek, an electrofishing survey was again conducted. FI backpack electrofishing caught 546 eels (1 YOY and 511 elvers).
- In 2014 an assessment of adult American eels in the Potomac and Anacostia Rivers was conducted. A total of 41 yellow eels were caught.

Unreported information and areas of concern:

- The PDT requests that trends be highlighted in the report.

Compliance issues:

- The District of Columbia had not yet implemented a 9" minimum size requirement for its recreational fisher, but this is currently being corrected.

Recommendations for action by the American Eel Management Board:

- The District of Columbia requests *de minimis* for all life stages. The District of Columbia meets the requirements for *de minimis* for their yellow eel fishery.

POTOMAC RIVER FISHERY COMMISSION

Comments or trends highlighted in state report:

- In 2014, the PRFC implemented all necessary regulatory changes mandated by Addendum III.
- Reported commercial harvest is 49,293 lbs (a 35% increase from 2013).
- Based on data supplied by the harvesters, about 50% of the harvest went to consumption and 50% were sold or used as bait.
- Results for 2014 indicated above average recruitment of glass eels occurred at Gardy's Millpond, but 2014 was the lowest recruitment value in the time series at Clark's Millpond. These Potomac River sites are the furthest inland elver/young of-year survey sampling sites on the East Coast
- PRFC questions the need to continue YOY sampling because of the high variability and relatively low numbers of eels.

Unreported information and areas of concern:

- No biological data are collected from the commercial harvest.
- No estimates of export are available.

- No information on characterization of impingement, scientific losses, or mass mortalities is provided.

Compliance issues:

- PRFC does not have dealer reporting.

Recommendations for action by the American Eel Management Board:

- None

VIRGINIA

Comments or trends highlighted in state report:

- In 2014, Virginia implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 112,199 lbs.
- No biological samples in 2014.
- 0 lbs of live eels (*Anguilla* spp.) were exported from Virginia in 2014.
- The harvest rate for 2014 was estimated at 99 lbs per pot-trip. This value is higher than the 2013 estimate of 87 lbs per pot-trip and 53% lower than the 1994 through 2013 time series average harvest rate of 164 lbs per pot-trip (Table 5)
- In 2014, MRIP estimates that 38 eels were harvested and 19,334 eels were released alive in Virginia. However, PSE values are quite high for these estimates.
- YOY survey reports that recruitment of glass eels was below average at all monitoring sites in 2014.
- Significant inspections resulted in zero violations related to American eel reported by the VMRC Law Enforcement Division in 2014.

Unreported information and areas of concern:

- Harvest data by life stage is not available. All eels are assumed to be yellow.
- Percent of harvest going to food v. bait is not available.
- Amount of permitted catch for personal use is not available.
- No information is available for impingement/entrainment or commercial bycatch mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NORTH CAROLINA

Comments or trends highlighted in state report:

- In 2014, North Carolina implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings: 59,458 lbs from 151 commercial trips. Eel pots were the dominant commercial gear and the majority (98%) of the landings occurred in the Albemarle Sound.
- The YOY monitoring program was eliminated in 2009 due to state budget issues. For 2009 - 2013 YOY data has been requested from the NOAA bridge net survey for North Carolina. NMFS currently has a backlog of samples and funding sources are being sought to process them.

Unreported information and areas of concern:

- Biological data was not collected from the commercial fishery.
- Percent of harvest for food v. bait, export by season, and permitted catch for personal use are not provided.
- North Carolina relies solely on Beaufort Lab for YOY data, but samples are backlogged. The YOY program was terminated in 2009.
- Impingement/entrainment and bycatch mortality data is unavailable.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

SOUTH CAROLINA

Comments or trends highlighted in state report:

- In 2014, South Carolina implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings: 90.93 lbs of glass eels were caught from dip nets and 154.5 lbs of glass eels were caught with fyke nets.
- Confidential amount of yellow eels were landed in 2014.
- The YOY abundance survey is conducted at Goose Creek Reservoir. The total catch over the sampling period was 3,935 YOY.

Unreported information and areas of concern:

- No biological data is taken from the glass eel harvest.
- No estimate is provided of percent of harvest going to food v. bait, exports by season, catch for personal use, or characterization of other losses.
- Seems that much of the fishery-independent monitoring section has not been updated since the previous year.
- No estimate of the recreational harvest is provided, and no biological data was taken.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of South Carolina requests *de minimis* for its yellow eel fishery. South Carolina meets the requirements for *de minimis* of its yellow eel fishery.
- The State of South Carolina requests *de minimis* for its glass eel fishery. South Carolina does not meet the requirements for *de minimis* of its glass eel fishery.

GEORGIA

Comments or trends highlighted in state report:

- In 2014, Georgia implemented all necessary regulatory changes mandated by Addendum III.
- Landings are considered confidential due to the low number of dealers who report harvest.
- The 2014 sub-adult American eel survey caught a total of 399 elvers. This survey replaced the YOY sampling survey.

Unreported information and areas of concern:

- Commercial landings are not reported by month, gear, or region.

- No biological data was taken from either fishery.
- CPUE for the commercial fishery is not provided.
- No information is submitted on permitted catch for personal use.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of Georgia requests *de minimis* status. Georgia meets the requirements for *de minimis*.

FLORIDA

Comments or trends highlighted in state report:

- Florida was exempted from establishing size or bag limits until proof emerged that a fishery exists. Florida must now establish size and bag limits. Florida also lacks a regulation preventing harvest from pound nets from September 1 through December 31, but the state is unaware any active pound net fishery in the past 10-15 years.
- State reported commercial landings: 15,057 lbs.
- In 2014, 100% of all harvested eels went for food. Most of the eels stay in state.
- The YOY survey CPUE was the lowest on record in the 14-year time series.
- In 2014, 311 lbs of glass and 654 lbs of elver were reported.

Unreported information and areas of concern:

- Harvest is not quantified by month, gear type, or region.
- Permits are not issued for personal use; no data is available.
- Recreational regulations are not reported.
- The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. Considering that glass eel harvest occurred in 2013 and 2014, FWC imposed a 9" min size in both the recreational and commercial fisheries to end the emerging glass eel fishery.
- No information is reported on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- Florida does not have a regulation preventing harvest of eels from pound nets from September 1 through December 31, but the state is unaware of any active pound net fishery in the past 10-15 years.
- Florida does not have dealer reporting.

Recommendations for action by the American Eel Management Board:

- Consider Florida's lack of season closure for pound nets from September 1-December 31.

De minimis

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed

in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

Qualification for *de minimis* is determined from state reported landings found in compliance reports. In 2014, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. All states that applied for *de minimis* of the yellow eel fishery meet the *de minimis* standard. The state of South Carolina requested *de minimis* status for its glass eel fishery. South Carolina did not meet the *de minimis* standard; therefore, South Carolina is not eligible for *de minimis* for its glass eel fishery.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends the Board consider state compliance issues as detailed in Section VI.

2. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia for their yellow eel fisheries.

3. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.

4. The PRT requests that states collect biological data from both commercial and recreational landings.

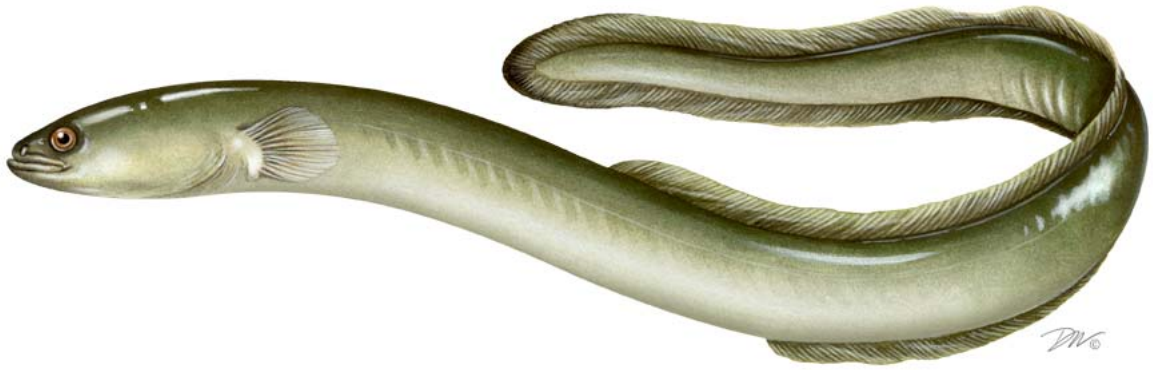
5. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.

6. The PRT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.

7. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

2014 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR **AMERICAN EEL** ***(Anguilla rostrata)***

2013 FISHING YEAR



Prepared by the American Eel Plan Review Team
September 2015

2014 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR AMERICAN EEL
(Anguilla rostrata)

I. Status of the Fishery Management Plan

Date of FMP approval:	November 1999
Addenda:	Addendum I (February 2006) Addendum II (October 2008) Addendum III (August 2013)
Management unit:	Migratory stocks of American Eel from Maine through Florida
States with a declared interest:	Maine through Florida, including the District of Columbia and the Potomac River Fisheries Commission
Active committees:	American Eel Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel.

The ASMFC American Eel Management Board first convened in November 1995 and finalized the Fishery Management Plan (FMP) for American Eel in November 1999 (ASMFC 2000a). The goal of the FMP is to conserve and protect the American eel resource to ensure ecological stability while providing for sustainable fisheries. In support of this goal, the following objectives are included:

The FMP requires that all states and jurisdictions implement an annual young-of-year (YOY) abundance survey to monitor annual recruitment of each year's cohort. In addition, the FMP requires a minimum recreational and commercial size limit of six inches and a recreational possession limit of no more than 50 eels per person, including crew members involved in party or charter (for-hire) employment for bait purposes during fishing. Recreational fishermen are not allowed to sell eels without a state license. Commercial fisheries management measures stipulate that states and jurisdictions shall maintain existing or more conservative American eel commercial fishery regulations for all life stages. Each state is responsible for implementing management measures within its jurisdiction to ensure the sustainability of the American eel population that resides within state boundaries.

In August 2005, the American Eel Management Board directed the American Eel Plan Development Team (PDT) to initiate an addendum to establish a mandatory catch and effort monitoring program for American eel. The Board approved Addendum I at the February 2006 Board meeting.

In January 2007, the Management Board initiated the development of a draft Addendum with the goal of increasing the escapement of silver eels to the spawning grounds. In October 2008, the Management Board approved Addendum II to the American Eel FMP, with some modification. The Addendum placed increased emphasis on improving the upstream and downstream passage of American eel and maintained the status quo on management measures. The Management Board chose to delay action on management measures in order to incorporate the results of the 2012 stock assessment.

In August 2012, the Management Board initiated the development of Draft Addendum III with the goal of reducing mortality on all life stages of American eel. The addendum was initiated in response to the findings of the 2012 Benchmark stock assessment which declared American eel stock along the US East Coast as depleted. The Management Board approved Addendum III in August 2013 and this addendum will come into effect on January 1, 2014. The addendum requires states to implement a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, requires the use of ½" by ½" mesh in the commercial yellow eel pot fishery, decreases the recreational bag limit to 25 fish/angler/day,

restricts the silver eel fishery, and restricts the development of pigmented eel fisheries. The addendum also sets the minimum monitoring standards for states and requires increased reporting in the commercial fishery. The Board chose to delay action on the glass eel management measures and will address this fishery through Draft Addendum IV.

II. Status of the Stock

In 2009, the Management Board initiated the start of a new assessment. After reviewing over 100 surveys and studies, the American Eel Stock Assessment Subcommittee selected 19 young-of-year surveys and 15 yellow eel surveys along the East Coast for use as indices of abundance in the assessment. Despite the large number of surveys and studies available for use, the American eel stock is still considered data-poor because very few surveys target eels and collect information on length, age, and sex of the animals caught. Additionally, eels have an extremely complex life history that is difficult to describe using traditional stock assessment models. Therefore, several data-poor methods were used to assess the American eel resource.

The first set of analyses (trend analyses) aimed to determine if there was a statistically significant trend in the fishery-independent survey data and whether or not there was evidence for significant trends on the regional and coast-wide scales. The second approach involved a Depletion-Based Stock Reduction Analysis (DB-SRA) model, which uses trends in historical catch to estimate biomass trends and maximum sustainable yield. Both the trend analyses and DB-SRA results indicate that the American eel stock has declined in recent decades, and the prevalence of significant downward trends in multiple surveys across the coast is cause for concern. Therefore, the stock status for American eels is depleted. The Benchmark Stock Assessment was peer reviewed in March 2012 and was approved for management use in May 2012.

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fisheries Commission (GLFC) highlighted concerns regarding the health of eel stocks worldwide. In 2010, Canada Department of Fisheries and Oceans (DFO) conducted a stock assessment on American eels in Canadian waters and found that region-specific status indices show that abundance is very low in comparison to levels in the 1980s for Lake Ontario and upper St. Lawrence River stock, and is either unchanged or increasing in the Atlantic Provinces. A joint stock assessment by both Canada DFO and the Commission was recommended by the American Eel Stock Assessment Subcommittee as an approach for the next assessment.

III. Status of the Fishery

American eel currently support commercial fisheries throughout their range in North America, with significant fisheries occurring in the US Mid-Atlantic region and Canada. These fisheries are executed in riverine, estuarine, and ocean waters. In the US, commercial fisheries for glass eel/elver exist in Maine and South Carolina, whereas yellow/silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

Although eel have been continuously harvested, consistent data on harvest are often not available. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that the harvest fluctuated widely between 1970 and 1980, but showed an increasing trend that peaked in 1979 at 3,951,936 pounds. Harvest has declined since then, with the lowest harvest occurring at 641,225 pounds in 2002. Because fishing effort

data is unavailable for the entire time series, finding a correlation between population numbers and landings data is difficult.

Commercial

Commercial landings have decreased from the high of 3.95 million pounds in 1979 to a low of 641,000 pounds in 2002, and have only recently begun to exceed one million pounds. State reported landings of yellow/silver eels in 2013 totaled 1,008,003 pounds[1] (Table 1), which represents a 6% decrease (~67,000) in landings from 2012 (1,074,724 pounds). Landings increased in Massachusetts, Rhode Island, New York, Delaware, Maryland, and Florida, and declined in Maine, Connecticut, New Jersey, PRFC, Virginia, and North Carolina. In 2013, state reported landings from Maryland and Virginia each totaled over 100,000 pounds of eel, and together accounted for 67% of the coastwide commercial total landings. Landings of glass eels were reported from Maine, South Carolina, and Florida and totaled 20,663 pounds. Combined yellow and glass eel landings reported by NMFS totaled 931,562 pounds.

Table 1. 2013 Commercial Landings by state and Life Stage[1]

	State Reported		**NMFS**
	Glass	**Yellow**	
Maine	18,075.78	6,406.75	19,470*
New Hampshire		0	107
Massachusetts		2,499	1,845
Rhode Island		2,244	2,248
Connecticut		2,638	655
New York		61,580	34,697
New Jersey		89,300	100,865
Pennsylvania		No Fishery	
Delaware		80,811	82,991
Maryland		568,199	551,890
D.C.		No Fishery	
PRFC		32,290	
Virginia		110,809	100,298
North Carolina		33,980	33,980
South Carolina	2,243.9	0	2,516*
Georgia^		Confidential	
Florida	Glass: 154 Elver: 189	17,246	
Total	**20,663**	**1,008,003**	**931,562**

^Landings are confidential ** Glass and yellow eel landings not differentiated.*

Table 2. State commercial regulations for the 2013 fishing year.*

State	**Size Limit**	**License/Permit**	**Other**

[1] Harvest data for 2013 comes from the 2014 State Compliance Reports. All landings are preliminary and some are incomplete.

ME		Harvester license. Dealer license and reporting. Tribal permit system in place for some Native American groups.	Seasonal closures. Gear restrictions. Weekly closures.
NH	6"	Commercial saltwater license and wholesaler license. Monthly reporting.	50/day for bait. Gear restrictions in freshwater.
MA	6"	Commercial permit with annual catch report requirement. Registration for dealers with purchase record requirement.	Nets, pots, spears, and angling only. Mesh restrictions. Each of 52 coastal towns has its own regulations.
RI	6"	Commercial fishing license.	
CT	6"	Commercial license (not required for personal use). Dealer reporting.	Gear restrictions
NY	6"	Commercial harvester license and reporting. Dealer license and reporting.	Gear restrictions.
NJ	6"	License required. Monthly pot harvester reporting.	Gear restrictions.
PA	NO COMMERCIAL FISHERY		
DE	6"	License required.	Commercial fishing in tidal waters only. Gear restrictions.
MD	6"	Licensed required with monthly reporting.	Prohibited in non-tidal waters. Gear restrictions.
DC	NO COMMERCIAL FISHERY		
PRFC	6"	Harvester license and reporting.	Gear restrictions.
VA	6"	Harvester license required. Monthly reporting.	Mesh size restrictions on eel pots. Bait limit of 50 eels/day. Seasonal closures.
NC	6"	Standard Commercial Fishing License for all commercial fishing	Mesh size restrictions on eel pots. Bait limit of 50 eels/day. Seasonal closures.
SC		License for commercial fishing and sale. Permits by gear and area fished. Monthly reporting.	Gear restrictions.
GA	6"	Personal commercial fishing license and commercial fishing boat license. Harvester/dealer reporting.	Gear restrictions on traps and pots. Area restrictions.
FL		Permits and licenses.	Gear restrictions.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

Recreational

Available information indicates that few recreational anglers directly target eel. For the most part, hook-and-line fishermen catch eel incidentally when fishing for other species. Eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch their own eels to utilize as bait.

The National Marine Fisheries Service (NMFS) Marine Recreational Information Program (MRIP, formerly the Marine Recreational Fisheries Statistics Survey) shows a declining trend in the catch of eel

during the latter part of the 1990s. As of 2009, recreational data are no longer provided for American eel, due to the unreliable design of MRIP that focuses on active fishing sites along coastal and estuarine areas.

Table 3. State recreational regulations for the 2013 fishing year.**

State	Size Limit	Possession Limit	Other
ME	6"	50 eels/person/day	Gear restrictions. License requirement and seasonal closures (inland waters only).
NH	6"	50 eels/person/day	Coastal harvest permit needed if taking eels other than by angling. Gear restrictions in freshwater.
MA	6"	50 eels/person/day	Nets, pots, spears, and angling only; mesh restrictions. Each of 52 coastal towns has its own regulations.
RI	6"	50 eels/person/day	
CT	6"	50 eels/person/day	
NY	6”	50/eels/person/day	Additional length restrictions in specific inland waters.
NJ	6"	50 eels/person/day	
PA	6"	50 eels/person/day	Gear restrictions.
DE	6"	50 eels/person/day	Two pot limit/person.
MD	6"	25 eels/person/day	Gear restrictions.
DC	6"	10 eels/person/day	
PRFC	6"	50 eels/person/day	
VA	6"	50 eels/person/day	Recreational license. Two pot limit. Mandatory annual catch report. Mesh size restrictions on eel pots.
NC	6"	50 eels/person/day	Gear restrictions. Non-commercial special device license. Two eel pots allowed under Recreational Commercial Gear license.
SC	None	None	Gear restrictions. Permits and licenses.
GA	9”	25 eels/person/day	
FL	None	None	Gear restrictions.

** For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

IV. Status of Research and Monitoring

The FMP requires states and jurisdictions with a declared interest in the species to conduct an annual young-of-the-year (YOY) survey for the purpose of monitoring annual recruitment of each year's cohort. In 2013, the states of Maine, New Hampshire, Rhode Island, New York, Delaware, and Georgia, as well as D.C. and the PRFC, had above average YOY counts. New Hampshire, Delaware, and Rhode Island measured an all-time high YOY level in at least one sampling site. New York and the PRFC measured second highest in the time series in at least one sampling site. Maine and Georgia's counts were above previous years but below a spike in 2012 levels.

The states of Connecticut, New Jersey, Maryland, Virginia, South Carolina, and Florida had below average survey counts. South Carolina and Maryland showed a particularly drastic decline. Pennsylvania is exempt from the YOY survey. North Carolina eliminated the survey due to budgeting issues. Georgia will cease to conduct the survey in 2014.

The FMP does not require any other research initiatives in participating states and jurisdictions. Nonetheless, the American Eel TC has identified several research topics that could further understanding of the species' life history, behavior, and biology. Research needs for American eel include:

High Priority

- Accurately document the commercial eel fishery to understand participation in the fishery and the amount of directed effort.
- Investigate, develop, and improve technologies for American eel passage upstream and downstream at various barriers for each life stage. In particular, investigate low-cost alternatives to traditional fishway designs for passage of eel.
- A coastwide sampling program for yellow and silver American eels should be formulated using standardized and statistically robust methodologies.
- Regular periodic stock assessments and the establishment of sustainable reference points for eel are required to develop a sustainable harvest rate and todetermine whether the population is stable, decreasing, or increasing.
- Research the effects of the swim bladder parasite *Anguillacolla crassus* on the American eel's growth and maturation, migration to the Sargasso Sea, and the spawning potential.
- Evaluate the impact, both upstream and downstream, of barriers to eel movement with respect to population and distribution effects. Determine relative contribution of historic loss of habitat to potential eel population and reproductive capacity**.**

Medium Priority

- Investigate survival and mortality rates of different life stages (leptocephalus, glass eel, yellow eel, and silver eel) to assist in the assessment of annual recruitment. Continuing and initiating new tagging programs with individual states could aid such research.
- Tagging Programs: A number of issues could be addressed with a properly designed tagging program. These include:
    - Natural, fishing, and/or discard mortality; survival
    - Growth
    - Validation of aging method(s)
    - Reporting rates
    - Tag shedding or tag attrition rate
- Research contaminant effects on eel and the effects of bioaccumulation with respect to impacts on

survival and growth (by age) and effect on maturation and reproductive success.

- Investigate fecundity, length, and weight relationships for females throughout their range; growth rates for males and females throughout their range; predator-prey relationships; behavior and movement of eel during their freshwater residency; oceanic-behavior, movement, and spawning location of adult mature eel; and all information on the leptocephalus stage of eel.
- Assess characteristics and distribution of eel habitat and the value of habitat with respect to growth and sex determination.
- Identify triggering mechanism for metamorphosis to mature adult, silver eel life stage, with specific emphasis on the size and age of the onset of maturity, by sex. A maturity schedule (proportion mature by size or age) would be extremely useful in combination with migration rates.

Low Priority

- Perform economics studies to determine the value of the fishery and the impact of regulatory management.
- Review the historic participation level of subsistence fishers in wildlife management planning and relevant issues brought forth with respect to those subsistence fishers involved with American eel.
- Examine the mechanisms for exit from the Sargasso Sea and transport across the continental shelf.
- Research mechanisms of recognition of the spawning area by silver eel, mate location in the Sargasso Sea, spawning behavior, and gonadal development in maturation.
- Examine age at entry of glass eel into estuaries and fresh waters.
- Examine migratory routes and guidance mechanisms for silver eel in the ocean.
- Investigate the degree of dependence on the American eel resource by subsistence harvesters (e.g., Native American Tribes, Asian and European ethnic groups).
- Examine the mode of nutrition for leptocephalus in the ocean.
- Provide analysis of food habits of glass eel while at sea.

V. Status of Management Measures and Issues

The FMP required that all states and jurisdictions implement an annual young-of-the-year (YOY) abundance survey by 2001 in order to monitor annual recruitment of each year's cohort. In addition, the FMP required all states and jurisdictions to establish a minimum recreational size limit of six inches and a recreational possession limit of no more than 50 eels per person, including crew members involved in party or charter (for-hire) employment, for bait purposes during fishing. Under the FMP, commercial fisheries management measures stipulate that states and jurisdictions shall maintain existing or more conservative American eel commercial fishery regulations for all life stages. Through Addendum III, as of January 1, 2014, states and jurisdictions must implement a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, require the use of ½ by ½ mesh in the commercial yellow eel pot fishery, decrease the recreational bag limit to 25 fish/angler/day, restrict their silver eel fishery, and restrict the development of pigmented eel fisheries.

Proposed Endangered Species Act Listing of American Eel

American eel were petitioned for listing as threatened under the Endangered Species Act (ESA) in April 2010 by the Center for Environmental Science, Accuracy, and Reliability (CESAR, formally the Council for Endangered Species Act Reliability). USFWS published a positive 90 day finding on the petition in September 2011, stating that the petition may be warranted and a status review will be conducted. CESAR filed a lawsuit in August 2012 against USFWS for failure to comply with the statutes of the ESA, which specifies a proposed rule based on the status review be published within one year of the receipt of the petition. A Settlement Agreement was approved by the court in April 2013. The settlement requires

USFWS to publish a 12-month finding by September 30, 2015. The USFWS previously reviewed the status of the American eel in 2007 and found that, at that time, protection under the Endangered Species Act was not warranted.

VI. Current State-by-State Implementation of FMP Compliance Requirements

The following monitoring program changes occurred in 2013:

- Pennsylvania – Due to continued lack of success in the YOY survey, ASMFC gave PA the option to sample small yellow eels (pencil eels). A brief pencil eel survey was conducted with some success.
- Maryland – In addition to the primary YOY site, a second site was sampled in 2013.
- District of Columbia – Due to continued lack of success in the YOY survey, an electrofishing survey was again conducted.
- Georgia – Due to changes in the American eel FMP, fishery managers with the GADNR have opted to cease conducting the YOY survey as of January 1, 2014. The YOY survey will be replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River.

The following regulatory changes for 2013 were documented in the compliance reports:

- Maine - Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.
- Maine – Implementation authority to suspend or revoke glass eel fishing licenses for violating glass eel fishing laws.
- Georgia – A 25 fish/person creel limit and 9 inch minimum size was implemented for the recreational fishery

The PRT reviewed the state compliance reports for 2013. The PRT finds that all states are currently implementing the required provisions of the American Eel Fishery Management Plan.

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

In 2013, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. Qualification for *de minimis* was determined from state reported landings found in compliance reports. All states that applied for *de minimis* for their yellow eel fishery meet the *de minimis* standard.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia.

2. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as

required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.

3. The PRT requests that states collect biological data from both commercial and recreational landings.

4. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.

5. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

Plan Review Team Report

Prepared for the American Eel Management Board by the American Eel Plan Review Team
October 2015

Introduction

The Interstate Fishery Management Plan for American eel requires that states submit annual reports detailing each state's regulations, catch, harvest, bycatch, fishery-dependent and independent surveys, and characterization of other losses for American eel. These reports are utilized by the ASMFC Plan Review Team to determine compliance and must be submitted to the ASMFC by September 1 of each year.

2013 Compliance Review

The Plan Review Team (PRT) reviewed 2014 state annual compliance reports for the 2013 fishing year to determine compliance status. As described in Section 5.2 of the Fishery Management Plan, under Procedures for Determining Compliance, the PRT has summarized the compliance on a state-by-state basis below.

State-By-State Evaluation

MAINE

Comments or trends highlighted in state report:

- Dealers reported landings of 18,075.78 lbs of glass eels; 4,924.27 lbs by dipnet; 12,566.51 lbs by fyke net; and 585 lbs did not have an associated gear type. Harvesters reported landing 15,562.21 lbs of glass eels; 4,382.46 lbs by dip net; 11,179.75 lbs by fyke net; and 16.48 lbs by dip or fyke net listed as unsized.
- All glass eels were harvested for food. Elvers are exported very soon after purchase.
- Dealers reported 1,398 lbs of yellow eels were taken in the pot fishery (not identified as coastal or inland waters). Harvesters reported a total of 6,406.75 lbs of yellow eels; 4,555.75 lbs by the coastal pot fishery; 284.0 lbs by the inland pot fishery; and1,567 lbs by the inland weir fishery.
- In the YOY survey a total of 84,506 YOY were caught in 2013 which represents the second highest catch on record. The catch in 2011 was the fourth smallest catch on record.
- Fines and penalties for violations in the elver fishery increased in 2013.
- Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.

Unreported information and areas of concern:

- Only changes in management measures were reported.
- No biological data were collected for any life stage.
- No estimate is provided of recreational harvest.
- No estimate is provided of exports by dealers.

- No estimate is provided on yellow eel permitted catch for personal use.
- CPUE could not be calculated for the inland pot and weir fisheries for yellow eel, because effort was not reported.
- Dealer reported glass eel landings continue to be higher than harvester reported landings, although the difference between the two reporting methods has decreased. Dealer and harvester reporting of yellow eels have very different values.
- No information was included on characterization of other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW HAMPSHIRE

Comments or trends highlighted in state report:

- No individual sold commercially in 2013.
- There were 31 individuals permitted to recreationally harvest American eels in state waters. 8 harvested a total of 106 lbs, all were used for bait.
- 35,036 YOY were caught in the required fisheries independent sampling in the Lamprey River. This was by far the highest on record since monitoring began in 2001.
- NH Law Enforcement Officers arrested 22 individuals illegally harvesting elvers. Approximately 5,000 elvers were confiscated from illegal or undocumented fisheries in 2013.

Unreported information and areas of concern:

- Other losses are not characterized.
- No biological data were collected from the recreational fishery.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of New Hampshire requests *de minimis* for American eel. New Hampshire meets the requirements for *de minimis* for their eel fishery.

MASSACHUSETTS

Comments or trends highlighted in state report:

- From 2010-2012 the eel fishery has landed less than 500 lbs. In 2013, landings have increased to 2,499 lbs. It is believed that under reporting is occurring as eels are kept for bait.
- No recreational landings were reported in 2013.
- No inland harvests were reported by the Division of Fish and Wildlife.

- YOY monitoring in the Jones River – the 13 year data series is showing a fairly flat trend that may be declining slightly. YOY monitoring in the Parker River – catch was the highest in the data series in terms of geometric mean.
- Since 2007, DMF has attempted to install at least one eel pass per year in cooperation with property owners and project partners. Two eel ramps were designed and partially constructed in 2012, one became operational in the spring of 2013, and one is still awaiting completion.

Unreported information and areas of concern:

- No biological data were collected from the commercial fishery.
- Percent of harvest to food v. bait and CPUE were not reported.
- Catch for personal use was not reported.
- It seems that that some fishermen are not reporting catches used personally for striped bass bait under the false interpretation that only eels sold must be reported.
- The sharp decline in landings during 2010-2012 appears to be most influenced by reduced fishing effort in response to low eel abundance.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The Commonwealth of Massachusetts requests *de minimis*. Massachusetts meets the requirements for *de minimis*.

RHODE ISLAND

Comments or trends highlighted in state report:

- 2,244 lbs of yellow eels were landed in 2013 in pots or traps.
- It is estimated that all eels are shipped/sold for food.
- No recreational landings were reported.
- A total of 12,336 YOY American eel were observed in RI's 2013 recruitment survey. All collection locations showed significant increases from 2012 numbers.
- Rhode Island continues to place a high priority on fish passage. New eel ramps were recently placed and continue to be planned in various rivers for improved continuous passage.

Unreported information and areas of concern:

- Harvest is not broken down by life stage, gear type, and month.
- No biological data were collected from the commercial fishery.
- Estimates of export, CPUE, and personal use data are not available.
- No information is provided on characterization of other

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

CONNECTICUT

Comments or trends highlighted in state report:

- State reported landings: 2,638 lbs. This was about a 900 pound decrease from landings in 2012. Anecdotal information from eel potters implies that the majority of harvest is going to bait.
- A total of 6,826 YOY were captured in 2013, a significant decrease. Eels were captured beginning April 8 which was the earliest date that YOY have been captured at the monitoring site.
- In other monitoring projects in the state – There are 10 other monitored eel passes in the state. The eel pass at the Kinneytown Dam was replaced in 2013 but high flows damaged the climbing substrate. The Lower Millpond Dam eel pass did not operate in 2012 due to a malfunctioning water supply system but a local non-profit held a "bucket brigade" to pass 6,137 glass eels over the dam.

Unreported information and areas of concern:

- A concise summary of eel regulations should be included.
- Commercial harvest by gear type is not included.
- Biological data was not taken from commercial or recreational fisheries
- Percent harvest for food v. bait cannot be estimated.
- There was no mention of exports by season.
- Permitted catch for personal use information is not available.
- No information is provided on losses to bycatch
- Two pots are allowed to be fished without a license for personal use. There are no reporting requirements and therefore there are no estimates of catch and harvest. The PDT recommends CT be required to permit these pots in order to be able to provide an estimate of participation as well as require reporting to estimate catch.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW YORK

Comments or trends highlighted in state report:

- Reported commercial landings in 2013 were 54,289 lbs, plus an additional 7,291 lbs from the Delaware River weir fishery.
- Recreational harvest estimate (MRFSS): 7,969 eels were caught in July and August.
- 1,222 glass eels and 43 pigmented elvers were caught in the YOY survey. Glass eel numbers decreased this year, but glass eel counts are still above average since 2004. Pigmented eel abundance has been declining since 2009.

Unreported information and areas of concern:

- Commercial harvest is not defined by gear type for 2013.
- Biological data was not taken from the commercial or recreational harvest.
- No information exists from commercial reporting mechanisms to provide information on CPUE, percent of harvest going for food vs. bait, or permitted catch for personal use.
- No estimates on other losses are provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW JERSEY

Comments or trends highlighted in state report:

- State reported commercial landings: 89,300 lbs of yellow eels from pots. This was estimated to be the lowest harvest since 2003
- The majority of eels (82%) were commercially harvested as food, followed by bait (16%) and personal use (0.2%).
- Biological samples were collected from the commercial fishery (n= 175 yellow eels).
- CPUE was lower than the time series average and has been declining since 2007.
- Sampling for glass eels is conducted in Patcong Creek in Linwood, New Jersey. 21,238 glass eels were collected in the YOY survey. This catch is in comparison to the almost 300 thousand glass eels collected in 2012.

Unreported information and areas of concern:

- Directed harvest is not estimated by month or region.
- Recreational harvest is unknown.
- No information is provided on characterization of other losses due to bycatch or mass mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

PENNSYLVANIA

Comments or trends highlighted in state report:

- There is no commercial fishery for American Eel.
- In previous years, the YOY survey had been unsuccessful. In 2013, the ASMFC gave PA the option to sample small yellow eels. It lasted seven days at four stations. 325 small yellow eels were collected.

Unreported information and areas of concern:

- Recreational harvest data is not available; biological data was not taken.
- The compliance report does not characterize other losses.
- The report does not identify the projects planned for the next five years.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Pennsylvania meets *de minimis*. The state of Pennsylvania meets the requirements of *de minimis* status.

DELAWARE

Comments or trends highlighted in state report:

- Commercial eelers in Delaware landed 80,811 lbs of American eel in 2013, a 49% increase from the 54,304 lbs landed in 2012 and 25% less than mean annual landings from 1999 through 2013.
- Delaware Bay and River ports accounted for 89% of 2013 landings with the Inland Bays and other Sussex County ports accounting for the remaining 11% of landings. 62 licenses were issued in 2013 with only 13 licensees reported landing eels, 40 reported they did not fish for eels, and 9 did not submit any report. This was the eighth year in a row in which fewer than 70 eel licenses were issued.
- Effort, measured in eel pot days, decreased by 16% from 2012 to 2013. Catch per pot per day fished increased 28% from 2012 to 2013.
- Yellow eels harvested for food consumption comprised 67,234 lbs or 83% of total reported landings, and bait eels comprised the remaining 13,577 lbs or 17% of the total.
- A sub-sample of 146 commercially caught eels were weighed and measured. American eels aged 6, 7 and 8 constituted only 8.5% of the catch which suggested that eels older than 5 were not common among eels caught with commercial gear in Delaware tidal waters in 2013.
- MRIP reports a total of 9,767 eels were recreationally caught in 2013. The 2013 estimated recreational catch was 61% lower than 2012.
- YOY sampling captured 796,815 glass eels during 27 sampling days in 2013. The geometric mean was 6,733 glass eels per sample day, the second highest in the 14 year time series.

Unreported information and areas of concern:

- Directed harvest is not broken down by month or region.
- Delaware did not require dealers to report the final destination of commercially caught eels.
- Information on permitted harvest for personal use is not available.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

MARYLAND

Comments or trends highlighted in state report:

- State reported commercial landings: 568,199 lbs. Since reporting was first required on crab forms in 1994, the three highest years of total eel harvest occurred from 2011-2013. Landings have exceeded the time series mean for eight consecutive years. Since 1992, both American eel landings and CPUE have shown an overall positive trend.
- A total of 133 commercially harvested American eels were sampled from the eel pot fishery in the Susquehanna River and a total of 459 commercially harvested American eels were sampled from the eel pot fishery in the Chester River.
- Licensed commercial crabbers harvested 29,783 lbs of American eel for use as trotline bait (personal use). These landings are not reported to NMFS.

- A total of 90,732 glass eels and elvers were captured over the sampling period with a CPUE of 92.2 elvers/hour. After record-breaking catches in 2012 (450.9 elvers/hour), the CPUE in 2013 was the lowest since 2008 and approximately 35% below the time series average
- In addition to Maryland's primary YOY site in Turville Creek, a site located at Bishopville prong, a coastal bay tributary to the St. Martin River, was sampled in 2013. A total of 46,577 glass eels and elvers were captured over the entire sampling period. The total catch in 2013 represented approximately 12% of the record catch (390,768) observed at Bishopville in 2012.
- Prevalence rate of swimbladder parasite *Anquillicolla crassus* for combined sexes was 65% in a silver eel survey on the Corsica River, down from 92% in 2011. Sampling methodology at this site will need to be modified as a result of the removal of the dam planned for 2014.
- In the silver eel survey at Gravel Run, a first order tributary to the Corsica River, prevalence rate of swimbladder parasite *A. crassus* for males and females since 2006 has been 56% and 76%, respectively.

Unreported information and areas of concern:

- Estimates of directed harvest are not reported by region.
- Data is not available to estimate percent going to food v. bait.
- Estimates of export by season are not provided by dealers.
- No information on characterization of other losses is provided.
- Eel harvest data from crabbers was not reported to NMFS and ACCSP, though this is what the PDT recommends.
- Weights are not taken from directed harvest samples.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

DISTRICT OF COLUMBIA

Comments or trends highlighted in state report:

- Due to the lack of success achieved with the Irish elver traps set in Rock Creek, an electrofishing survey was again conducted. FI backpack electrofishing caught 1,117 eels (11 YOY and 1,054 elvers).
- In 2013 an assessment of adult American eels in the Potomac and Anacostia Rivers was conducted. Sampling for adult eels on the main rivers started on May 8, 2013 and ended September 27, 2013, alternating each month for a total of twelve weeks. A total of 39 yellow eels were caught.

Unreported information and areas of concern:

- The PDT requests that trends be highlighted in the report

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The District of Columbia requests *de minimis* for all life stages. The District of Columbia meets the requirements for *de minimis* for their yellow eel fishery.

POTOMAC RIVER FISHERY COMMISSION

Comments or trends highlighted in state report:

- Reported commercial harvest: 32,290 lbs (a 10% increase from 2011 which was the lowest value since reports began in 1964).
- Based on data supplied by the harvesters, about 50% of the harvest went to live markets (food) and 50% were sold or used as bait.
- Results for 2013 indicated above average recruitment of glass eels occurred at Gardy's Millpond and the average recruitment index was observed at Clark's Millpond. These Potomac River sites are the furthest inland elver/young of-year survey sampling sites on the East Coast

Unreported information and areas of concern:

- Directed harvest estimates are not broken down by month.
- No biological data are collected from the commercial harvest.
- No estimates of export are available.
- No information on characterization of impingement, scientific losses, or mass mortalities is provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

VIRGINIA

Comments or trends highlighted in state report:

- State reported commercial landings: 110,809 lbs. The majority of Virginia's in-state harvest was from the Chesapeake Bay (28%).
- 0 lbs of live eels (*Anguilla* spp.) were exported from Virginia in 2013.
- The harvest rate for American eels harvested by commercial eel pots in Virginia over the past 20 years (1994 through 2013) has been variable, with evidence of an overall decline since 2003. The harvest rate for 2013 (88 lbs per pot-trip) was slightly lower than 2012 (116 lbs per pot-trip) and 40% lower than the 1994 through 2012 time series average harvest rate.
- In 2013, MRIP estimates that 2,784 eels were harvested and 47,736 eels were released alive in Virginia.
- A total of 2,470 eels were observed passing through the ladder at Millville Dam, lower than last year.
- Additional studies of yellow and silver eel migration in the Shenandoah River are planned for 2014.
- Significant inspections resulted in zero violations related to American eel reported by the VMRC Law Enforcement Division in 2013.

Unreported information and areas of concern:

- Harvest data by life stage is not available. Yellow eels assumed.
- Percent of harvest going to food v. bait is not available.
- Amount of permitted catch for personal use is not available.
- No imformation is available for impingement/entrainment or commercial bycatch mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NORTH CAROLINA

Comments or trends highlighted in state report:

- State reported commercial landings: 33,980 lbs from 82 commercial trips. Eel pots were the dominant commercial gear and the majority (97.2%) of the landings occurred in the Albemarle Sound.
- The YOY monitoring program was eliminated in 2009 due to state budget issues. For 2009 - 2013 YOY data has been requested from the NOAA bridge net survey for North Carolina. NMFS currently has a backlog of samples and funding sources are being sought to process them.

Unreported information and areas of concern:

- Biological data were not collected from the commercial fishery.
- Percent of harvest for food v. bait, export by season, and permitted catch for personal use are not provided.
- North Carolina relies solely on Beaufort Lab for YOY data, but samples are backlogged. The YOY program was terminated in 2009.
- Impingement/entrainment and bycatch mortality data is unavailable.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

SOUTH CAROLINA

Comments or trends highlighted in state report:

- State reported commercial landings: 362.6 lbs of glass eels were caught from dip nets and 1,881.3 lbs of glass eels were caught with fyke nets.
- No yellow eels were landed in 2013.
- The YOY abundance survey is conducted at Goose Creek Reservoir. The total catch over the sampling period was 273 YOY.

Unreported information and areas of concern:

- No biological data taken from a subsample of the glass eel harvest.
- No estimate of percent of harvest going to food v. bait, exports by season, catch for personal use, characterization of other losses.
- Seems that much of the fishery-independent monitoring section has not been updated since the previous year.
- No estimate or biological data of recreational harvest.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of South Carolina requests *de minimis* for its yellow eel fishery. South Carolina meets the requirements for *de minimis*.

GEORGIA

Comments or trends highlighted in state report:

- Landings are considered confidential due to the low number of dealers who report harvest.
- The recreational harvest of eels in Georgia is minimal at most. During 2013 MRIP reported 2 anglers on six trips catching 2 eels. The Inland Wildlife Resources Division reported 71 eels harvested and 542 released alive in the Altamaha River. In the Satilla River, 91 eels were harvested while 192 were released.
- The 2013 YOY American eel survey caught a total of 92 elvers, a decrease from 2012.
- It should be noted that, due to changes in the American eel FMP, fishery managers with the GADNR have opted to cease conducting the YOY survey as of January 1, 2014. The YOY survey will be replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River.

Unreported information and areas of concern:

- Commercial landings are not reported by month, gear, or region.
- No biological data was taken from either fishery.
- CPUE for the commercial fishery is not provided.
- No information is provided on permitted catch for personal use.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of Georgia requests *de minimis* status. Georgia meets the requirements for *de minimis*.

FLORIDA

Comments or trends highlighted in state report:

- State reported commercial landings: 17,246 lbs, which was ~33% increase from 2012, but still about 7,000 less lbs than 2011.
- In 2013, all harvested eels went for food. Most of the eels stay in state.
- The YOY survey CPUE was slightly higher than 2012, which was the lowest on record since 2001.
- In 2013, the harvest of glass and elver were reported (but not yet verified) for the first time since the inception of the trip ticket system. 154 lbs of glass and 189 lbs of elver were reported.

Unreported information and areas of concern:

- Harvest is not specifically quantified by month, gear type, or region.
- Permits are not issued for personal use. Therefore, no data is available.
- Recreational regulations are not specifically reported. The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. The

FWC requests that this exemption remain in place during 2013-2014.

- Biological data is not collected for recreational catch.
- No information on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The report should not be written in paragraph format. A concise reporting method is preferred.

De minimis

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

In 2013, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. Qualification for *de minimis* was determined from state reported landings found in compliance reports. All states that applied for *de minimis* meet the *de minimis* standard.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia.
2. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.
3. The PRT requests that states collect biological data from both commercial and recreational landings.
4. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
5. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200 A-N
Arlington, VA 22201

Re: The 2015 Maine Elver Fishing Season

Attention: Toni Kerns,

The following letter is intended to highlight the difficulties experienced by Maine Elver Fishermen this past elver season. These extraordinary conditions beyond our control need to be outlined so you may understand why the State of Maine Elver fishermen did not catch their quota. Maine Experience a brutal winter that lasted for weeks beyond what is normal for Maine causing the water temperatures to remain cold far into spring. And as everyone knows elvers will not enter extremely cold water as they cannot survive in it.

On opening day of elver season our rivers and lakes remained frozen.

Coast Guard Cutters Tackle and Thunder Bay pass each other while breaking ice on the **Kennebec River, Maine, April 1, 2015**. The cutters worked in concert to reduce the risk of flooding by breaking up large sections of ice into manageable sections that can more easily flow through choke points and out to sea. (U.S. Coast Guard photo by Petty Officer 2nd Class LaNola Stone)

https://www.dvidshub.net/news/159130/maine-based-coast-guard-cutters-broke-ice-mitigate-flood-danger#.VfIJPHTwvIX

The above photo of the Kennebec River is just an example of what all of our rivers looked like in April 2015. It took many weeks for the ice to finally melt and the weather to warm up.

Many of us did not catch our first eel until May 3rd. This left us with three weeks before the season ended to catch our quota. Of the three weeks remaining to fish we had one full week of daylight tides.

Maine also experience very little precipitation during our 2015 elver season. Elvers follow the current and when you have no rain there is no current along the shoreline where we fish. When there is no current elvers tend to stay in the middle third of the rivers as they enter the waterway. Under Maine State Law we are not allowed to fish the middle third of the waterway. This lack of precipitation combined with the extremely cold spring made it impossible to catch

all of our quota in the time (season) we are allocated. (In 2012 and 2013 we experienced a very warm spring and normal precipitation which gave us a full ten week season to fish)

In prior years this has happened before see Table 1 below. (very low elver catches) which does not mean there is a problem in recruitment.

Table 1.

Year	Harvest (pounds)	Number of licenses	Number of fyke nets	Number of dip nets
2012	18,857	557	340	172
2011	8,585	407	350	175
2010	3,158	429	366	185
2009	5,199	451	382	195
2008	6,952	468	393	199
2007	3,571	510	428	211
2006	6,967	653	510	279
2005	5,533	284	320	103
2004	1,284	267	228	93
2003	3,325	462	506	190
2002	9,654	443	496	231
2001	1,687	459	521	251
2000	2,625	665	754	378
1999	3,587	744	804	438
1998	14,360	2,314	3,806	2,111
1997	7,360	1,399	1,844	1,283
1996	10,193	2,207	2,632	2,075

Below is a report from the National Weather Service's Climate Data for the Month of March 2015. http://www.weather.gov/car/March2015

...NORTHERN AND EASTERN MAINE MONTHLY AREA CLIMATE NARRATIVE...

MARCH 2015 FEATURED WELL BELOW NORMAL TEMPERATURES AND BELOW NORMAL LIQUID PRECIPITATION. TEMPERATURES RANGED FROM 4 TO 6 DEGREES BELOW NORMAL. SNOWFALL WAS MORE VARIABLE ACROSS THE REGION WITH THE LARGEST DEPARTURES FROM NORMAL ACROSS FAR EASTERN MAINE. AT CARIBOU...THE AVERAGE TEMPERATURE OF 19.5 DEGREES WAS 5 DEGREES BELOW THE 1981-2010 NORMALS. IT TIED WITH 1989 AS THE 11TH COLDEST MARCH ON RECORD. THERE WERE A TOTAL OF 18 DAYS WHEN THE HIGH TEMPERATURE DID NOT RISE ABOVE

FREEZING...WHICH COMPARES TO AN AVERAGE OF 12. ON THE MORNING OF THE 6TH THE LOW TEMPERATURE OF 20 BELOW TIED THE RECORD LOW FOR THE DATE WHICH WAS FIRST ESTABLISHE IN 1948. AT BANGOR...THE AVERAGE TEMPERATURE OF 24.3 DEGREES WAS 5.9 DEGREES BELOW NORMAL. IT RANKED AS THE 4TH COLDEST MARCH BEHIND ONLY 2014...1967...AND 1939. THERE WERE A TOTAL OF 10 DAYS WHEN THE HIGH TEMPERATURE FAILED TO RISE ABOVE FREEZING...WHICH COMPARES TO AN AVERAGE OF 6. THREE RECORD LOWS WERE SET DURING THE MONTH. ON THE MORNING OF THE 1ST...THE LOW OF 14 BELOW ESTABLISHED A NEW DAILY TEMPERATURE RECORD. THE OLD RECORD OF 11 BELOW WAS ESTABLISHED IN 2001. ON THE 6TH...THE LOW OF 14 BELOW BROKE THE PREVIOUS RECORD OF 12 BELOW SET IN 1948. FINALLY...ON THE 24TH THE LOW OF 4 DEGREES TIED THE PREVIOUS RECORD LOW WHICH WAS ESTABLISHED JUST LAST YEAR.

MARCH 2015 FEATURED BELOW NORMAL LIQUID PRECIPITATION ACROSS NORTHERN AND EASTERN MAINE THAT AVERAGED BETWEEN 40 AND 75 PERCENT OF NORMAL. SNOWFALL WAS MORE VARIABLE AND RANGED FROM ABOVE NORMAL ACROSS EASTERN AROOSTOOK...WASHINGTON...AND PARTS OF WESTERN PISCATAQUIS COUNTIES TO BELOW NORMAL ACROSS THE REMAINDER OF THE REGION.

THE BIG STORY THIS PAST MARCH WAS THE COLD. THE PERSISTENCE OF THE COLD WEATHER DURING THE MONTH WAS REMARKABLE. THERE WERE ONLY 5 DAYS IN MOST AREAS WITH ABOVE AVERAGE TEMPERATURES DURING THE ENTIRE MONTH. THE MONTH BEGAN WITH A SNOWPACK OF ONLY AROUND A FOOT IN PARTS OF THE Saint John VALLEY WITH 15 TO 25 INCHES ACROSS MUCH OF THE REMAINDER OF FAR NORTHERN MAINE. DOWN EAST AMOUNTS RANGED FROM 30 TO 50 INCHES...WITH UNOFFICAL AMOUNTS **AS MUCH AS HIGH AS 60 INCHES IN PARTS OF COASTAL HANCOCK AND COASTAL WASHINGTON COUNTIES. BY THE END OF THE MONTH...THE SNOWPACK WAS STILL AROUND A FOOT FROM CARIBOU NORTH THROUGH THE ST JOHN VALLEY AND FROM 1 TO 2 FEET ACROSS MOST OF CENTRAL AND DOWN EAST MAINE...WITH LOCALLY HIGHER AMOUNTS IN PARTS OF WASHINGTON COUNTY.**

Sincerely,

The Maine Elver Fisherman's Association
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