PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

AMERICAN EEL MANAGEMENT BOARD

Crowne Plaza Hotel Old Town
Alexandria, Virginia
May 1, 2012

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Dennis Abbott, NH, proxy for Rep.Watters (LA)
Paul Diodati, MA (AA)
William Adler, MA (GA)
Jocelyn Cary, MA, proxy for Rep. S. Peake (LA)
Robert Ballou, RI (AA)
Mark Gibson, RI, Administrative proxy
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Brian Culhane, NY, proxy for Sen. Johnson (LA)
Russ Allen, NJ, proxy for D. Chanda (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)
Leroy Young, PA, proxy for J. Arway (AA)
Gene Kray, PA, proxy for Rep. Schroder (LA)
Loren Lustig, PA (GA)
Roy Miller, DE (GA)
John Clark, DE, proxy for D. Saveikis (AA)
Bernie Pankowski, DE, proxy for Sen. Venables (LA)
Russell Dize, MD proxy for Sen. R. Colburn (LA)
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Robert Boyles, Jr., SC (LA)
Spud Woodward, GA (AA)
John Duren, GA (GA)
Aaron Podey, FL (AA)
Derek Orner, NMFS
Jaime Geiger, USFWS
Bryan King, DC FW
A.C. Carpenter, PRFC

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

Ex-Officio Members

Brad Chase, Technical Committee Chair
Joe Fessenden, Law Enforcement Committee Rep.
Laura Lee, Stock Assmnt. Subcommittee Chair

Staff

Vince O'Shea
Robert Beal
Danielle Chesky
Pat Campfield
Kate Taylor

Guests

Wilson Laney, USFWS
Charles Lynch, NOAA
Mel Bell, SC DNR
Rob O'Reilly, VA DMR
Kelly Place, VA Watermen
Kate Morrison, Sargasso Sea Alliance
David Pierce, CT DEEP
Keith Whiteford, MD DNR
Matt Rinehimer, MD DNR
Matt Cieri, MD DNR
Alexei Sharov, MD DNR
Michelle Duval, NC DMR
Ellen Cosby, PRFC
Jay Lugar, MSC
Helen Takade-Himacher, EDF
Jack McGovern, NOAA
Mary Beth Charles, NFWF
Doug Huntley, DVF
Scott Ault, Kleinschmidt Assoc
Mari-Beth DeLucia, The Nature Conservancy
Dan McKiernan, MA DMF
Marie Maltese, US FWS
Pamela Hall, US FWS
Karin Limburg, SUNY Forestry, Syracuse

The American Eel Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel, Alexandria, Virginia, May 1, 2012, and was called to order at 10:15 o'clock a.m. by Chairman Terry Stockwell.

CALL TO ORDER

CHAIRMAN TERRY STOCKWELL: Good morning, everyone. I'm Terry Stockwell, the new Eel Board Chair.

APPROVAL OF AGENDA

CHAIRMAN STOCKWELL: The first order of business is approval of the agenda. Does anyone have anything they would like to add or change or delete? Seeing none, without objection we'll approve the agenda.

APPROVAL OF PROCEEDINGS

CHAIRMAN STOCKWELL: Approval of the proceedings from two years ago when we were talking about the terms of reference for the stock assessment; any comments? Seeing none, the proceedings are approved.

PUBLIC COMMENT

CHAIRMAN STOCKWELL: Public comments from those who wish to speak on any items not on today's agenda? Please.

MS. PAMELA HALL SCRUGGS: I wanted to introduce myself. My name is Pamela Hall Scruggs and I work for the U.S. Fish and Wildlife Service, International Affairs Program. We implement the Convention on International Trade and Endangered Species, which is called CITES. It is an international treaty that includes 175 nations and essentially works to protect species that are subject to international trade such that it might cause them a problem with their conservation.

We wanted to stop by here today and let you know that we did a public comment period back in June, and the World Wildlife Fund and the Species Survival Network suggested that we look at listing American eels in CITES Appendix 2. This is where they don't have to be threatened with extinction but where it would be helpful for the trade in and out of the United States and other countries where it is arranged to be regulated to ensure that it is sustainable and legal.

We're in the process right now of evaluating species against the CITES listing criteria. We went through a phase where we looked at certain factors such as whether it was native to the United States and whether it is in fact in trade from the United States – those are sort of some of the higher priority species – or if it's not native to the United States, if we are a major trading partner, then that would also be a priority.

American eel is, obviously, native to the United States and is in international trade, and so it sort of rose to the top and yet we haven't made any decisions at this point. We've put out a Federal Register Notice a few weeks ago saying we're undecided. This is the point in our process where we collect information, look at the specie status, talk to experts.

It's really lining up very nicely with your timeline for having the stock assessment going through finalization right now. Anyway, we will likely be in contact with some of the folks who have done the assessment through Bob or some of the commission staff so that we can make sure that we have the best understanding of the information in the stock assessment and how that relates to the CITES listing criteria.

If we were to decide to propose American eel, then it would be something that would be decided by two-thirds majority vote of the 175 party nations. This isn't a unilateral thing that the United States – you know, we just don't decide. Fish and Wildlife doesn't make the decision. Our main decision point would be whether or not we were going to actually develop a proposal and bring that forward to the convention.

Those are due in October, and we will be working throughout the summer and early fall trying to get the best handle on the information that is available and what that really means against the CITES listing criteria and whether this would be a good timing and smart thing to do for the conservation of eels. I wanted you to be aware.

Right now there is a public comment period and it's open – I can get the exact dates to Bob so that you guys have that. This is really just an information gathering; I think the stock assessment being a huge bit of information that you guys will be providing us. Whether or not you submit it, we will be looking. Thank you very much; I appreciate the opportunity.

CHAIRMAN STOCKWELL: Thank you, Pam. I have Doug Huntley.

MR. DOUGLAS HUNTLEY: Thank you very much. My comments will be less than three minutes. My name is Doug Huntley and I am the chief financial officer of Delaware Valley Fish Company, a company that has been a major buyer and seller of eels for 40 years. The draft stock assessment report concluded that eels are depleted in the U.S., but only relative to 120-year highs that existed during the 35 years between 1945 and 1980.

There is no finding that eels are depleted relative to the available habitat that exists today. The draft stock assessment concluded that eels are overfished, but the peer reviewers did not feel that this could be stated with confidence in relation to the biomass and fishing mortality reference points.

In fact, the peer reviewers said they were not comfortable measuring stocks only in relation to historic highs since this automatically resulted in the estimated eel population being overfished in the last year of the model. The reference points in the chosen statistical model assume that all eels are subject to fishing mortality.

We note there is no commercial eel fishing in Pennsylvania entirely as in many areas of the east coast, and there is comprehensive mapping work performed in Canada demonstrating that the eel is free from fishing pressure over the majority of the habitat in the country and likely throughout out its range.

The statistical model selected does not account for the eel's panmictic breeding. Having vast areas where eel is unfished explains why recruitment of new eels has shown no evidence of systematic decline over the last several decades. The Fish and Wildlife Service noted this fact in its 2007 finding.
The nursery effect of the vast unfished areas might also explain why CPUE indices, commercial catches and even the fishery-independent surveys have likewise failed to detect any major systemic decline in eel stocks for more than a decade. Even the statistical model chosen by the stock assessors shows an uptick in eel stocks in recent years and that current U.S. eel stocks are up substantially relative to the early 1900's.

No statistical model exists that will enable this commission to create management measures that will replenish the overall eel stock to where it was between 1945 and 1980 because the habitat is simply not there. Fortunately, this commission can take comfort based on the levels of fishing effort that have existed for the past decade and the current suite of management rules in place it is fulfilling its mandate, it's vision of sustainable and healthy fish populations. Industry looks forward to working with this commission in a collaborative manner to make sure that it stays this way in the future. Thank you, and we've just submitted written comments as well. I very much appreciate your listening to our input.

CHAIRMAN STOCKWELL: Thank you, Doug. Are there other folks in the public who would like to comment? Seeing none, I'm going to turn it over to Laura for a presentation on the eel stock assessment.

2012 AMERICAN EEL STOCK ASSESSMENT REPORT

MS. LAURA LEE: I want to thank the stock assessment subcommittee and the technical committee. A lot of work went into this assessment and everyone contributed a lot, which doesn't always happen on some of these committees. This is an outline of what I'll be talking about today. I'm not going to go into a lot of the details that are in the stock assessment report.

Of course, I'll answer any questions the best I can here or follow up afterwards. Just going over the trends in fisheries and exports over time; this is the commercial landings of American eel along the Atlantic Coast back to 1950. You can see that the landings peaked in the late seventies and early eighties when there was a demand for eel from the Europeans.

Here we have the export data for live and also the fresh frozen classifications and the value. The values are all converted to 2010 U.S. dollars. You can see that the value in the late nineties was very high. This is the dollar per pound of the fresh frozen, which is the blue line, and also of live eels. Again, you can see when the value was really high in those late nineties, also the dollar per pound was really high in the late nineties, and that is represented by the purple line.

The recreational data were obtained from the MRFSS. These are all the MRFSS estimates and not the MRIP new estimates that I can show if anyone is interested in how much difference. It really doesn't matter because the data are based on very low sample sizes, so they're very imprecise and I wouldn't put a lot of stock into these estimates. They also are just limited to marine waters, the areas where the MRFSS sampling takes place.

We have no idea of the estimates of recreational catches in the further inland waters. We took a regional approach to the assessment. Given the enormity of data that we were dealing with, this really helped us in structuring how we were going to tackle the data. Each got assigned one of these regions. These are based on HUC Watershed Codes.

I'm not sure if John Sweka is here to explain better what the HUC Watershed Codes are – thank you, Hydrological Units – thank you, Karin. But, it wasn't that we were going to assess necessarily on this basis, but this is sort of how we tackled the data. We looked at some of the models on this basis. Just to give you an idea of what the landings look like using those regional watershed designations, we were able to go back as far as 1976 to identify the landings by region. Obviously, landings started well before that.

I want to point that Southern New England and Gulf of Maine, they are here; this little blip. Relative to the other areas, they are very small but they are there. They're just in that little blip there. We had over a hundred data sets easily that had observations of eel in them, so we wanted to evaluate them. Instead of just throwing everything in, we wanted to choose data that were biologically meaningful and useful for the stock assessment.

Any biological data that we had, we used. It could length, weight and age information. We did have some series of fishery-dependent and catch-per-unit effort, and we presented those trends in the stock assessment report, but we didn't end up including them in any of the analyses due to poor participation in the fisheries, difficulty in standardizing to a common unit across the different states, major changes in the fisheries that we weren't able to account for in these indices.

That left us with the fisheries-independent indices and we considered about 70 different data sources there. We applied a set of selection criteria for choosing which of those data sets would be best suited for the assessment. We decided that any data set in terms of an index should have at least ten years. Again, biological data, it didn't matter if it was one year or twenty years, we used it.
For these fishery-independent indices, not only a minimum of ten years, but ensuring that it had a consistent methodology over time or that when we were calculating the index we could standardize for that change. Any index from a data source that caught hardly any eel we didn't include. Also, we were interested in indices from surveys that occurred at a time and a place where you would expect eel to occur. Otherwise, it didn't make much sense.

We also included indices from surveys that used gears that had a decent catchability for eel. For the young-of-year surveys, the state-mandated ones, all the ones that had been conducted for at least ten years were included. They're listed here. This is sort of a crude map of them up and down the coast. These are the ones that have been conducted for at least ten years.

As far as the other fishery-independent data sources, there are a few long-term young-of-year surveys in here that are not the mandated ones; also some yellow eel and elver surveys. I put together another crude map of approximately where those surveys are occurring to get sort of other fishery-independent sources along with the regions that I had discussed earlier.

We did a number of analyses; again, the index standardization, which I will talk about in a second; developed regional and coast-wide indices; did some growth modeling; a number of trend analyses; and then our stock assessment model; the depletion-based stock reduction analysis or DB-SRA.

Let's start with the index standardization. The purpose of this is to remove any factors that are clouding the trend in relative abundance that we're seeing. We used the general linear modeling approach, which was something recommended by the last peer review panel, and we applied this to all the indices that were included in the assessment, both young-of-year and non-young-of-year indices.

In addition to the sort of local individual indices, those are the ones just specific to that particular survey, we developed regional and coast-wide indices. I should mention I'm not going to go through three years of all the individual indices. They're in the report. That would just take forever. I'm also not going to go through the regional graphs, but I will mention how they were developed.

It was by combining those sort of individual local indices where we had at least – there were these two indices that covered a year. We needed at least two indices for a year and that determined the time series of these combined indices. Again, we did this for both the young-of-year and yellow stage abundance indices.

Here we have a figure of the coast-wide indices for the young of young. The top one, the short term, that is based on combining all of the ASMFC mandated

surveys that have been in operation for at least ten years. The lower figure is the long-term young-of-year surveys, and that was developed by combining – there was a Hudson Survey, one in Beaufort Inlet, North Carolina, and also the Ichthyoplankton Survey at Little Egg Inlet in New Jersey.

A similar approach was used to develop the yellow eel indices and we did that for period of 20, 30 and 40 years. The specific indices that went into them, I can't tell you right now off the top of my head. It is in the report, but note that some of them are only representative – for instance, the 40-year-plus year I think maybe only one or two regions are represented, so that is one of the biases of these combined indices.

We did a lot of growth modeling, looking at length, weight and age-length models, looking at both the estimated parameters and comparing them to estimates from other studies and also looking at what might be the best model for age/length. I'm not going to go into those details here just because of time limitations, but those are in the report. I am happy to discuss with anyone who is really interested in that.

I will focus on the trend analyses, which probably makes up the bulk of the assessment. The three main approaches that we used were the Mann-Kendall Test, the Manly Analysis and the ARIMA Model. In a nutshell, the Mann-Kendall Test, the question is, is there a significant trend in this series.

The Manly Analysis asks are multiple sources of information showing the same trend. The question with the ARIMA Model is, is the index in the final year below some specified percentile at some assumed level of confidence. All three methods found downward trends in numerous of the indices over the time period that we examined; not all of them, though.

This is just sort of a summary of some of the specifics that they found. For instance the Mann-Kendall Test found a significant downward trend in that 30-year yellow-phase abundance index, and that was that coast-wide index that we developed. The Manly Meta-Analysis found a consensus for a decline in young of year and yellow eel through time. This is showing that all the young-of-year surveys and all the yellow eel surveys are mostly showing an overall downward trend.

The ARIMA and Mann-Kendall found decreasing trends in the Hudson and South Atlantic. Just about every analysis I think we did found decreasing trends in all of the indices that were in the Hudson. In contrast, the indices from the Chesapeake Bay and Delaware Bay, Mid-Atlantic Region, showed really no increasing or decreasing trends.

Basically in a nutshell we found evidence of declining or least neutral trends of American eel. We had an integrated peer reviewer for this assessment and he recommended that instead of pursuing a whole bunch of different models we limit it to one or two models and pursue them fully.

We basically listed all the potential models we could use, weeded out the ones that we didn't have the data for, weeded out the ones that weren't going to be useful for our purposes. This left us with three or four models. The ones that weren't DB-SRA failed for one reason or another. Basically that's how we ended up using the Depletion-Based Stock Reduction Analysis.

This is a relatively new method. The paper came out last year. It's used on the west coast for developing harvest quotas, ACLs. It's a data-poor production method; and because it is data poor it has very limited – there are very few data requirements for this. It provides MSY-based reference points.

The question is based on the time series of catch how large must have the population been to produce those observed catches? One major assumption in this model I want to emphasize is that the biomass in Year One of your time series, whatever that is, is K, which is your carrying capacity.

In applying it to eel we assume that the age at maturity is eight. We used the time series of catch starting in 1880. We also incorporated loss of habitat due to dam construction; so instead of assuming a single M over the entire time series, we had a change in M occurring between 1969 and 1970, which is around when the peak number of dams were built.

I also want to point that the results are conditional on the input assumptions. This is the time series of catch. I don't know how well this shows up, but the years with the gray-shaded bars are years where the catch was interpolated because the estimates weren't available from the historical reports where we pulled these data.

I tried to find a time series of dams. The best I could do was from the U.S. Army Corps of Engineers. Now, these are just dams that are 50 feet or higher or like 5,000 or more capacity, so this is sort of a proxy just to show you about what the time series and the number of dams over time looks like. These were only available through 2001, but I marked where our change in M occurred in the model.

This top-left graph is the distribution of the estimates of carrying capacity from what are called the good runs. The bad runs are runs where at least the biomass estimates, one of the years is negative, so those were sort of thrown out. This is over 10,000 runs. This first one is the carrying capacity and you see the estimates are centering somewhere between 17 and 18,000.

On the lower right panel we have the distribution of MSY from the good runs and with the mode right at 6,500 metric tons. On this slide we have the distribution of MSY from the early and late period where that early and late period is defined by that change in M between 1969 and 1970. The early are the lighter purplish-looking bars and the late period estimates of Fmsy are in the reddish bars.

You can see that from the early/late period that Fmsy was basically estimated to be lower. In the lower right we have the distribution of MSY again from the early and late periods where the purple represents the estimates from the early period and red from the late period. Again, you see this shift from higher to a lower Fmsy if you're looking at just the mode of the estimates.

Here we have the model estimates of spawning stock biomass. The median estimate is this darker blue line. The 25^{th} and 75^{th} percentile estimates are represented by the dotted lines, and in the background are our landings. You can see sort of a wide range in estimates, especially throughout the middle of the time series.

In relation to the model-estimated reference points, again we have the biomass in the blue lines. The SSBmsy at 50 percent and its percentiles are – in the pink here, if we were to use this for stock status, that would be the target and half of the SSBmsy of 52 percent is represented by this lower purpose line, and that is the threshold. If it were based on this, you can see that the biomass estimates in 2010 is below the threshold, so that would be, based on this model, that the stock is overfished.
In terms of exploitation rate we have the observed U 50 percent so the median estimates of exploitation in the background, in the light blue; and then if we use the Umsy at 50 percent as our threshold, you can see that in 2010 we're above the threshold; and based on this, the stock would be overfishing occurring.

Now I'll talk about stock status. Based on the DB-SRA alone, that would say the stock is overfished and overfishing is occurring. However, there are multiple sources of mortality and we tried to stress this in the discussion. There is that substantial harvest in the 1970's, but loss of habitat, possibly parasites and disease, predation, environment and climate have all contributed to the current stock size.

So we agree with the peer reviewers in that depleted is a more accurate description of the stock status, and that's not based on any particular number from the DB-SRA model. That's just based on all the evidence together, so it's not associated with a particular number. The assessment of eel is obviously complex, their life history; there are also a number of data limitations, uncertainty in the recreational catches, illegal poaching that goes on.

There are only a few long-term data sets and the ones that do exist aren't directed at eel and they're sort of local indices, so there is a spatial bias associated with that. Also, we've only assessed a portion of a range, the range that occurs in U.S. waters. All the evidence that we have shown points to depleting or at least neutral trends in recent decades, and that's supported by the trend analyses and DB-SRA.

It's also consistent with the results of the ICES 2001 assessment. That is when ICES had a special working group for American eel. Also, in the literature there is just an enormous number of papers supporting these same results. We feel that a reduction in mortality is warranted. We especially feel that there is a need for international coordination of management and that a joint assessment with Canada would be very beneficial.

We made a number of research recommendations and identified them as either long term or short term and also noted the ones that would be useful for the next assessment. Those are the only ones I'm going to review now instead of going through the long list and just briefly go through these: improving the accuracy of commercial catch and effort data; characterizing the length, weight, age and sex structure of commercial harvest over time.

If we could at least get length and weight, that would be better since we don't have to sacrifice the eels and we'd still get a lot of information. Improving understanding of the distribution and frequency over time; improving the understanding of nematode parasite, though a lot of work has been going on in that area; improve understanding of spawning and maturation; improving understanding of the passage for all life stages; and improving understanding of the habitat needs. Also, if we can conduct age-and-growth studies at regional index sites just to support the development of reference points and hopefully develop some estimate of exploitation. That's all I

had. I hope I made the time limit. Are there any questions?

CHAIRMAN STOCKWELL: I suspect there might be. Thank you, Laura and the stock assessment team for a bucket load of work. We really appreciate it. Questions to Laura. Bill.

MR. WILLIAM A. ADLER: In the stock assessment you talked about the loss of habitat. Was there also a discussion of another reason or two reasons was predation and also water quality, which is also hurting the situation. It's interesting that these eels go up the same river as the river herring do and they're both in trouble. Hum, strange. Did you put predation somewhere into the mix?

MS. LEE: Yes, I do know that is somewhere in the report. We did list that, yes.

MR. ADLER: Okay, and water quality?

MS. LEE: Water quality pretty much – I'm also on the River Herring Stock Assessment so you'll see a lot of overlap between the two reports – yes.

MR. ROB O'REILLY: Thank you, Laura, for a nice report. I have a question on the independent surveys – and it looks like they're looking for a long time series – concerning the elver surveys what is the potential for those and have they been looked at critically yet or is the time series too short?

MS. LEE: We did look at the ones that at least ten years. I think a few more years would be good. I can tell you that Brian Jessup, the eel expert from Canada, said we need at least 30 years to make anything useful out of them.

We do have a ton of information on length and weights over – gee, over 60,000 individual lengths and weights; but if nothing else, they can provide an early indication of recruitment failure across the board. I think we and the review panel feel that there is definitely a potential for those in the future.

DR. LOUIS DANIEL: Just as kind of a followup to that point, you mentioned the Beaufort NMFS Bridge Net Survey; is that providing good information or what is the situation with that program?

MS. LEE: I'm glad you asked that, Louis. That is important because that's one of our longer-term young-of-year surveys. Unfortunately, the data are currently only processed through 2004. They have still be collecting the data largely on a volunteer basis, but the contract that they had with – and I believe it was Poland who was doing their identification. That fell through and they're having enormous funding difficulty. They have the data sitting on the shelves ready to be sorted and identified, but no money.

DR. DANIEL: Well, just as a followup, I think that would be a good discussion to have at some point in some forum. The bang for the buck is pretty extraordinary for the Bridge Net Survey. I believe we get maybe four or five different species, summer flounder, croaker, eels, but the problem is that they don't have the money.

For about $100,000 they could get that survey caught up from 2007 to present, and then there is really about a 13 to $15,000 a year price tag to continue providing that information, which seems to me to be – you know, if could all kind of put something together, we should be able to get that program up and running. That would be good information to have for – I think it is four or five of our ASMFC species have indexes derived from that program. Thank you.

MR. ROY MILLER: Thank you, Laura, for an excellent report. It struck me that those three indices of relative abundance, one of which Louis was just talking about concerning Beaufort, and the other was Egg Harbor and I forget where the third one was, if I remember those graphs that you put up there, there didn't appear to be an obvious trend in that particular data. How do you reconcile that with the conclusion that the stocks are declining using the depletion analysis?

MS. LEE: First, I would say the conclusion is that if nothing else they're not increasing. They're at least neutral and not increasing. Those combined indices end up sort of where if one goes up and the other goes down, they sort of cancel each other out, so I think we could do a better job of how we combine those indices. I know there is a high degree or correlation between the Beaufort and the Little Egg Inlet. I would just say that the evidence is not supporting an increase at all right now in eel; maybe in some places in the very most recent years, but overall just either declining or neutral.

MR. PATRICK AUGUSTINE: But to that point, declining or not changing are two different things. If we're just making an uncertain comment that we don't know, that's one thing. I was kind of taken aback by this paper that was passed out from Cozen and O'Connor on what their assessment of the stock was.

I didn't go to the detail that they went to in comparing the early years, back in the 1800's and so on. The real question is – and it raised the question in my mind – we call the stock depleted. Maybe it is. I was chairman of the board for a while and I didn't think we were going anywhere with it.

We weren't getting good assessments and now we have an assessment again that tells one story but I think it can be interpreted a couple of ways. My concern is similar to what Roy said; is it going up or going down and what management action can we take? Another comment that was made by Bill Adler; how much of it is natural mortality and how much is predation? I think when we start looking at a species in detail as to what we can do in this particular case as with shad and river herring and knocking down dams and impediments for them to go back up into the estuaries to spawn, I always come up with the thought, goodness gracious, we're doing single-species management and fish eat fish.

I'm not sure what action – the report was very good, thank you, the most complete one we've had in an awful long time, but with that information which direction do we go? One final comment – I don't need an answer – I looked at the research needs. I don't know where the money is going to come from.

Dr. Daniel, where is the $100,000 going to come from? What do we take from to do whatever? I'm just interjecting other concerns that I'm sure are being thought about around the table; and in view of the concern that we have with possible CITES listing – again, 170-odd countries have to approve it, but it doesn't mean we can't go for an ESA in the USA. I'm anxious to see, Mr. Chairman, what our next step is, if you will. Thank you.

CHAIRMAN STOCKWELL: If you can hold that thought until after we have the peer review and the technical committee reports, we will continue the discussion. A.C.

MR. A.C. CARPENTER: Talking about the young-of-the-year index, at least the ones that have been there ten years, and I understood you to say that our Canadian friends say that we need 30 years before we can really begin to rely on it; is there any data anywhere to suggest that this population is sustained from a very high young-of-the-year index, once a decade or once every fifteen years or something to that nature?

Is there any evidence to suggest that it's an event-driven thing that happens on an irregular schedule? My reason for that question is the preliminary data for this year's survey at least in the Chesapeake Region, we're seeing numbers that are going to blow the scales off everything that we've got, and we're going to have to rescale the entire thing just to fit this new number in there. Has that been seen anywhere else?

MS. LEE: Karin tells me in the Hudson the numbers have been high this year. On the technical committee call we did a poll of what the other states were seeing, and it was record or else really high is my recollection. We did do a little bit of looking at trying to correlate the indices with landings in subsequent years and indices. We didn't have much success with that, but that doesn't mean that there isn't a relationship. It could just be there is so many other factors clouding the relationship and we haven't identified those yet. Karin, is there anything you want to add on that point?

DR. KARIN LIMBURG: Not right now.

CHAIRMAN STOCKWELL: Dr. Geiger, and then we're going to move on.

DR. JAIME GEIGER: Mr. Chairman, a quick question. When we were doing the stock assessment, did we reach out through our MOU with the Great Lakes Fisheries Commission and look at what data or additional data they may have in terms of American eel conservation as well as our Canadian partners?

MS. KATE TAYLOR: We did look at the Canadian data for the assessment initially. However, we restricted the TORs to include only U.S. data for this stock assessment. That was also because Canada was also conducting their own assessment at the time. The hope was once both assessments were completely we could move forward jointly together.

CHAIRMAN STOCKWELL: Thank you, Laura, for a lot of hard work. I will turn it over to Karin for our presentation on the peer review report.

PEER REVIEW PANEL REPORT

DR. LIMBURG: Okay, I'm giving this report and I will try to keep it brief if I can. Just to introduce the team, I was the Chair of this Peer Review Team and we had some very capable people. Bob O'Boyle and John Weidemann were our stock assessment experts, the modelers. Ken Oliveira and I are both ecologists and more on the biological side of things. I think it was a good team that was put together by the ASMFC.

I'm going to sort of just paraphrase the terms of reference that we had to evaluate and assess the data collection and analysis process. We had to evaluate the models that were used. We had to look at the diagnostics and uncertainty analysis and say how good that was; look at that stock status assessment and the reference points and decide if they were good; and then also look at the recommendations and make ours as well.

Ken Oliveira in particular spent a lot of time trying to prioritize these things. That's in Table 1 of our report. I also want to mention that we had looked at the 2006 stock assessment, which was not given a pass. I just have to commend the stock assessment subcommittee for all the hard work that they did. It's very clear they paid a lot of attention to that report.

Looking at their data collection – you heard a lot of this, so this is just summaries here – they definitely looked far and wide. They didn't find everything, but they did find an awful lot. I very much appreciated how well they summarized the biology and they made some very good coast-wide assessments.

Actually I think for a student of eels, it would be well worth it for them to look at that report because there is such a lot of good information in it. One of the things that was noted was that in terms of the lack of long-term data – and I think Laura made mention of this – was that there are some data sets out there which would be great to have in a form that could be looked at and dissected.

One in particular was a long-term trawl data set from VIMS. It would be very helpful for that to become available. Looking at these trends and stuff, as you heard, the stock assessment subcommittee did a lot of uncertainty and trend analysis. They used these GLMs to standardize the data sets.

When those were looked at case by case, if you will, I think they smoothed out the variability, but then those smoothed data sets were combined into the coast-wide long-term data sets. That smoothing is kind of a double smoothing and it probably does eliminate some of the variance in there, and so that was a concern.

Also, the juvenile trend – and really I'm talking here about the young-of-year trends – you've heard this already that they're hampered by being sort of short, so we have to wait and get more of that information to come in. Sort of going off on my own here, one of the things that I noticed was looking at these ichthyoplankton indices, the bridge collection in North Carolina and this one in New Jersey, I just happened to notice that when they were normalized that they appeared to have a great deal of coherence.

They have a period from 1992 to 2003 when they actually overlap. The Beaufort Index starts earlier and the Little Egg Inlet one continues beyond that. I'll just point out this is actually two data points that fall on top of each other, so it's not just one outlier point, so it's actually a pretty strong relationship.

When you think about what these indices are, these are what is really coming off the Sargasso and hitting the coast, so I think it's important to keep these things going. Here is part of the Little Egg Inlet one in New Jersey. It starts in 1992 and I just left this part blank out here on the right because that's what we don't see in the Beaufort Index because those samples are still sitting on the shelves.

As I understand it, it would be about 50 pounds worth of glass eels is what it would cost to process those samples. But if we had that information we would then be able to see whether the – it would be very interesting to know what those trends look like. Yes, this only goes to 2010. This was in the stock assessment report, and it would be very interesting to see the coming years as well, and we don't know yet what is going to happen.

I think that this recruitment issue is pretty important to understand. You heard about these various trend analyses that were used and so they were I would say very thoroughly researched. Also, the stock assessment subcommittee tried something they called the traffic light approach, which has been used you have sort of disparate data sets and you just are trying to use sort of a weight of the evidence approach to try to score the quality of the resource in this case; you know, the status of the resource, so they used that, too.

Looking at the assessment models, they considered a whole slew of different models, so I have to say that they did their homework on trying to see what was available that might be used. As Laura said, most of them just are inappropriate or didn't have the requisite data that would be required, so they eventually went to this Depletion-Based Stock Reduction Analysis, which is appropriate to data-poor situations.

Now, I've never worked with one of these models myself, so if you ask me questions about it I'm going to have to say read the report. But at any rate if we think about what some of the pros and cons are with these models, one of the things that is a pro about

them is that you can sort of use your expert judgment to work with the inputs.

This subcommittee actually was innovative in a way that made our stock assessment modelers rather excised with this model, so that they had a way of estimating the input distributions for one of the key parameters. Then, also, they innovated in terms of what you might call natural mortality. It's not really necessarily natural. Putting dams up in my opinion is an anthropogenic effect, but anyway it's big into the natural mortality parameter to reflect the intensification of damming.

And if you look actually at damming, in North America it did intensify throughout the east coast and also up in Canada in the range of eels. The cons are that this model is kind of confined to freshwater and estuarine life stages, and so it doesn't really into consideration of other parts of the population at all, so it assumes that it's a stock that closed to the United States, and we know that is not true. There were other assumptions within the model that just might not be justified.

We spent a lot of time discussing what is the age at maturity. Anybody who knows anything about eels knows that they have incredibly varied age and growth relationships. If you look at the stock assessment report you will see these length at age graphs that are anything but straight lines. They are clouds of data.

Things like this key parameter being set in the model at 10 percent was not maybe justified and even asking what is the carrying capacity. Then also we were asked to evaluate these assessments of biomass abundance and exploitation. The DB-SRA Model indicates that there were three periods of heavy exploitation, and it wasn't clear what happened to the population after the first two periods of heavy exploitation.

You saw Laura's presentation of that model run. I have been trying to look for information about this past depletion. You would think if it was a real crisis it would have appeared in reports and newspaper reports and so on. You can certainly find that kind of information for shad. There is really nothing that I could find.

And so it made me wonder if the idea – you know, we have this idea that inland populations of eels had built up in lakes and rivers and estuaries and so on, and they were quite widespread. They were incredibly widespread in inland drainages. They went up as far as close to Minneapolis, I think, and through the Mississippi.

You could consider that a reservoir, and there are those of us who think that perhaps this reservoir perhaps served to kind of buffer the impacts of that heavy fishing, but it's certainly an open question in my mind. That's why I just put it as a question. It's also unclear whether these current exploitation rates are as the model projects because of the uncertainties in this model.

I think Laura explained that pretty well. Then if you look at the reference points, we were asked to evaluate the choice and methods of reference points and look at that stock status. There were three sets of reference points that were developed. One was, as Laura mentioned, this auto-regressive something moving average – integrated moving average analysis or ARIMA of one of the yellow eel indices.

This is the criterion that was developed as a reference point. The panel felt that this was kind of limited use because, okay, you might be able to detect that but then how do you manage based on that? This was something that was thought to be interesting but it probably needs more work. The traffic light approach – and that picture at the bottom right is a chopped up eel, actually. It's my yucky picture.

If you look at the traffic light approach as it's currently done, it's complex and it's very hard to interpret it. Perhaps there might be some way of reshuffling or looking at the data slightly differently that might help. On the other hand, eels are complex animals so maybe that's why. We did think that this approach probably does have some use.
With more thought and development, it might be a very useful index because you could bring in various other things, environmental factors, disease factors and so on. We therefore encourage them to continue to pursue this and see how it goes. Then the third one is reference points based on this model.

This model does produce all of the kinds of reference points that fishery stock assessment people love, the alphabet soup here. Unfortunately, we felt that the model had enough uncertainties that you can't really make strong statements with it at this point. Nevertheless, the panel was impressed with the progress that had been made on this.

Remember that this assessment was coming in with nothing before this, and now they have a good start on this model. As far as the stock status goes, the panel does agree that the stock status is depleted, but we can't agree that overfishing is the cause.

Nevertheless, we do agree that the sources of mortality ought to be reduced to the extent possible.

That means these diadromous fishes are affected by many factors and fishing is but one of them. Having said that, we have all heard lately about the tremendous economic incentives in glass eel fishing. Going into this peer review, we knew that the prices had gone up to about $2,000 a pound while we were in the midst of the glass eel fishery, and then I guess it has gone up even higher since then.

Imagine what that incentive is to people, and so therefore it's going to encourage a lot of poaching and so on. Eels, although they don't have a lot of cache in this country, they have tremendous, tremendous value elsewhere and our eels are getting a lot of attention. As far as recommendations go, in our report as in the stock assessment report, we have a lot of recommendations. I am just going to let you kind of read these things.

I will mention that we would very much like to see the young-of-year indices expanded. We'd also like to see some silver eel monitoring going on, too. I didn't put that in the slides. But just in my home state of New York and the estuary I study a lot, the Hudson River Estuary, there is a great citizen science program that is going on.

It just really is a wonderful way for the Hudson River Estuary Program to promote the estuary, to get students involved, to get them tied to their environment, and I think it's a wonderful way of kind of getting environmental education integrated with your surveys. Expanding the long-term fisheries-independent monitoring, of course, is important to do, and we encourage that to be done in states where it isn't done now with the money that who knows where it's going to come from; and then also working with agencies to improve fish passage and reduce the dam mortalities, which are serious in places, but there are good innovations for eel passage, and they should be encouraged.

Working with agencies to improve inland habitat and I'm just mentioning pollution here as one thing. Continue to improve the models; I guess that's a little bit like mom and apple pie. I also think for all species we have to be concerned about climate change effects. And in particular for fish like eels that depend on currents to move them about, ocean circulation is very important.

As Laura mentioned, there is an acknowledged need to work cooperatively with other nations. In fact, one of our recommendations was that the ASMFC committees start meeting cooperatively with Canada. We saw that the next AFS meeting in Quebec City would probably be a good opportunity for that. Just to remind you that the American eel, although it has the name of America, it's widespread and it's a single population. It's a well-mixed population, so really what goes on here we depend on everything.

So then the general conclusions are that we generally concur with the stock assessment, that the eel is in decline. We passed the stock assessment itself. We encourage the Eel Technical Committee to continue working in the directions suggested by the SASC and the panel. I wanted to also kind of go to sentimentality here.

In my home state of New York the Onondaga Nation is part of the Iroquois Confederacy, and they're right in Syracuse. They have an Eel Clan – in fact, it's the clan across the Confederacy. I have talked to these people and I know that most of the young people have never seen a live eel. In fact, it's only the elders that have seen live eels.

Why is that? That is because the eel is getting extirpated in the Lake Ontario Drainage Basin. This map here shows the river systems and it shows a lot of dots, but the only ones that had eels in them at all were the colored dots. Most of these dots are empty. The concern is very real in our part of the range. I think that's about it for me. I'll be happy to take questions.

CHAIRMAN STOCKWELL: Thank you, Karin, and to the entire panel for a very thorough report and review. We appreciate it very much. Questions on the peer review? Loren.

MR. LOREN W. LUSTIG: Thank you very much for that excellent report. I was very intrigued with your comments about environmental education in the Hudson Drainage, that it concerns itself with eel populations. It reminds me of the Trout in Classrooms Program in Pennsylvania, Grasses in Classes in Maryland. Can you advise us of any other really proactive environmental programs in any of the other states that have highlighted the eel populations, please?

DR. LIMBURG: I cannot; Laura or Kate? I think it really got embraced by a couple of environmental educators that are part of the Hudson River Estuary Program, and they just found it was a wonderful, wonderful experience and they just expanded it. Sometimes these things are just driven by personal initiative, I guess.

MR. LUSTIG: I certainly support that kind of initiative and it can be parlayed into some outstanding public support, so hopefully that will catch on elsewhere. Thank you.

DR. LIMBURG: I think one of the things that they really play up is how cool eels are. I mean, anybody who hangs out with eels for a little while knows that they're very cool animals. It's a really easy thing to hook kids with.

MR. JOHN CLARK: Both of you emphasized getting more data from commercial fisheries, length weight and age. From my years of working with eels, I know one of the major hangups for a lot of states has been the aging of eels. Taking lengths and weights is enough of a problem, but getting the ages especially from commercial eels that are typically sold live, it means you have to purchase the eels, which is expensive, and the processing is difficult, as we know getting the otoliths out.

And yet as we looked at it more and more, it does seem that age is really not good an indicator of maturity with the eels. Especially where most of the fisheries are pursued in estuarine waters, the length seems to be a much better indicator of maturity. To get more data from the states; would it be advisable to recommend the states to get lengths and weights? It might get more participation from states that are right now not doing that because of the age.

DR. LIMBURG: Another factor that is quite important in eels is their fat content. There are instruments now that can non-lethally measure or at least estimate fat content. That is something that is currently being explored. One of my colleagues is going to do that this summer in the Hudson. I think that might be also another tool that could be used, possibly.

DR. EUGENE KRAY: In the report and I have seen it several places, too, we talk about more data needed for the recreational catch. Do we have any idea as to roughly what the recreational catch might be? Is it 5 percent, 10 percent? I don't think it could be more than that.

MS. LEE: It's very small whatever it is, and the only estimates that I know of right now are those MRFSS estimates, but again they're based on really small sample sizes and I think maybe only one or two eels in at least a few years. Again, that only covers the marine waters.

DR. KRAY: When I was a young boy, we used to actually catch them in our traps. That was on the Metedeconk River in New Jersey. Coming from an Eastern European background, the eel is very prized, and my mother – God rest her soul – every time we went to the fish market, she had to buy live eel. It is a population, as Karin indicated, the export particularly into Eastern Europe is very viable.

MR. BRADFORD CHASE: Quick comment; the recreational surveys from the seventies and eighties did document much higher landings than presently, but the present methodologies really don't allow the coverage of eels as previously.

CHAIRMAN STOCKWELL: Thanks, Brad. Other questions or comments for Karin? Well, thank you very much for all your hard work, and we're going to move on to the technical committee report from Brad.

TECHNICAL COMMITTEE REPORT

MR. CHASE: Brad Chase from Massachusetts. I serve as the technical committee chair as well as the stock assessment subcommittee. I have just a few general comments from the technical committee. We met in January to discuss the stock assessment. We had a conference call about two weeks ago to discuss the peer review panel.

I have three general comments to pass on. I'm also prepared to talk abut the glass eel in terms of the survey work the states do as well as the recent poaching concerns. I'd be happy to field questions afterwards on that. The first comment is I think the technical committee was generally quite satisfied with the process.

The stock assessment was last conducted in 2006 and it was not accepted. There were data deficiency concerns, and so I think we've made a lot of progress. This time it did pass and so the technical committee was very satisfied with that process. I do want to thank the peer review panel as well as the stock assessment subcommittee. I think things worked very well, and I think it's a good example of how this process should work. We had a good result because of it.

The second comment is we've had a lot of discussion on the DB-SRA Model and how the stock assessment depended on it as one of the few models that could produce biological reference points. What was presented to us in January was a model run that had a result that the stock was in fact overfished and that overfishing was occurring.

We discussed it for about an hour and a half. It really brought out a lot of interest. At that meeting we did

accept that determination. Then we got the results from the peer review panel where that was not accepted for all the concerns that were previously reported on different sources of mortality. We discussed it at the conference call two weeks ago, and the technical committee at this point supported the depleted status.

I think it's important to make that note. Also, there was a lot of interest in what happened in the seventies and eighties in terms of the harvest related to the export market for the European Food Market. It is easy to imagine that period did result in overfishing and does contribute to where we are today in terms of abundance. That concern was valid and it was intensely debated by the technical committee.

The third comment was the technical committee also recognizes that in 2006 we had a stock assessment, and we also had an Endangered Species Act Review Process. In the end the stock assessment was not accepted; and moving forward we had no conservation measures that came out of that period.

We had similar concerns expressed on the status of the stock; yet we had no conservation measures. The technical committee would like to work with the board. The technical committee is very concerned about finding options and ways to reduce mortality and increase recruitment. Moving forward we think it would be very important this time to come up with conservation measures that can help the status of the stock. Those are the three points I had to make.

CHAIRMAN STOCKWELL: Thank you, Brad. Questions for Brad? Dr. Geiger.

DISCUSSION OF MANAGEMENT RESPONSE

DR. GEIGER: Did the technical committee have any recommendations or suggested approaches on how we can start considering more appropriate and better conservation measures for American eel throughout its range?

MR. CHASE: We did discuss that two weeks ago, but we thought it was best to wait to digest the peer review panel report and to get feedback from the board before going forward. I think we just discussed it generally and agreed that we had to come up with something that may improve the conservation for the stock. I don't think it's really the time for the technical committee to offer up specific recommendations.

DR. GEIGER: Mr. Chairman, I know and I mentioned before the Great Lakes Fisheries Commission also has very grave concerns about American eel populations and then again concern about population stocks. I do know that this commission has an MOA with the Great Lakes Fisheries Commission.

The Great Lakes Fisheries Commission I believe is scheduled to meet in Buffalo the first week in June. I think it would be more than appropriate for ASMFC staff to get together with the Great Lakes Fisheries Commission and sort of compare notes, so to speak, about American eel conservation between two of probably the more successful fisheries commissions in existence today. In addition, I believe that certainly habitat activities with relicensing, FERC relicensing offers an excellent opportunity to get more information as well as habitat restoration improvements for American eel passage, both upstream and downstream.

I think this commission has taken a very active role in FERC relicensing for other diadromous and catadromous fish species under the ASMFC jurisdiction. Thirdly, I do believe that we have a lot of opportunity to look at the suite of various diadromous and catadromous fish species under the jurisdiction of this commission.

Again, similar things are happening similarly, and I think it's time to start connecting the dots on some of the activities we do. I think American eel offers an excellent opportunity to do that along with river herring and American shad. Again, I would urge the technical committee to probably as well work with the Atlantic Coastal Fisheries Habitat Partnership to start determining some of the conservation measures that could be taken. Again, we've got some pretty powerful conservation friends out there along with the Canadians that are also equally interested in American eel conservation. The time is now to start having those discussions, Mr. Chairman. Thank you.

CHAIRMAN STOCKWELL: Thank you, Jaime; you're offering some very logical next steps that hopefully we will continue the discussion on when we've concluded our questions here. Any other questions? Pat.

MR. AUGUSTINE: Mr. Chairman, are you ready for a motion to accept the stock assessment report and peer review report that were so complete?

CHAIRMAN STOCKWELL: I certainly am.

MR. AUGUSTINE: **All right, so move that the board accept the stock assessment report and peer review report for management use as presented.**

CHAIRMAN STOCKWELL: Seconded by Mark Gibson.

MR. AUGUSTINE: Just a follow-on while they're putting that up; in regard to Dr. Geiger's comment, is the technical committee in – I hate to use the word "mood"; that's a good word – in a good mood to come forth with any outright suggestions or recommendations that we, the board, can take action on in the very near future if not today? Are you capable of doing that without convening other than maybe a phone conversation?

MR. CHASE: I think I would have to take it back to the technical committee and discuss, but I think we could do that in the near future.

MR. AUGUSTINE: Mr. Chairman, with your approval, I would hope that we follow up on Dr. Geiger's suggestion. I haven't seen any forthright comments made around the table or recommendations other than Dr. Daniel's comment about coming up with $100,000 to support a very, very needy program. Anything that you could do, Mr. Chairman, to point them in that direction and have them report to us at our next meeting so we can move forward with some action.

CHAIRMAN STOCKWELL: Well, once we move ahead with the disposition of this motion, we will be looking at next steps between now and our next meeting. Comments to the motion on the board? Okay, then I'm going to move the question on the board after a quick caucus.

(Whereupon, a caucus was held.)

CHAIRMAN STOCKWELL: Okay, to the motion on the board, those who support it please indicate so, 17; those opposed; those abstaining, 2; any null votes. **The motion carries 17, zero, two, zero.** Okay, Mr. Augustine.

MR. AUGUSTINE: Did I give you enough information as to what we'd like to have the technical committee supply if possible to the board for our next action, Mr. Chairman?

CHAIRMAN STOCKWELL: Do you want to make it in the form of a motion or are you looking to move forward by consensus?

MR. AUGUSTINE: I can make it in the form of a motion if you'd like, Mr. Chairman, but could we not just ask the technical committee if they would do it with board approval; a nod of the head, if you would.

DR. DANIEL: Mr. Chairman, in addition to what Pat is asking for, I would like to see maybe some of the historical measures that have been taken that allow elver fisheries; what is the history there. I think there are a lot of folks around the table that may not know – I don't – where some folks have an elver fishery and others don't and why. Is that something to continue or expand at $5,000 a pound?

MR. CHASE: Section 4 of the stock assessment subcommittee has a pretty good history of how that fishery was developed and it documents it fairly well.

CHAIRMAN STOCKWELL: Okay, I'm hearing Pat's suggestion and I'm hearing Louis' suggestion. Are there other thoughts for the technical committee to work on? Leroy.

MR. LEROY YOUNG: Dams are such a huge problem with American eel as well as a lot of the other species that we manage. Do you know if there has been any effort to prioritize dam removal on the east coast relative to this species?

MS. TAYLOR: Dam removal priorities have been developed for some states, but it might not be specifically for American eel. It might just be for general fish passage.

MR. CHASE: The commission supported an eel passage workshop that was held in Gloucester, Massachusetts, last maybe March, and that was an excellent opportunity to get together and look at ways to increase passage. Until recently dam removal wasn't focused at eel. The eels were thought to be quite flexible and capable of getting over obstructions. I think we would like to find ways to improve passage, and that will certainly include dam removal.

MR. CLARK: I would just like to say in terms of management, having been on the technical committee for a long time, that after the first assessment was rejected the technical committee and the stock assessment committee tried a life table approach, the SLIME Model, which was then brought up to the management board. It was a basic technique based on the biology of the eel. It gave us some good ideas of what type of cuts we'd have to look at in the commercial fishery to allow more escapement of mature females.

When the management board at the time – this was I think 2008 – saw the types of cuts it would require to the fishery backed away and said let's wait for the next assessment. Now we've had another assessment, but as we've seen there aren't really management reference points in there. I think it really is up to the management board to give advice – you know, just to sort of decide what type of cuts we're looking at here, if there is interest in making any cuts, because out of this stock assessment we really don't have that much guidance as to how much of a goal we should be shooting for in the management of this. Thank you.

CHAIRMAN STOCKWELL: Other thoughts or comment? A.C.

MR. CARPENTER: I've got a question about the elver fishery. I thought that the existing plan has a six-inch minimum size limit as a requirement. My impression is that elvers are smaller than that. How do we have elver fisheries occurring along the coast?

MS. TAYLOR: There is a six-inch minimum requirement for commercial fisheries. However, the states of Maine and South Carolina have an exemption from that.

MR. AUGUSTINE: A question then begs to be asked, Mr. Chairman, why? I don't want to do damage to an economic engine with the elvers in Maine, but it just seems to me if that seems to be one of the areas where the fishery is still going on, is it an enforcement issue or is it something else we're not looking at. Maybe Mr. White or someone can enlighten us about that, which would be helpful.

CHAIRMAN STOCKWELL: Do you want to respond to that one, Ritchie?

MR. G. RITCHIE WHITE: I am not up on the state of Maine's reasons.

MR. CLARK: Having been around when this whole issue started, my recollection was that Maine and South Carolina were grandfathered in because they had active glass eel fisheries at the time. Particularly in the case of Maine, they made a very compelling case that they were using the license fees, which were I think at the time and probably still are fairly high, that a good portion of that was going to enforce the glass eel fishery. They felt that they could control the fishery fairly well. I don't know whether that's the case or not, but that was the thinking at the time back in '99 when it was passed.

CHAIRMAN STOCKWELL: It's a fairly controlled fishery in some respects, but you're absolutely right in the history. Tom.

MR. THOMAS FOTE: New Jersey had a glass eel fishery way back then also, and it was basically shut down when they couldn't pass a new regulation basically dealing with the fees for the permits and allowing the permits to happen.

At that time there was also big approaching going on up and down the coast. When glass eels go to $2,000 a pound – and I haven't heard anything about poaching and I haven't heard anything about people on the enforcement – are we seeing an illegal fishery since there are buyers?

I know back in the old days they were going up and down coast and anybody that had eels, they were basically contacted. We spent a lot of time on striped bass today looking at how to correct the illegal parts of that, but what is going on with the glass eels? Is it a law enforcement problem or not? I'm not sure anymore because I haven't heard a word about it in many years.

CHAIRMAN STOCKWELL: At $2,200 a pound, we may have a controlled fishery, but there is a temptation for that. I defer to Colonel Fessenden.

MR. FOTE: What I'm saying is other states, where the buyers were coming down to New Jersey and buying them underground and things like that. I'm not talking about your Maine fishery; I'm talking about the other state fisheries.

CHAIRMAN STOCKWELL: Okay, I'm seeing a lot of heads nodding around the table on a number of the good suggestions from enforcement through Dr. Geiger's comments, Pat's comments, Louis' comments, John's comments.

The technical committee is ready and willing to move forward with coming back to us at our summer meeting with some recommendations. Unless there is an objection, I'd like to defer to them and have them come back to us in August and we'll move ahead then. Okay, without objection, the technical committee will report back to us in August.

PROPOSED ESA STATUS REVIEW OF AMERICAN EEL

CHAIRMAN STOCKWELL: We're going to move on now to a brief report from Kate on the proposed ESA review.

MS. TAYLOR: This is just a brief update on the proposed ESA Petition. As you are aware, in April 2010 American eel were petitioned for the ESA, and in September of last year the U.S. Fish and Wildlife Service did come out with a positive 90-day finding that they are going forward with conducting a status review and looking at a proposed rule for determination of status.

To date no resources have been allocated for conducting of the status review. Just so that the board is aware, the five factors that are looked at for determination of either endangered or threatened listing include the present or threatened destruction; modification or curtailment of its habitat or range; the overutilization for commercial, recreational or scientific or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms and other natural or manmade factors affecting the continued existence of the species.

CHAIRMAN STOCKWELL: Questions for Kate? Okay, seeing none, we're going to move on to our agenda item, which is the election of a vice-chair**.** Mr. White.

ELECTION OF A VICE-CHAIR

MR. WHITE: Mr. Chairman, I'd like to nominate Tom O'Connell and that would be subject to a second by Pat Augustine.

MR. AUGUSTINE: Thank you, Mr. White; thank you, Mr. Chairman. I move to second that and close nominations and cast one vote for the illustrious Mr. O'Connell.

CHAIRMAN STOCKWELL: Okay, so moved and seconded. Those in favor of Tom O'Connell as the new Eel Vice-Chair, please signify. Okay, congratulations, Tom.

ADJOURNMENT

Is there any other business to come before the board this morning? Seeing none, thank you very much, the meeting is adjourned.

(Whereupon, the meeting was adjourned at 11:42 o'clock a.m., May 1, 2012.)