

**PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
AMERICAN EEL MANAGEMENT BOARD**

**The Westin Crystal City
Arlington, Virginia
Hybrid Meeting**

February 1, 2023

Approved August 1, 2023

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1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of October 21, 2021** by Consent (Page 1).
3. **Main Motion**
Move to approve the American Eel FMP Review and state compliance reports for the 2021 Fishing year, and *de minimis* requests from New Hampshire, Massachusetts, Pennsylvania, District of Columbia, and Georgia for their yellow eel fisheries (Page 24). Motion by John Clark; second by Doug Grout. Motion amended.

Motion to Amend
Move to amend to add Florida to the *de minimis* request (Page 25). Motion by Erika Burgess; second by John Maniscalco. (14 in favor, 3 opposed, 1 abstention, 1 null). Motion carried (Page 26).

Main Motion as Amended
Move to approve the American Eel FMP Review and state compliance reports for the 2021 fishing year, and *de minimis* requests from New Hampshire, Massachusetts, Pennsylvania, District of Columbia, Florida, and Georgia for their yellow eel fisheries. Motion carried (18 in favor, 1 opposed) (Page 26).
4. **Move to elect Kris Kuhn as Vice Chair of the American Eel Management Board** (Page 26). Motion by Shanna Madsen; second by John Clark. Motion passes by consent (Page 26).
5. **Move to adjourn** by Consent (Page 26).

ATTENDANCE

Board Members

Megan Ware, ME, proxy for P. Keliher (AA)	John Clark, DE (AA)
Steve Train, ME (GA)	Roy Miller, DE (GA)
Sen. Cameron Reny, ME, proxy for Rep. Hepler (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Cheri Patterson, NH (AA)	Lynn Fegley, MD (AA, Acting)
Doug Grout, NH (GA)	Russell Dize, MD (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	David Sikorski, MD, proxy for Del. Stein (LA)
Dan McKiernan, MA (AA)	Shanna Madsen, VA, proxy for J. Green (GA)
Raymond Kane, MA (GA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Jerry Mannen, NC (GA)
Phil Edwards, RI, proxy for J. McNamee (AA)	Chad Thomas, NC, proxy for Rep. Wray (LA)
David Borden, RI (GA)	Ross Self, SC, proxy for M. Bell (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Malcolm Rhodes, SC (GA)
Justin Davis, CT (AA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
Rob LaFrance, CT, proxy for B. Hyatt (GA)	Doug Haymans, GA (AA)
John Maniscalco, NY, proxy for B. Seggos (AA)	Spud Woodward, GA (GA)
Emerson Hasbrouck, NY (GA)	Erika Burgess, FL, proxy for J. McCawley (AA)
Joe Cimino, NJ (AA)	Gary Jennings, FL (GA)
Peter Clarke, NJ, proxy for T. Fote (GA)	Dan Ryan, DC, proxy for R. Cloyd
Adam Nowalsky, NJ, proxy for Sen. Gopal (LA)	Marty Gary, PRFC
Kris Kuhn, PA, proxy for T. Schaeffer (AA)	Chris Wright, NMFS
Loren Lustig, PA (GA)	Rick Jacobson, USFWS

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

Ex-Officio Members

Troy Tuckey, Technical Committee Chair	Rob Beal, Law Enforcement Representative
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Staff

Bob Beal	Kurt Blanchard
Toni Kerns	Tracey Bauer
Madeline Musante	James Boyle
Tina Berger	Jeff Kipp
Kristen Anstead	Caitlin Starks

Guests

Debra Abercrombie, US FWS	Jason Boucher, NOAA	Matt Cieri, ME DMR
Mike Armstrong, MA DMF	Ingrid Braun, PRFC	Margaret Conroy, DE DFW
Travis Atwood	Delayne Brown, NH F&G	Heather Corbett, NJ DEP
Pat Augustine, Coram, NY	Jeff Brust, NJ DEP	Caitlin Craig, NYS DEC
Jessica Best, NYS DEC	Mike Celestino, NJ DEP	Kyle Egan
Alan Bianchi, NC DENR	Benson Chiles	Jacob Espittia, FL FWC

Guests (continued)

Sheila Eyler, US FWS
Glen Fernandes
Jared Flowers, GA DNR
Pat Geer, VMRC
Ben German, NOAA
Lewis Gillingham, VMRC
Angela Giuliano, MD DNR
Tyler Grabowski, PA F&B
Melissa Grader, US FWS
Jay Hermsen, NOAA
Emily Hill, US FWS
Peter Himchak
Carol Hoffman
Harry Hornick, MD DNR
Jesse Hornstein, NYS DEC
Jeff Kaelin, Lund's Fisheries
Kiana Keko, Ofc. Sen. Reed
Carrie Kennedy, MD DNR
Wilson Laney
Todd Mathes, NC DENR
Genine McClair, MD DNR
William McDavitt, NOAA

Joshua McGillt, VMRC
Meredith Mendelson, ME DMR
Steve Meyers
Kyle Miller, FL FWC
Kirby Rootes-Murdy USGS
Mike Nardolilli, ICPRB
Josh Newhard, US FWS
Thomas Newman
Tamara O'Connell, MD DNR
Scott Olszewski, RI DEM
Derek Orner, NOAA
Stacy Patman, Yamaha Marine
Paul Piavis, MD DNR
Jeffrey Pierce, MEFA
Michael Pierdinock
Nicole Pitts, NOAA
Bill Post, SC DNR
Rebecca Quinones, MA DMF
Jill Ramsey, VMRC
Harry Rickabaugh, MD DNR
Tara Scott, NMFS
Ethan Simpson, VMRC

Somers Smott, VMRC
Ken Sprankle, US FWS
Michael Stangl, DE DFW
Davud Stormer, DE DFW
John Sweka, US FWS
Beth Versak, MD DNR
Walt Vieser
Mike Waine, ASA
Craig Weedon, MD DNR
Keith Whiteford, MD DNR
K. Whitney, RIT
Tim Wildman, CT DEEP
Angela Young
Darrell Young, MEFA
Jordan Zimmerman, DE DFW
Erik Zlokovitz, MD DNR
Renee Zobel, NH F&G

The American Eel Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, via hybrid meeting, in-person and webinar; Wednesday, February 1, 2023, and was called to order at 9:45 a.m. by Chair Phillip A. Edwards III.

CALL TO ORDER

CHAIR PHILLIP A. EDWARDS III: Welcome to the American Eel Management Board. I would like to call this meeting to order. My name is Phil Edwards; I am the Administrative Proxy for Rhode Island. With me today up front are Caitlin Starks and Dr. Kristen Anstead with the Commission, and Dr. Sheila Eyler, the Stock Assessment Chair. Later in the meeting Dr. Jared Flowers will join us, so he's the Chair of the Peer Review Panel.

APPROVAL OF AGENDA

CHAIR EDWARDS: I would like to start with the Approval of the Agenda. Are there any proposed modifications to the agenda? Please raise your hand. Is there anything online? Seeing none; the agenda is approved by consent.

APPROVAL OF PROCEEDINGS

CHAIR EDWARDS: Moving on to the approval of the proceedings for October 2021. The proceedings were in your materials.

Are there any corrections or edits? Anything online? Seeing none; I approve the October 2021 proceedings by consent.

PUBLIC COMMENT

CHAIR EDWARDS: Next item on the agenda is Public Comment for those items not on the agenda. At this time, we have one person signed in, Mike Nardolilli from the Interstate Commission on Potomac River Basin. Go ahead, Mike.

MR. MIKE NARDOLILLI: Thank you, Mr. Chairman, thank you members of the American Eel Management Board. I'm Mike Nardolilli; I'm the Executive Director of the Interstate Commission on the Potomac River Basin. In 1940, Congress approved the compact between the five jurisdictions in the Potomac River Basin, Virginia, West Virginia, Maryland, D.C. and Pennsylvania. I'm here today to just introduce myself, and hope that we can work together in the future.

You probably know of ICPRB best from our efforts to restore the shad to the Potomac River with Jim Cummings, our current biologist a few years ago. Some of my aquatic biologists have expressed an interest in helping restore the American eel to the upper reaches of the Potomac River, by working on eel ladders around Dams 4 and 5, which were leftovers from the old C&L Canal Base. We're here just to indicate that we are really hoping that we can work together, and I look forward to hearing about the American eel proceedings today. Thank you very much.

CHAIR EDWARDS: Thank you, Mike, for the introduction. Do we have anyone else online with a comment? Okay, that was the end of the Public Comment. We are now at Item Number 4, Review and Consider 2022 Benchmark Stock Assessment and Peer Review Report for Management Use and Respond if Necessary. Go ahead.

MR. JEFFREY PIERCE: Good morning, Chairman and American Eel Board. My name is Jeff Pierce; I'm with the Maine Elver Fishermen's Association from Maine. Marine Elver Fishermen and a number of NGOs have been working with the state of Maine.

The state of Maine has been working since 2012 to open up more habitat and full fish passage both upstream and downstream migration, which is most important to get the silver eels out. These river systems have been flourishing since we've been doing this work. The decisions you make today affect our

communities and our fishermen. We hope you all take that into consideration, as these are sentinel fisheries. Thank you.

**REVIEW AND CONSIDER THE 2022
BENCHMARK STOCK ASSESSMENT AND PEER
REVIEW REPORT FOR MANAGEMENT USE AND
RESPONSE IF NECESSARY**

CHAIR EDWARDS: Thank you, Jeff for the public comment. Is there any other public comment? Okay, we will move to Item 4, Review and Consider the 2022 Benchmark Stock Assessment and Peer Review Report for Management Use and Response if Necessary. We're going to have a series of three presentations, and a discussion and questions following.

STOCK ASSESSMENT REPORT

CHAIR EDWARDS: I would like to introduce Dr. Sheila Eyler, for the presentation on the stock assessment report.

DR. SHIELA EYLER: Thank you, Mr. Chair. Today I'll be presenting on the stock assessment for the American eel that was completed in late 2022. This is an outline of the material that will be covered into today's presentation. There are a number of challenges that complicate the assessment of the American eel stock that has the geographic distribution within the Atlantic States Marine Fisheries Commission.

It occupies a wide variety of habitats from the ocean to estuaries in fresh water. It's a panmictic species ranging from Brazil to Canada, which means they are a single stock. The stock is managed by several authorities, depending on its location within its geographic range. The life history characteristics vary by sex, location and area within the geographic range.

Other potential impacts to the population are difficult to quantify, including habitat loss from dams, climate change, and the nonnatives swim bladder parasites. These challenges lead to the

inability to model and produce traditional reference points for the species. Previous assessment efforts through the Atlantic States were completed in 2005, '12 and '17. The 2005 assessment was not accepted for management use due to shortcomings in the assessment.

The 2012 Benchmark Assessment evaluated different modeling approaches and trend analyses, but reference points from the models were not accepted for management use. In 2017, there was an update to the benchmark with an extended time series, and supported the depleted status that was found in the 2012 Benchmark.

The current assessment has many of the same issues with the previous assessments that were not resolved. Attempted models and approaches from the previous peer review including the delayed difference model to develop reference points. Further exploration was also done on surplus production models and the traffic light approach. Other methods were considered in this assessment, including a GIS-based habitat analysis. Updating the indices and trend analyses, and evaluating the use of data poor methods for assessment that had been developed and simulation tested by the Northeast Fishery Science Center to provide management advice.

It's important to note that the SAS had issues with assessing the status of American eel stock, and that is not unique to the American eel or to the United States. New Zealand has abandoned analytical stock assessment methods, and is currently proceeding with a habitat orientated assessment approach.

The European eel has been assessed by an ICES working group, and have identified similar challenges to assessing their stock, as what has occurred on the Atlantic Coast of the U.S. The Canadian Department of Fisheries and Oceans have assessed the American eel in Canada, and they were not able to develop reference points for their portion of the stock in their waters.

Now moving to the assessment. We have covered the life history and stock definition. The American eel ranges from Canada and Greenland south to Brazil on the Atlantic Coast. It's a single panmictic stock, with adults from all areas of the range traveling to the Sargasso Sea to spawn.

In this assessment, the only portion of the population that was assessed was from the U.S. Atlantic Coast indicated by the red circle. As a reminder of the eel life history, the life cycle. Adults from the entire range congregate in the Sargasso Sea to spawn. The eggs hatch and the larval eels travel ocean currents to reach the coast where they transform into glass eels, and then migrate inland.

Eels mature for the elver and yellow phases before becoming silver, and then begin their migration back to the Sargasso Sea. Depending on the location, the sex, eels can take between 5 and 20 years or more to reach maturity. As part of the assessment, the U.S. Geological Survey led a pilot effort to assess the eel stock using GIS based habitat models, and that work will be published separately from the assessment report, and a report by U.S. Geological Survey, and the work was led by John Young.

The pilot effort focused on the data-rich areas of the Chesapeake Bay and Delaware Bay watersheds. Eel occurrence records were collected for both watersheds, including fresh water areas, and the eel occurrence and abundance was evaluated against a suite of environmental predictor datasets, including dams, connectiveness to the ocean, temperature, substrate, and watershed use.

USGS was able to develop a spatial model for eels from 1995 into 2019, and they found out fragmentation from dams was a major factor in determining eel distribution within those watersheds. Unfortunately, reliable data only going back to 1995 and the lack of historical data does not allow us to fully understand the

impact in habitat restrictions caused by dams on the population.

Further, the lack of eel data in other portions of its geographic range make assessing the larger eel stock challenging with this particular assessment method. Moving on to landings. This graph depicts the coastwide yellow eel landings in millions of pounds. Landings from 1998 to 2020 were validated through ACCSP.

The red line indicates the coastwide landings cap that is currently in place set at 916,473 pounds. For glass eel landings, the glass eel fishery currently is prohibited in all states except for Maine and South Carolina. Maine has had a quota since 2014, with the adoption of Addendum IV, and that quota is 9,688 pounds.

South Carolina does have some landings, but they are low since 2015, and remain confidential. In this graph that is provided by the Maine Department of Marine Resources, it shows glass eel landings in thousands of pounds in the gray bars, with price per pound shown with the black line. The glass eel quota here is shown in the red line.

Information on recreational catch is derived from the Marine Recreational Information Program, or MRIP. MRIP is designed to provide estimates of marine recreational fisheries catch and effort data. The orange bars in this graph depict the number of individuals that were released alive. The blue bar depicts the number of eels that were removed from recreational harvest.

Generally, the MRIP database has a low number of records for American eel, which is less than half a percent of the trips that are in that database encounter eel. The MRIP doesn't typically cover the geographic areas or gear that may be relevant to eel. There is also low precision associated with the time series with the percent standard error of greater than 50 percent.

The MRIP query tool itself presents a warning for any PSE values that are greater than 30 percent. Although this is the best information the SAS has of knowable for recreational landings, there is not high confidence that the MRIP survey adequately assesses recreational effort and removals.

That said, it is unlikely that there are significant removals from the recreational fishery compared to that of the commercial fishery. Moving on to fishery independent indices. There is a large number of datasets that were evaluated by the SAS, and we used a suite of criteria to each dataset, to determine whether or not it would be included in the assessment. Those criteria are listed on the slide.

In the end, a total of 49 datasets were retained for assessment. The evaluation of the YOY or young of year and yellow eel data are presented in the following slides. The elver data were not used in modeling, but additional information on those 10 indices can be found in the assessment report. We'll start with the YOY indices.

The SAS evaluated 25 different young of year indices. The individual indices listed here are rating from north to south, so on the top of the slide are the northern indices, and the bottom of the slide is the southern indices. The surveys were standardized for environmental variables, and trends in individual surveys were derived using the Mann-Kendall non barometric test for monotonic trend. This is the same method that was used to evaluate trend surveys in the 2012 and 2017 assessments. The right column indicates the trend for the respective survey. Note that NS indicates no significant trend. In the wildlife surveys there are two surveys that have increasing trends, five surveys with decreasing trends, and the remaining 18 surveys have no trend.

This graph depicts the environments of American eel YOY using the MARSS Index. The MARSS is a Multivariate Auto-Regressive State-Space, it's a package in R. This method can determine long term population trends among

multiple time series, assuming each time series represents the same population.

In this case we're representing a single population, it's a panmictic population of American eel. Note that the MARSS scales to the first survey that is inputted into the code, so the Y axis units are not meaningful on these slides. Also note that the survey shows a declining trend part way through the time series, with more stable levels in recent years.

We got two decades worth of data from the state-mandated YOY surveys. Most of those surveys started in 2000 or 2001, and an evaluation was conducted to see if there were latitudinal or temporal patterns in those surveys. We found no patterns on the data on pigment stage, on weights or recruitment over time, but there was an increase in length and latitude with those surveys.

The SAS recommends that the biological sampling of the young of year become optional, so the measuring of length and pigment state for those YOY surveys is optional, although many of the states have indicated that it will continue to voluntarily collect this information. However, all states are required to continue to do their YOY surveys moving forward.

All right, moving on to yellow eels, we're looking at the indices here for yellow eels. The yellow eel surveys were standardized again using the Mann-Kendall Test, and it assessed 14 different eel surveys for this assessment. Two of those surveys had increasing trends, four surveys had decreasing trends, and the remaining eight surveys had no trends.

Again, in this graphic the surveys in the north are at the top of the slide and moving south to the bottom of the slide. The MARSS Index was used to combine the different yellow eel indices to develop a coastwide index. This index indicates the high abundance of yellow eels earlier in the time series, followed by declines in the late 1980s and early 1990s, and then a more recent decline since 2009.

The south considered several assessment methods that were reviewed and attempted during this benchmark assessment. Some are based on the recommendations of the prior peer review in 2012, and some showed potential for being useful to eel. In the end several assessment methods were identified, and those here in italics did not produce meaningful results, and were not useful for determining stock status or giving management advice.

They won't be mentioned further in this presentation, but there is information on these assessment methods in the report. The MARSS and Mann-Kendall Test were used to develop indices and describe trend analyses that we discussed in the previous slides. The Regime Shift Analysis, Delay Difference Model and Index-Based Assessments will be described in the next slides. The first assessment was a Regime Shift Analysis, and this shows the young of year analysis for the Regime Shift. It was used to identify potential change points in the population, and group years together that had similar index values. It was based on the MARSS Index.

For YOY the analysis indicates there are three different regimes, with higher abundance from 1987 to 2002, followed by a reduced abundance from 2003 to 2008, and then another reduction from 2009 to 2020. The index has generally been a low regime since 2003. Moving on to yellow eels for the Regime Shift.

The yellow eel time series also supports three different regimes with an initial high level from 1974 to 1988, followed by a large drop that includes two lower regimes from 1989 to 2020. This yellow eel Regime Shift output was later used in the assessment by assigning the high regime time period from 1974 to 1988 as a reference period for calculating abundance when we use the I/target method that we'll talk about shortly.

The Delay Difference Model was recommended by the 2012 Peer Review, and is a variation of

the Biomass Dynamic Model that includes biological parameters and is fitted directly to the time series, and accounts for changes in growth and recruitment over time. It predicts the biomass of an age-structured population directly from the previous year's biomass, based on parameters for survival, growth, and recruitment.

The SAS developed the model and ran several sensitivity-runs and associated reference points, but we do not recommend this model's use for management at this time. The model was developed using an average eel, which was based on Chesapeake Bay data. We don't have enough data coastwide to adequately describe the large differences observed in sex, growth, size and behavior along the Atlantic Coast, or even between coastal and freshwater habitats.

The model was also developed for combining sexes, because we didn't have enough data to differentiate between the sexes, though we know that growth rates and size at maturity vary greatly between male and female eels. Ultimately, the model's parameterization of growth and length at maturity were unrealistic, so the model and its reference points are not recommended for management use by the SAS at this time.

Index-Based Methods is an approach to assess stocks when traditional stock assessment approaches to set catch limits cannot be used or otherwise fail. These methods have been simulation tested, and are based on the work by the Northeast Fisheries Center in 2020, and Carruthers et. al in 2015.

The SAS evaluated several index-based methods in the assessment, and focused specifically on developing an I/target for the American eel. The SAS was able to choose a reference period, and that was derived from the Regime -Shift Analysis I talked about earlier. It only required input of catch and abundance, which is available for American eel in this assessment.

The I/target used the MARSS yellow eel index and the yellow eel landings information. It worked by comparing the average index value for the past three years to a defined reference period. The I/target is defined by the average index taken during reference period. In this case the reference period was from 1974 to 1988, that was derived during the Regime Shift Analysis that was presented earlier, and then it's multiplied by an I/target multiplier. This multiplier is selected based on a biomass target, compared to the biomass of the reference period.

If you select a multiplier of 1, that means that you're shooting to have a biomass target equivalent to the reference period. If you pick something larger than 1, then you're looking to have a higher biomass than what occurred during the reference period. The NOAA work recommends using a multiplier of 1.5, which means the biomass during the reference period was half of what our target biomass would be.

The SAS settled on something a little bit less than 1.5, we used 1.25 as our multiplier, recognizing that the stock was exploited during the reference period, so it was appropriate to set a biomass target higher than the index during the reference period. The next step of I/target is to develop a threshold.

The threshold is calculated by taking 80 percent of the target value that is developed using the I/target method that we just talked about. That 80 percent value is recommended from the Northeast Fishery Center 2020 document. Then the catch recommendations are based on where the current three-year average of the index falls, relative to the target and threshold values.

I'll show some examples of this in a minute. But if the index falls below the threshold, the recommended catch will be further reduced, compared to what it had been if it had been between the index and the threshold values. This slide depicts the actual coastwide yellow

eel landings in the black line, against the MARSS Yellow Eel Index in the blue line.

The grey box here depicts the reference period based on the Regime Shift Analysis from 1974 to 1988. The grey dash line is the I/target value, which is the average index value from the reference period for the time from 1974 to 1988, and it's multiplied by 1.25. That is the grey dash line that we have here.

Then the threshold value is 80 percent of the target value. That is indicated here by the orange line. Catch advice is developed by comparing the average catch over the reference period, and adjusting it by comparing the current average index of the I/target and I/threshold values. In years where the index was below the I/Threshold, which is the entire time series depicted here on this graph.

The recommended harvest level is further reduced because of low stock abundance. This slide compares actual harvest in the black line to what the recommended harvest levels would have been, assuming different biomass targets based on the average index from the high regime, as indicated in the blue, red and yellow lines.

To maintain a biomass target of the high regime from 1974 to 1988, the blue line indicates a level of harvest that should have occurred. That was that multiplier 1.0. It's the least conservative recommendation for harvest. To offer some higher biomass than what was available during the high regime period, than the 1.25 and 1.5 lines, which are red and yellow, should have been considered for harvest recommendations. Note that the SAS favored the multiplier 1.25, which is the red line, because the stock had a reduced carrying capacity during the reference period. The takeaway we find here is that regardless of the multiplier that is used, which represents the level of biomass we're trying to achieve or maintain.

The actual landings have exceeded the value recommended by I/target for the entire time series depicted here, except for 2020, and 2020 was an anomalous harvest year with COVID. The conclusion here on the Index-Based methods is the three-year average of the MARSS Index in 2020, which is the last year of the assessment, was below the threshold, and indicates that the stock is overfished.

Although the I/target method is not well suited to determine overfishing, the fact that removals or harvest have always been more than the recommended removals of this model, that could be viewed as overfishing is occurring. With the limitations of I/target, we can state that overfishing status is unknown, but likely.

Neither a 2012 or 2017 benchmark and update were able to define stock status. There was a lack of quantitative reference points and data limitations. But a depleted status was assigned to previous assessments, and depleted is defined as low levels of abundance. But it is unclear if fishing mortality is a primary cause of the reduced stock size.

The stock was at historic low levels, but other factors could have contributed to that status, including historical overfishing, habitat loss, food web alterations, predation, terminal mortality, environmental changes, toxins, contaminants and disease. With the current assessment, based on the I/target method, the stock is overfished, and based on the MARSS Index it has been in decline for multiple decades.

The stock is currently at its lowest abundance in the time series. Although other assessment methods were not covered in detail in this presentation, they generally support that the population is currently at low levels, and some methods point to a continued decline in the stock. Overfishing cannot be determined, but is likely given the removals compared to the I/target recommended removals.

Based on this assessment, the SAS recommends that yellow eel removals should be reduced. With respect to the next benchmark and updates, we recommend that we stay on a current schedule for benchmarks and assessment updates. In five years, we would do an update assessment, and then ten years another benchmark assessment for American eel.

While research recommendations are listed both in the 2012 and 2017 benchmark and update that remain important for American eel, but some of those recommendations are pulled out into the new 2022 assessment as highlights that will improve the next assessment. I won't go through those here, but you can reference the document for that.

In conclusion, eels are a difficult species to assess, as their life history strategies and panmictic nature do not conform well to traditional stock assessment methods. That said, the SAS made progress toward providing advice on stock status with this assessment. Young of year abundance has been in a lower regime, essentially since the beginning of the mandated YOY surveys out of states, which has been in place for nearly two decades. The SAS recommends that the biological sampling of the YOY catch, including length and pigment stage, no longer be required to be collected.

The GIS-based habitat models may be an alternative to traditional stock assessment methods, but it will be difficult to assess habitat availability beyond the current habitat use, given the lack of historical data, and more generally the lack of data across the species entire range. Abundance indices are more robust with each assessment iteration as the time series gets longer.

The trends for both YOY and yellow eel indicate that they have been in low abundance for recent years. Our analyses considered in this benchmark assessment suggest that American eel is at a very low population level. Some analyses point to continued decline in recent

years, and the MARSS indicates that the stock is at its lowest point in the time series. The population continues to be in depleted status from historic levels.

The I/target assessment method found that the stock status was overfished, being below all thresholds examined, and is likely experiencing overfishing for the last several decades. Given these persistent results of low abundance, and that the stock is likely overfished, the findings of this assessment would recommend reducing the coastwide quota for yellow eels. That concludes my presentation, thank you.

CHAIR EDWARDS: Thank you, Sheila, that was an excellent presentation and a tremendous amount of work.

PEER REVIEW REPORT

CHAIR EDWARDS: The next presentation will be the Peer Review Report by Jared Flowers.

DR. JARED FLOWERS: Thank you for having me today, we're going to talk about the Eel Stock Assessment Peer Review Panel Report. Just to give you a little overview of the process. The American Eel Stock Assessment Subcommittee and TC developed a new stock assessment, which there was the ASMFC Peer Review Workshop held December, 2022, where results were presented to the Peer Review Panel.

The Stock Assessment Review focused on data input, model results and the overall quality of the assessment. From that we produced the ASMFC Stock Assessment and Peer Review Report, and those are available on the Commission website. The Peer Review Panel consists of the Chair and two additional technical reviewers with expertise in eel biology and population dynamics, stock assessment modeling, and survey index standardization.

I served as Chair, and Dr. Hilaire Drouineau from the National Research Institute in Bordeaux, France, and Dr. Robert Leaf in the University of Southern Mississippi, Gulf Coast

Research Lab were also on the panel. I want to acknowledge their work in this, and also acknowledge Pat and Commission staff for their guidance in this process.

The overall findings of the Review Panel, first the Review Panel endorses and supports the I/target approach for formulation of reference points for the fishery. But we do believe additional work is needed to establish sound reference points. We recommend a formal robustness test and index method using a simulation approach, seeing it is more appropriate to consider the American eel stock to be depleted rather than overfished. The Review Panel is uncomfortable with overfished terminology, because of uncertainty in the assessment methods, and does not believe a reliable status determination can be made at this time. Future assessments should focus on methods directly resulting in catch recommendations, specifically index-based methods, including I/target and stage-based-delay-difference models being the most promising report for management advice.

Therefore, habitat modeling for eel shows promise for understanding changes in carrying capacity and other spatial dynamics of the stock, and has delivered promising results for other eel species internationally; notably, New Zealand, and I believe Europe. Preliminary habitat work during this assessment should be further explored down the road.

We're going to go through the review findings based on each TOR. TOR Number 1, evaluate the definition of stock structure. The Panel concludes that we agree with assessing American eel on a coastwide scale, because of the panmictic nature of the species. The distribution extends beyond the United States Atlantic Coast, so ideally it would be nice to conduct stock assessments at a larger scale, you know beyond the Coast, but for this it's appropriate.

The majority of data originate from coastal areas where most of the commercial fishery

takes place, however, the species occupies many other areas and habitats, including freshwater areas and other ocean areas. Our first recommendation is, continue to expand data collection analysis to the Canadian, Gulf of Mexico and Caribbean Regions, recognizing the jurisdictional responsibilities for managing American eel.

The SAS did use data for fisheries in the Gulf of Mexico and the Canadian Region, although the landings weren't comprehensive, but they definitely were important. Recommendation 2, encourage future data collection analysis of American eel and freshwater habitats, including the habitat modeling.

TOR 2, evaluate thoroughness and treatment of data used in assessment. The Panel concluded that the datasets used were comprehensive and appropriate for the stock assessment, and all potential data sources were requested and used where appropriate. The broad distribution of eel makes it difficult to collect representative relative abundance data. Our first recommendation was to take steps to account for autocorrelation in index standardization efforts.

The results we do think are unlikely to drastically change, and the recommendation is partially addressed by the inclusion of Julian day as a variable here. Recommendation 2, add more information about data standardization, including tables and figures to improve the understanding and digitalization of the standardized framework results. We do think the methods used were appropriate, but it would be nice if there were more detail provided.

TOR 3, evaluate methods and models used to estimate the population parameters and reference points. The Panel concluded that the SAS carried out comprehensive review of biological parameters of the American eel used in the analysis, and the SAS used the best scientific knowledge available for the assessment. The SAS tested several stock

assessment methodologies, both updating formally used tools in previous assessments and testing new approaches that are novel. These efforts were used thoroughly and well executed. The aggregate indices per life stage, using a MARSS Method of currently the best available coast-wide indices, and can be used to indicate stock abundance variations over time. The index-based methods and stage-based-delay-difference modeling were demonstrated to have the most potential for management advice.

We don't have a recommendation especially for this, but they are kind of embedded in some of the other TORs. TOR 4, evaluate the method used to characterizes uncertainty. The Panel found that most of the models evaluated by the SAS to determine fishery and stock reference points. These are surplus production, egg-per-recruit model and delay-difference models.

Each of these approaches for various reasons, given poor or lack of fit, were unable to provide useful or reliable results. Both the Review Panel and the SAS agree that the surplus production model was not suitable for use. The egg-per-recruit model can derive reference points of value on local scales, where yellow and glass eel fisheries co-exist.

But the Review Panel considered that the egg-per-recruit approach was theoretical and caution should be used when interpreting results on a broader scale. The recommendation here is that the delay-difference model is the only non-index-based model with potential. More model development is needed to account for variability and uncertainty in the eel life-history characteristics across its range.

TOR 5, evaluate the diagnostic analyses performed. The SAS performed some useful diagnostic analyses, and the Review Panel concludes the diagnostics are insufficient to produce reliable reference points. The SAS systematically varied the $I/target$ "mult" parameter, representing a relationship with the

reference period on biomass target, from 1.0 to 1.5 and 1.25 in what was used.

The SAS bootstrapped predicted confidence intervals of the MARSS time series, and used the resulting time series of the I/target method. However, the boot strapping approach is not ideal, as it ignores autocorrelation. The Review Panel recommends the development of an MSE style or MSE simulation model to test robustness of the assessment method, the index method and assessment frequency.

Also, the harvest control rule associated, including setting of catch limits based on the assessment. TOR 6, evaluate stock status determination and reference points used by the assessment. The Panel concludes that the term depleted is appropriate, and describes stock biomass for yellow eel, note depleted is only used as a descriptor and not a status determination. It's based on the SAS suite of modeling approaches, derived from the coastwide index of abundance.

The I/target approach does not allow determination of stock or fishery status with respect to traditional MSY-based biological reference points. Given that the catch advice from I/target, an evaluation should be performed to understand the following catch advice will result in stock biomass increasing. That kind of goes back to the modeling mentioned on the last four. For the recommendation, further evaluate the robustness of catch advice developed from I/target in recognition of process error associated with eels' complex life history. A significant portion of the stock is outside of the assessed area, and anthropogenic impacts other than fishery affecting the stock, the focus on yellow eel and the I/target approach versus excluding the other life stages, and also the error associated with landings data.

TOR 7, evaluate the incorporation of new information or attempts at novel approaches to assess the stock. We did conclude that the SAS should be commended for incorporating many

new methods and information into the assessment that weren't available previously. The SAS has done an excellent job developing and updating the indices, and documenting the changes in the individual surveys over time.

Dealing with 80 indices is definitely commendable. The MARSS, delay-difference, and index-based methods incorporate a relatively new or updated methodologies for the updated previous assessment approaches used in view of elementary technology. The recommendation here is continue updating and refining the assessment approaches, and to continue to improve the favored approaches identified by the SAS and Review Panel.

TOR 8, review research recommendations. Research recommendations, the surplus production model and the TOR 8 assessment for traffic light assessment approaches should be discontinued. Based on the findings, these weren't as useful as the other preferred method. The future efforts should focus on the index-based method and stage-based-delay-difference models.

Habitat modeling should be explored in the future assessments to understand changes in the carrying capacity and other spatial dynamics of the stock, and also to promote international collaborations. The Panel agrees with the SAS and TC recommendation to make optional the biological sampling requirement for young of year surveys.

With the observed climate-induced changes in environmental conditions that have been noted in the North Atlantic, this might be influencing population productivity and abundance. Some of the timing of this coincides with what was seen in a regime-shift analysis, and this should be considered in future assessments.

TOR 9, recommend timing of the next benchmark assessment. The Panel concludes that the next benchmark assessment should be conducted after additional data are collected and progress is achieved, to keep addressing

the Panel's analytical recommendations, at a minimum of 5 years, consistent with eel's long generation time. I think relatively the same recommendation was made (muffled).

But we do recommend pursuing international assessments, including Caribbean, Canadian, Gulf of Mexico input. The Panel applauds inclusion of the Canadian and Gulf of Mexico data in this current assessment, but we really think future assessments would benefit from participation from areas at large. I think we're going to pass it on with questions at the end.

CHAIR EDWARDS: Thank you, Jared, excellent presentation. Our next presenter will be Kristen Anstead for the Commission.

DR. KRISTEN ANSTEAD: Thank you, I just have a few slides about potential paths forward for accepting this assessment and moving forward with how to manage this stock. I first want to reiterate that the SAS and the Peer Review Panel agree on a lot of things, and that the Peer Review Workshop was really productive, and we have some really meaningful recommendations with how to continue to assess eels for the next benchmark.

The Peer Review Panel said the MARSS Index was currently the best available coastwide index for eel, and they did endorse the use of I/target for managing eel. But in the report, as you just saw, the Panel concluded that more work is needed to test the robustness of the I/target method, using the MSE approach, before it could be used for management.

The SAS has met a couple times since we received the Peer Review Report a couple weeks ago, to discuss this path forward. Ultimately, this is where we start to differ from the Peer Review Panel. The SAS does not think the MSE simulation work will be a productive or timely exercise for eel for a few reasons.

Part of an MSE will be developing an operating model, and that's going to be challenging and time consuming, and may require outside

expertise to complete. The methods from the research track paper, the Northeast Fishery Science Center paper with index-based methods, were designed as a Plan B approach that can be used when assessment models fail, such as our delay-difference model, or when there are strong retrospective patterns.

We argue that the I/target method was already simulation tested under different life histories. Note those life histories are different from those of eel, but what makes eel different are the very thing the SAS is unsure of, and that we struggled to model in the delay-difference approach. That is not to say there is not some room to test this method.

In the last few weeks, the SAS began work doing some bootstraps around the index, subsampling the indices, and some of the other recommendations that are in that Peer Review Report, to kind of test some of the decisions we made and how that might influence the recommendations coming out of I/target.

We have been working on that, and kind of thinking that through. There are also different formulations of the I/target that could be explored, and likely changing some of the decisions within I/target, like the multiplier, the reference period, the percent to set your threshold, will result in bigger differences than some of this index work.

But they are both potential paths forward to kind of see how sensitive this tool would be for management. The SAS and staff have been discussing possible paths forward. First the Board could choose status quo to maintain the current management under Addendum V, and maintain that 916,473-pound coastwide yellow cap.

Option 2 could be to task the SAS with exploring some simulation work like we've been doing, on the indices and around I/target, and different management strategies, such as the desire to rebuild the stock back to that reference period or maintain the stock where it currently is,

depending on the Board's goals for this fishery. Option 3 would be to do the MSE and simulation work as recommended by the Peer Review Panel. The SAS believes that work is significant enough to be another benchmark. We had said the next benchmark would be in 10 years, or the Board, it's the will of the Board, to ask for an assessment whenever you want one, so depending on the full stock assessment schedule at the Commission, that could be put in place if that is the path that we go.

The last three assessments have continued to find eel at its lowest abundance, and the SAS does not support the status quo option. We have reservations about Option 3, as I discussed previously. Ultimately, there are some disagreements between the SAS and the Peer Review Panel about the path forward.

The Commission's Guidance Document does address this, so I just want to put a slide up about what we say for scenarios like this. In cases where a SAS and Peer Review Panel do not agree, we present both approaches to the Board, as we have done today, and the Board can task the SAS or the Technical Committee with providing justifications for why they don't agree with the advice given, and ask them to provide ultimate analyses at a later date.

Then the SAS or TC would do that work, produce a report or a memo, and we could bring it back to the Board to make a final determination on status and management at a future meeting. If the Board is interested in that tasking in that Option 2 that the staff laid out, where we do some additional work. The staff has discussed that, and we would recommend that we postpone accepting this document until a later date, when we bring that work back.

If the Board accepts the reports today, that would indicate the Board agrees with the path forward proposed by the Peer Review Panel, and wants to pursue the MSE simulation work. Hopefully that will help some of the discussions that we'll probably have now about how to

proceed with the stock assessment and managing the species. Thank you.

CHAIR EDWARDS: Thank you, Kristen. All right, I would like to open it up on some questions for our presenters.

MR. JOHN CLARK: Thanks to the Stock Assessment Committee and the Peer Review for that excellent information. But that is a heck of a lot of information we just got here. I'll try and go back to the presentation that Sheila gave. I noticed that it looked like the regime shift pretty much started around the same time we started state surveys in 2000, so clearly there was a lot more data going forward from that point. How much of an impact did that have on the changes that were seen in the trend, by having the extra data?

DR. ANSTEAD: For the yellow eel index, the Peer Review Panel did ask us to produce some plots, which we have since added to the benchmark that compare each individual index to the overall trend. You can see that for yellow eel, for example, Maine through Delaware are pretty in-step with that long range, you know the long trend, and the different shifts in time.

Then there are a couple indices, and we can see it in Mann-Kendall as well that there are a couple indices that are increasing, and that is not captured as much by that long-term index. It does matter, and that could be part of the simulation work, is kind of showing the Board more how the choice of indices varies. Unfortunately, the time of the indices is what we have, and of course we want all of the indices to go back further in time. But we just don't have that level of data.

MR. CLARK: Just a quick follow up on that. I mean some of those, having done the survey myself for many years with the glass eels. I know that they vary a lot from year to year. Does that have a lot to do with the non-significance in the trends you're seeing, because we would go from close to a million to maybe 100,000 a net, so it's quite a shift.

DR. ANSTEAD: Absolutely. That is what we're seeing, these indices are just wildly variable. There does seem to be an overall trend that we can pull out of putting them all together, but there are very noisy indices, the young of the year.

CHAIR EDWARDS: Thank you, John. Lynn Fegley.

MS. LYNN FEGLEY: Thank you to all of you for all of this work. This is a vexing species and a vexing topic. I really appreciate your work. I'm trying to understand. There are several phrases that I heard during these presentations. There is regime shift, there is carrying capacity, and there is reference period.

It sounded to me like the habitat analyses that were done, may start to point to a little more clarity about what's happening with carrying capacity. I'm wondering if you can help us understand a little bit. We've got this reference period set very early, when abundances were high.

What is the conversation around reconciling a regime shift, a changed carrying capacity, and where your reference period is, to guard against setting a reference period that's just now completely unattainable, but also recognizing the whole shifting baseline idea. I'm just curious, you know you hate to set expectations that are just too high to achieve.

DR. EYLER: With respect to carrying capacity specifically, so the habitat analysis that was done, which was focused on the Chesapeake and Delaware Bay areas, because we have the most data from that geographic area. But it does indicate that the presence of dams is what is restricting eel abundance.

I think that that probably holds true coastwide, even though the analysis did not encompass the entire coast. That said, the regime shift indicates that the high abundance that we have in the time series is from the late seventies to the early eighties. I mean you're talking about

dam construction. Dam construction was done well prior to that time period.

If we're talking about habitat restriction, that occurred many decades before the high reference period. I think from a carrying capacity standpoint, that isn't the issue that we're in a low abundance state at this point, and I would follow that up with, in the last 15 to 20 years there has been a heck of a lot of work by the states and federal government to open up new habitat. There has been a lot of dam removals, water quality improvements, and other work that has been done to improve habitat across the eel range. Because they encompass both fresh water and estuary areas, the work of the habitat that has been done in the last two decades, should theoretically be opening up habitat for eel to increase our carrying capacity. That is not being translated in the MARSS Index.

CHAIR EDWARDS: Craig Pugh.

MR. CRAIG D. PUGH: My question is, I didn't see as we watched these regime changes in the population stages over those time periods. I don't know as if there was any incorporation with the effort involved. I know in our area marketability at this time has decreased significantly over the last 20, 25 years.

Also, eliminating the effort put forward and lowering the catch data. That would have a significant play through the year period. I was active in the fishery myself through the eighties and nineties. I ended in 2000. Not so much anymore, like I say, because marketability has dropped off so much. Where is the relationship here with the production and catch up?

DR. EYLER: With respect to the regime shift analysis, that is based on fishery independent surveys, so it's not based on catch and effort data. It's based on those indices that are conducted by the states and other agencies. That should not be driven by the fishery itself, and the economic drivers of the fishery.

MR. PUGH: I find that odd if the effort has dropped off and the analysis has taken the historical values of that data, then it should be recognized in some kind of incorporation in this. I don't necessarily agree with that analysis. I don't see where we get a clear picture. Unless we have a clear picture of what the true effort is on the east coast, which I know in our area is somewhat analytical.

But it seems as though our eels have increased as a bycatch in our blue crab fishery, but yet we still show these as depleted, even though we're seeing increases on a daily basis in our local areas. But yet we know that the marketability has caused a lack of effort on the part of the eel fishermen. Not only just a lack of effort, but I would say the loss of eel fishermen also in the area has been significant.

DR. ANSTEAD: Yes, we have some fishery dependent indices in the appendix of the assessment that can be viewed, and those were supplied by various states. We don't have an analysis on effort. I will say that there were representatives on the SAS and the TC that discussed this a little bit, that in their waters they are not seeing what we're seeing at a coastwide level.

That is something we should probably address now, which is the SAS has discussed this over and over. We know that Maryland and Delaware aren't seeing decreases in their catches or their indices. We talk about this at the SAS, and kind of the phenomenon of hyper stability, where a stock can collapse to the center of its range, and that is the center of its range.

We can have a depleted stock, where in the middle you are still seeing high catches, you are still seeing high CPUE, and the indices are fine. You can see that in the Maryland Index specifically, not as much in the Delaware, but that that Maryland Index continues to be fine, as well as their reported effort by their fishermen. It is something we've discussed. I guess the argument is, we saw this for example,

with northern shrimp, where their indices and their catch were fine until they weren't. That is kind of the concern. This is all one stock. If it's a depleted stock and it continues to decline and decline, you'll start to see that focus into the center of the range. The fear is that that could be what we're seeing now.

CHAIR EDWARDS: Okay, we have Robert LaFrance online, and when we come back to the room, Russel Dize.

MR. ROBERT LaFRANCE: Thank you very much, excellent presentations, really fantastic information. I just want to follow up a little bit more on this issue of a GIS based or spatially-based analysis. I've heard a lot of discussion back and forth. But I don't know exactly what we would be doing from a recreation's perspective to pursue those types of efforts.

I'm wondering if you might be able to give us some insight as to what you would be looking to do in those areas, and how much time that might take. I know there is some historical problems with historic data, but if we don't start collecting data at some point in time, we'll never really know what's going on. Thanks, appreciate any response.

DR. ANSTEAD: Just clarity on the question. Is that what would the habitat model bring us in the future if we continue to develop it? Is that the question?

MR. LaFRANCE: Exactly.

DR. EYLER: Well, I think firstly it's important to note that developing the habitat model further is going to be very challenging for eel, because we have a lot of data on eel and their distribution in the Mid-Atlantic area. But we don't have that information in other parts of the coast. Because this is a panmictic stock, really, we should be looking at its entire range. We really don't have information from that perspective.

I think it gives us a sense of carrying capacity. Like I said, that assessment based on the Mid-Atlantic at least shows that dams are a driving factor in where eels are distributed in the basin. That's not a surprise. I personally am concerned that that type of habitat assessment isn't going to give us the information we need to manage eel stocks, particularly those that occur in the estuary, because that habitat model is going to focus on a lot of habitat that is not under the jurisdiction of many of the agencies that are at this table today.

MR. LaFRANCE: But I guess, to follow up on that if you don't mind, to the extent that we do have information over coastwide, more than just the Mid-Atlantic, maybe up into New England at least. Shouldn't we be collecting more data, and getting that dataset ready for the future?

DR. EYLER: I think potentially that could be useful as a recommendation by the Peer Review to develop the habitat assessment model further, and we can consider that with the assistance of the U.S. Geological Survey.

MR. LaFRANCE: Thank you very much.

CHAIR EDWARDS: Russel and then John Clark.

MR. RUSSELL DIZE: I appreciate all the work that is being done. But I don't understand one thing. That is, when you did the assessment on yellow eels, you did three assessments in the Hudson River area, and you only did one in the Bay. In the Bay, Chesapeake Bay, you did the assessment in the Sassafras River.

The Sassafras River is all the way up towards the Conowingo Dam, and it's heavily predated by blue catfish. Had you have done assessments, if you had done more assessments in Maryland part of the Bay, in my area, which is Tilghman Island, and I talk with eel fishermen all the time. We've lost all of our eel fishermen in the middle part of the Bay, because we can't sell the eels anymore.

All the crabbers are gone to clams, and the oversea market has dried up for yellow eels. But I don't understand why you would do twice as many tows, or assessments more in the Hudson River area than you did in the Chesapeake Bay, and when you did it in Chesapeake Bay, you did it in an area where probably the predation of blue cat is worse than anywhere else, except maybe the Potomac River.

We have lost our eel fishermen; they can't fish anymore around us. We have so many yellow eels in our area that one of my fellow watermen set an eel pot out to catch some small eels for trawling for rockfish, and the pot filled with yellow eels. We're not catching them, and I don't see why that we don't take all this in. When you just taking four assessments for the whole East Coast for yellow eel, I don't think you're doing justice to the survey, by not doing more in the Chesapeake Bay Area, especially in our area. Thank you, Mr. Chairman.

DR. EYLER: Okay, I think Kristen and I are going to split the response to that. First, I want to speak to the blue catfish issue specifically. In the Chesapeake Bay the blue catfish issue is relatively recent, especially in the upper Bay around the area of the Sassafras River. They've been recently established.

The length of the survey really would have only impacted the survey in the last few years. It's an interesting prospect. We do know that blue catfish do consume American eel. The population explosion in the Chesapeake Bay and potentially into the Delaware Bay is a concern for the species to increase predation. That doesn't speak specifically to where the surveys are located, and why that is located. I'll have Kristen speak to that.

DR. ANSTEAD: As Sheila covered in her presentation, we had about 80 fishery independent datasets that were submitted for consideration, and we dug into each of them to see, can we develop an index from this data. The indices that you see in the assessment were

the ones that we thought were tracking American eel.

We could develop an abundance index out of them, so of course we would like more indices everywhere. The Maryland index was included, as you noted. We also have a couple from VIMS in Virginia. Unfortunately, they have a gear change in the early part of the time series, so while we did use them to also describe the yellow eel population, they don't go as far back as the Hudson River indices. Of course, it would be great to be able to pull that index back, and we have the full time series in the benchmark, and it's a pretty similar trend from those VIMS surveys at that historic time period, but the gear changed so it's not really fair to include it. We would like them all to go back to the seventies so we could do that.

The Hudson River indices, yes, they are historic indices at this point, they go back the farthest in time, and they do have an influence on that overall trend. Although the trends are pretty consistent through the surveys, with the exception of the Maryland one and the end of one of the VIMS surveys. We can also, if the Board tasks us with more work, talk a little bit about the influence of the Hudson River indices they are driving a lot of that change, and they are historic indices. But we can work on that if you would like.

MR. DIZE: The survey in the Hudson River skews the whole problem with the yellow eels. Our problem isn't catching, our problem is selling. I can take you, according to where you do the survey, I can take you where we have an abundance of oysters in the last two years in the Chesapeake Bay.

I can take you in a spot and survey it, and you'll say it's the most oysters you've ever seen in your life. I can go two miles from that and tell you to take a survey, and you say never was an oyster here. It's according to where you take these surveys. I understand what you're saying that it's back over a long period of time.

But we've been catching eels in Chesapeake Bay over a long period of time also. I just think that to excuse the amount of yellow eels by not doing as many reports in the Chesapeake Bay as you do in the Hudson River, which is on a tow decline. Thank you very much. I know you've done a lot of work, but I just think when you're adjusting, how many yellow eels can be caught on the whole East Coast, and you're doing a major part of it in one area, you're skewing the report.

DR. ANSTEAD: Yes, noted. I guess the only final thing I would say is it's a single population, and we don't have information on which of these regions are producing the next generation of American eels. Is it the Hudson River or is it the Chesapeake Bay that is feeding our recruitment? We don't know that, and so that is also a challenge when we're modeling.

CHAIR EDWARDS: John Clark.

MR. CLARK: Thank you for allowing me a second question here. I want to follow up, Kristen, you spoke about the contraction of the range. I've been around this long enough I remember the first assessment in the early 2000s, and that was really instigated by the pretty much total extirpation of eels from the Lake Ontario, and Canada's understandable concern there. Yet at that time I recall in the Canadian Maritimes they were not seeing really any reduction at all in their yellow eel numbers.

Just from my experience with sampling eels in the Delaware, it seems almost like we have two populations. We have an estuarine population that grows quickly. We would rarely age an eel over five or six years old. Most of the females were out migrating, probably, by the time they were five. Yet when you went inland, I remember, and Sheila, I believe you did work on the Shenandoah, where you saw huge reductions in the silver eels coming out of that system, or even eels getting into that system. It just seems, is that still something you're seeing, where you're seeing like less change in the estuaries.

You know given the life history of eels, it seems like it would be very difficult to understand how the leptocephali would distribute only to the Mid-Atlantic, rather than the whole range, since they're just kind of drifting on the Gulf Stream before they turn into glass eels and move in. It's just a very confusing situation, and has that kind of persisted, that same type of pattern?

DR. ANSTEAD: Yes, we are still struggling with that as a Stock Assessment group that eel just behaves so differently depending on where you are. Freshwater, estuary, ocean, Maine to Florida. In fact, what we came up against in the delay difference model, how do you describe growth for eel, if this is one stock? You can't. That's what we struggle with when we're thinking about the MSE simulation.

Yes, we could come up with a bunch of different operating models that are likely representing estuary waters in Delaware, and the coastal waters somewhere else. But which one is correct? We don't know that, and it is a real challenge for eel. I'll just throw in a second plug here, which is we do have an ICES Workgroup for American eel. Sheila and I are both on it, as well as representatives from Maine and North Carolina.

We're partnering with Canada to look at all the data available to eel, and talk about these challenges and propose different stock assessment methods that could be used in the future, so internationally this is a problem. We're trying to collaborate with people to resolve the very issues you're talking about. But it remains a question mark if we can.

CHAIR EDWARDS: Yes, Chris Wright.

MR. CHRIS WRIGHT: Yes, for Option 2, you said that the Subgroup could get a report back to this Board this year. Do you know when, summer, annual?

DR. ANSTEAD: Probably not the next Board meeting, maybe later, the one after that. If you were interested in more simulation work, as

well as evaluating the influence of the Hudson, as well as turning some different knobs within I/target. I guess it really depends on what the Board is interested in seeing.

CHAIR EDWARDS: Shanna.

MS. SHANNA MADSEN: Thank you to the entire staff, as well as the Peer Review Team, Doctors Eyler and Anstead. I really appreciate you guys being here today. This represents an awful lot of work. A lot of time in assessments we don't get to see all of this background work, all of the different models you attempted, and things like that. I really appreciate the time that you spent on all of these approaches. I have a series of questions, so apologies for the time, and you can cut me off whenever you need to, Mr. Chair. My first question is, I'm trying to dig in a little bit between the discrepancies between the Peer Review, as well as the SAS recommendations. My first question is in regards to the delay difference modeling. It sounded like, as we were going through the Peer Review Report, it is one of the models that the Peer Reviewers suggested for further development.

But then, in reading through the stock assessment report, it sounded like the SAS was less enthused, I guess, about that model. Can you talk about some of the differences, and why you all believe that it's probably not the best approach to go through at this time?

DR. ANSTEAD: The delay difference model?

MS. MADSEN: Yes.

DR. ANSTEAD: Yes, so the delay difference model has showed the most promise of any analytical model we have tried for eel. We did develop it, as well as develop reference points for it. But the challenge for us became describing growth, for example, as we were just talking about. Describing growth in one area is very different from describing growth in another area.

We came up against a few walls that way, with a kind of unique life history of eel. I think both the SAS, as well as the Peer Review Panel, think there could be more work done. We didn't manage it for this assessment, but if we were to do another benchmark in ten years, I think that model absolutely is still on the table.

But the additional work it might need is benchmark level. Kind of what we found here was kind of an initial go at it. But there were so many challenges, it just wasn't recommended for making management, because of those uncertainties. But I think there could still be room to improve, and the Peer Review Panel made some recommendations we can look into next time that we definitely would.

MS. MADSEN: If you don't mind a follow up. The other question I had was in regards too, and this is more just a characterization, so that I can kind of get my mind straight on the differences between the Peer Reviewers and again the SAS. It sounds like both of you sort of coincide with this idea that using this I/target methodology from the Northeast Fishery Science Center could be used here for eels.

But the place where you just diverge is the level of simulation testing that you think is appropriate. Is that a correct characterization? Like they want to go full blown MSE, lots and lots of simulation testing, and our SAS is saying, let's take a little bit more of the measured approach, and see what some of our simulation testing leads to in Option 2. Is that a correct characterization?

DR. ANSTEAD: Yes, although we can look to Jared if we need to. But I believe it was thought of more of an MSE light. I just want to make sure, not to misrepresent them. It's still a lot of work, but it might not be as much as other species.

MS. MADSEN: Right, so it's a diet MSE if you will. I guess I kind of equate that a bit to what we did for Atlantic menhaden, not a full blown MSE, but really having some of the

conversations with the management board, the scientists, the technical members, to get an idea of where we wanted to go with that species, and running the simulation testing's that way.

I appreciate that. Then my final question, I think, is in relation to one of the things that Dr. Flowers did bring up. He said that he thought it would be important for us to do an evaluation, essentially, to see, and I don't think we need to get there just yet. I know this is a later step in the future. But to do an evaluation, essentially, to see if our catch advice actually helps to potentially improve our stock biomass.

Do you think that that is possible within, you know, we're aiming for this report to come back to the Board at some point during this year? Obviously, depending on what the Board's advice is to the SAS. Is that something that we could pursue later? Do you foresee that sort of being a part of the package that you present back to us in whatever timeframe?

DR. ANSTEAD: We can certainly try. But there is a point that I think directly speak to that, which is, we don't know if I/target, even if you do the right thing, will necessarily rebuild eel. We don't know if the MSE, what comes out of that, would guarantee to rebuild eel stock. This is what we think is the most appropriate, given this depleted status that something should be done.

We can try to test the relationship between the recommended catch and landings. But that is not what these index-based methods do. They don't guarantee anything, they are just recommending when you need to set a catch limit, and all you have are landings and indexes. You need to do something, and so this is a method for that.

MS. MADSEN: I'm finally done, thank you very much.

CHAIR EDWARDS: Roy Miller.

MR. ROY W. MILLER: Since we are on the step of potential next steps, I would like to explore a little bit the ramifications of depleted status versus overfished. We're not bound to the Magnuson-Stevens Act like the Councils are. If we were to declare this species overfished, like was a recommendation of at least part of what was presented today, as opposed to depleted.

But there is a subtle difference, in terms of how we would proceed. If we declared this species as being overfished, presumably we would be talking about reducing fishing. By depleted there is no imperative that we consider catch reductions. Where are we? I'm a little confused as to what's the best path forward? Which status are we in, since there was a little bit of difference between the SAS and the Peer Review Panel in that regard?

MS. CAITLIN STARKS: I just want to respond to the question of our obligation at the Commission to responding to those two different types of statuses. No, we don't have the same obligation as NOAA Fisheries would to responding to an overfished status and making a rebuilding plan. However, with the other species that we have at the Commission that use the depleted status, for example, shad and river herring. We have in the past acted on those statuses and reduced fishing mortality as a result of those. It is an option, and Toni, I think has something to add.

MS. TONI KERNS: Just a reminder why we have these two statuses. You know we developed these in coordination with the Assessment Science Committee, to recognize that there are times when fishing pressure is not the only thing that is causing a stock to not rebuild. But that doesn't mean if there are other pressures, it doesn't mean that there is nothing that the Board does in response. It's just recognizing these other factors that are part of its inability to rebuild. But it doesn't just give us a pass to not do anything.

CHAIR EDWARDS: Are there any other questions for the presenters? Lynn.

MS. FEGLEY: Just one quick question. Under Option 2, with the simulation work to explore yellow eel indices and sensitivity of I/target . Would the Board get back, would there be some exploration of changing that reference period? You know if you set a reference period halfway between, is that part of it? I just want everyone to be clear that there would be some discussion of what that reference period actually is.

DR. ANSTEAD: Yes, if the Board is interested in that we can certainly kind of do two things. One is, show the result of this index work that we've been working on. That was a recommendation from the Peer Review Panel. We could do that and then you could see the sensitivity of these indices to the final decision.

We can also show some different iterations of I/target if you make different choices, to show how different the answer would be. It is quite different, depending on what you choose. What the SAS formulated in the benchmark was kind of what we thought as the base run, with the intention of the PDT taking that and making various decisions for the Board to consider.

CHAIR EDWARDS: Are there any more questions online? Shanna.

MS. MADSEN: Just a question of process. Do we need a motion to move forward with one of these options, or is kind of a consensus of the Board appropriate here?

MS. STARKS: I believe we could move forward with consensus from the Board. If the desire is to take the SAS recommendation to do some additional work under what's presented here as Option 2. If we can get consensus on that we can go forward with that.

MS. MADSEN: I would at least like to speak in support of Option 2. I think it's the most measured approach, and I would really like to give our SAS more time to respond to the comments of the Peer Reviewers. I think you

have really good ideas moving forward. I think Lynn's question feeds into that.

Getting to see, you know what comes out of the PDT, what some of the options might look like changing the multipliers, modifying the time period, things like that. I think an iterative measured approach is appropriate here. I don't believe that Option 1 is appropriate, and I am uncomfortable pursuing Option 3, until we see what Option 2 kind of provides for us. That is my recommendation without a motion.

CHAIR EDWARDS: Rick Jacobson.

MR. RICK JACOBSON: I want to commend the Panel for the tremendous work they've done to evaluate this very complicated species with a complicated life history, and geographic distribution. I think the information they presented, quite frankly has been outstanding. I understand it is difficult to make decisions in the absence of perfect data and perfect analyses and perfect conclusions.

But we've got some really good information in front of us that indicates that if we were in a place where we could define what harvest quotas should be, we're above those. We've been above them for some time, and the stock has been declining in the wake of all of that. Whether fishing has been the one specific driver or not, is a completely different question. But yet, we're still in a place where we need to make a decision today that will affect what happens with the stock tomorrow.

I can support Option 2, and I appreciate the recommendation coming forward. I would just hope that this is not a measure that just kicks the can down the road, because we do need to make decisions on what levels of harvest are necessary. I can support Option 2. I could also support an option that would pursue Option 2 and include some reduction in harvest opportunity. But I agree, Option 1 is simply not tenable.

MS. STARKS: I just wanted to provide some additional information on this path that we've proposed for moving forward. This is something that is part of our technical guidance with the stock assessment. If there is a disagreement in a particular aspect between a Stock Assessment Subcommittee and the Peer Review Panel, there is this process for moving forward, where the Stock Assessment Subcommittee can be tasked by the Board to put together this type of report that we're suggesting.

That provides the information a Board needs to really make a decision about how to move forward, and what part the SAS has recommended versus what the Peer Review Panel has recommended they would like to move forward with. That's really what we're proposing to put together for the Board, and bring back to the Board at potentially the next meeting, to be able to make those types of decisions that Rick Jacobson just mentioned.

CHAIR EDWARDS: Are there any other questions? John Maniscalco.

MR. JOHN MANISCALCO: Given what Caitlin just outlined, would the Board have new catch advise in place for 2024? I guess that's my concern.

MS. STARKS: I think it would be a pretty tough thing to turn around in that amount of time.

CHAIR EDWARDS: Any other questions? We're going to open it up to the public. Kirby.

MR. KIRBY ROOTES-MURDY: Good morning, this is Kirby Rootes-Murdy with the U.S. Geological Survey. Good to see some friendly faces around the table. I want to join the chorus and commend the Stock Assessment Subcommittee in doing such a thorough and great job introducing the stock assessment.

USGS is at the ready to provide additional analysis support, through both the Technical Committee and the SAS, in addition to John

Young's GIS habitat modeling work. I would just offer a consideration for this Board, as you're reviewing and thinking about, for example, catch reductions, is to take a step back and consider the species range again.

You know as Kristen noted, there is an ICES workgroup. There is current collaboration with Canada DFO, as well as coordination with U.S. Fish and Wildlife Service outside of those that have worked on the assessment, in terms of providing information as part of CITES obligations. For next steps, the U.S. is one of the handful of countries that are harvesting American eel.

I would ask for you all to consider that in moving forward with any tasking of the TC. When it comes to items around harvest that you will also consider how to continue moving forward with communicating with these other countries in our current framework, whether it's through Fish and Wildlife or other agencies, to ensure that those other countries catch systems are being considered with any changes you all are considering as well.

CHAIR EDWARDS: Is there any other public comment on this agenda item? We will turn to Rob LaFrance online.

MR. LaFRANCE: I just wanted to follow up and ask, under Option 2 is where I'm leaning towards as well. When you come back, when they come back either in the annual meeting or when we get back. Will it also include some management recommendations, or is it still like trying to get a better understanding of the assessment? I saw something about maybe an amendment recommendation, so I'm just wondering what that meant.

DR. ANSTEAD: What we would bring back to the Board would be the additional work with some indices, as well as some additional work we can do on I/target. I think before we had gone through Peer Review the idea was with I/target, but then the PDT will take that and make different decisions, possibly, than we

made, depending on Board interest and to put out for public comment.

That is not what this task is. This task would give the Board clarity on how these tools and indices are operating to make decisions, whether to accept this assessment and the Peer Review Report, as well as any future management advice. This is not equivalent to a draft addendum or any other management document, it's just additional work to help you all choose a path forward. I think that's why it's unlikely it would provide 2024 catch advice.

MR. LaFRANCE: Thank you very much.

CHAIR EDWARDS: Are there any more questions? Eric Reid.

MR. ERIC REID: Do you mind if I make a comment, Mr. Chairman? Okay, so at this point I would like to move this on if you don't mind. I support Ms. Madsen's quest for a consensus statement. With that, staff is recommending to us that we recommend to them to do what they are asking us to do, which has happened before. Let's move this along and give the staff what it wants, and we'll talk about this when we get a little better informed. That's where I'm at, thank you.

CHAIR EDWARDS: Is there any disagreement among members of the Board? Okay, we don't have to have a motion, we'll move along with Option 2. Malcolm Rhodes.

DR. MALCOLM RHODES: I agree totally with this. I just want to get an idea of the time table. Are we looking at the ability to get this done by the summer meeting, by the annual meeting? I mean what would be an acceptable time table, so we have kind of a time certain on the table?

DR. ANSTEAD: The TC hasn't discussed this at all, and the SAS has had superficial conversations about it. I think we would aim for summer, annual meeting at the latest.

DR. RHODES: Thank you.

DR. EYLER: There is an unlikely chance that we could bring something back to the May meeting, but we'll aim for summer meeting.

**CONSIDER FISHERY MANAGEMENT PLAN
REVIEW AND STATE COMPLIANCE FOR THE
2021 FISHING YEAR**

CHAIR EDWARDS: Okay, we'll move on to the next item on the agenda, Consider Fishery Management Plan Review and State Compliance for the 2021 Fishing Year, and I'll turn it over to Caitlin Starks.

MS. STARKS: I'll give a brief review of the American eel FMP Review for the 2021 Fishing Year. I'll start off with an overview of the status of the FMP, then I'll skip over the stock status information as we just discussed that. I'll go over the commercial and recreational fishery information for 2021, the state compliance reports, and wrap up with some recommendations from the Plan Review Team.

Eel are currently managed under Addendum V to the FMP, which is what established the coastwide cap for yellow eels of 916,473 pounds. It also maintained the aquaculture provisions that allow the states to harvest up to 200 pounds of glass eels for aquaculture within approved harvest proposals.

Right now, Maine is the only state that has aquaculture harvest, or had in 2021, and they have 138.91 pounds of glass eel harvested for aquaculture. Then per Addendum IV, any state that harvests over 750 pounds of glass eel per year must implement a fishery independent life cycle survey. In that case, Maine did harvest over 750 pounds, and they continued their fishery independent life cycle survey of glass, yellow, and silver eels in 2021.

That is now carried out at West Harbor Pond as of 2019. Fishery landings for 2021 reported in the FMP are from the state compliance reports, and the estimated commercial landings for 2021 for yellow and silver eels were approximately 427,000 pounds. This is a 64

percent increase from the 2020 landings, which were very low as a result of both COVID-19, as well as market changes. But the 2021 landings are still lower than what we saw in 2019. For 2021, Maryland, Virginia and New Jersey combined accounted for 87 percent of the total coastwide 2021 landings.

Then for glass eels, Maine and South Carolina are the only states with landings. Maine harvested 9,106 pounds in 2021, which is below their quota of 9,688 pounds, and South Carolina's landings are confidential, but they do remain under 750 pounds, and therefore they do not have to implement that life cycle survey.

Recreational harvest estimates are no longer provided in state compliance reports as of 2009, and this is as a result of the MRIP survey design being unsuitable for eels, because it does focus on coastal and estuarine fishing sites, and as a result the PSEs for the MRIP results are very high, and unreliable numbers for eel.

For the glass eel fishery, the FMP and its addenda currently require all of the states to implement young of year surveys, to maintain harvest regulations with a limit of 25 pigmented eels per 1 pound of glass eels, and 1/8th of an inch mesh. It also has Maine's glass eel quota, commercial monitoring and reporting, and the life cycle survey for glass eel harvest over 750 pounds.

The PRT found that there haven't been any changes to the state regulations on these issues, and all states are compliant with these requirements. For the yellow eels the FMP addenda require a minimum size limit of 9 inches, a minimum mesh size of 1/2 an inch by 1/2 an inch, and escape panel, a recreational bag limit of 25 eel per day, and up to 50 per day allowed for for-hire crews and Captains for bait.

The coastwide harvest cap, as well as a two-year management trigger of a 10 percent overage of the coastwide cap. Again, the PRT found that there haven't been any changes to state regulations, and all the states are in

compliance with these requirements. Then for silver eels, the FMP requirements are a seasonal closure for the September 1 to December 31, with no take except for from baited pots and traps and spears.

There was a one-year exemption for the weir fishery in the Delaware River and its tributaries in New York, which has been continued since 2014. But it is restricted to 9 permits that may be transferred for the New York weir fishery. The PRT noted one issue regarding silver eels, which is that Florida regulations don't prevent harvest of silver eels from pound nets from September 1st to December 31st, but the state is unaware of any active pound net fisheries in the past 10 to 15 years.

The FMP also requires at least monthly trip level reporting by both harvesters and dealers, as well as sustainable fishery management plans, including fishing mortality plans, transfer plans for quota from the yellow to glass eel fishery, and aquaculture plans for watersheds that contribute minimally to the spawning stock. All these plans must scientifically demonstrate that they'll not increase overall fishing mortality on American eel.

As I mentioned, Maine is the only state currently with an active aquaculture plan, and they submitted a proposal for the 2022 fishing year, and that was approved by the Board in August, 2021. The PRT noted a few other issues in the compliance reports, just to mention. First, many states have been unable to provide information on the percent of the commercial harvest of eel that's sold as food, versus what's sold for bait.

Only Maine, New York, New Jersey, Delaware and Florida were able to provide this information in 2021. New York was also unable to provide data on the commercial CPUE for the 2021 fishing year, and New Jersey was unable to complete the fishery independent monitoring requirements in 2021, due to some continued COVID-19 restrictions.

Several states have requested and qualified for *de minimis* status, and that means that for the life stage for which they're requesting *de minimis*, the state's average commercial landings for the preceding two years have been less than 1 percent of the coastwide commercial landings for that life stage.

For 2022, New Hampshire and Massachusetts, Pennsylvania, D.C., Georgia and Florida all requested *de minimis* status for their yellow eel fisheries. However, Florida's 2021 landings exceeded 1 percent of the coastwide landings, so they do not qualify for *de minimis*. The rest of the states that applied do qualify for *de minimis* status.

Under the FMP, *de minimis* status would exempt a state from having to adopt the commercial and recreational fishery regulations for that particular life stage, and the fishery dependent monitoring requirements for that life stage. If Florida is not granted *de minimis* status, then the state would need to implement those requirements.

These are the recommendations from the PRT to the Board. I'll note that a number of these have been maintained from last year's report. First the PRT recommends the Board consider the notes on state compliance that I've given. Note the drop in recent years yellow eel harvest. They also suggested reevaluating the requirement that states provide estimates of the percent of harvest that's for food versus bait.

In addition to that task the Committee on Economics and Social Science with a market analysis to determine if this information is useful for management, and should be collected or not. They also recommend the states continue to work with law enforcement on including information on illegal harvest of eels in the compliance reports, and also recommend New York separate their yellow and silver eel landings in the report if possible.

They lastly recommended that states should try to quantify their upstream and downstream passage for eel, and provide that information to the TC for evaluation. As we discussed, this would be useful information to have for some habitat analysis. With that the Board's action for consideration today is to approve the FMP Review and State Compliance Reports for the 2021 fishing year, and *de minimis* requests from New Hampshire, Massachusetts, Pennsylvania, D.C. and Georgia for the yellow eel fisheries. I can take any questions.

CHAIR EDWARDS: Are there any questions for Caitlin? Okay, would somebody be willing to put forward a motion? John.

MR. MANISCALCO: More comment. DEC is working with U.S. Fish and Wildlife and Cornell University to assess the proportion of eels from the weir fishery that is silver versus yellow, and we hope that will be completed soon. That's ongoing. Thanks.

CHAIR EDWARDS: Thank you, any other questions? Okay, would somebody be willing to put forward a motion? John Clark.

MR. CLARK: Yes, I would move to approve the Fishery Management Plan Review and State Compliance for the 2021 Fishing Year. Is there a motion already made that has all the *de minimis* in it? Okay. Well now, I'll just read it. Move to approve the American eel FMP Review and State Compliance Reports for the 2021 Fishing Year and *de minimis* request from New Hampshire, Massachusetts, Pennsylvania, District of Columbia, and Georgia for their yellow eel fisheries.

CHAIR EDWARDS: Is there a second? Doug Grout. Would anyone like to discuss around the motion? Okay, I'll read the motion for the record. Move to approve the American eel FMP Review. We have a question from, online? Erika Burgess.

MS. ERIKA BURGESS: Thank you, Mr. Chair. Can we get a clarification on what the actual

percentage Florida was of the coastwide landings?

MS. STARKS: I would have to pull up my Excel Spread Sheet for you.

MS. BURGESS: It would have been helpful to have that in the FMP Review.

MS. STARKS: All right, I can pull that up quickly.

CHAIR EDWARDS: Erika, are you planning to make any changes to the motion over those numbers?

MS. BURGESS: Yes, with the numbers, I have a requested amendment to the motion, or put a second. I need the class this afternoon to tell me what I'm going to do.

MS. STARKS: Sorry, give me one moment.

MS. KERNS: While Caitlin is running numbers, I just wanted to introduce the new ISFMP Staff member. She is sitting in the back of the room; Chelsea Tuohy is back there. She is raising her hand, if she'll stand up. As I said in an e-mail last week, she'll be working on summer flounder, northern shrimp, and scup and bluefish.

Please introduce yourself. We're super excited to have her onboard. In addition, the Legislative Lunch, which I know it's not right now, but just letting everybody know where it is. It's in those two rooms that are straight through those doors, which is called Crystal 5 and 6.

MS. STARKS: Florida's landings for yellow eel in 2021 were 2.2 percent of the coastwide landings.

MS. BURGESS: If I can follow up. It's challenging for Florida; we have not had an expansion of our fishery. That resulting increase in share of coastwide landings is actually a result of overall coastwide landings going down. Our fishery is under half of what it was three

years ago. Rulemaking in this office, as many states know, is challenging. To move forward on any additional requirements for not receiving *de minimis* status would be a challenge.

MS. KERNS: It's the prerogative of the Board whether or not you want to allow another state to have *de minimis*. You can ask the PRT to say what the implications would or would not be. I recommend that we do have this new *de minimis* policy, but we wouldn't change any FMP until the Board directed that FMP to be changed for the new *de minimis* policy.

If we do move forward with an addendum, and that is something that the Board wants to do, then we can do that. I would say hold off until we know if you're going to respond to the landings changes on an FMP change. But the Boards have approved *de minimis* status in the past for states that are above. It's the prerogative of the Board.

CHAIR EDWARDS: Joe.

MR. JOE CIMINO: Sorry if I missed this. This is an annual determination then, so in one year out another? There is a potential that they could just be back in *de minimis* status next year. Then I guess a question maybe for Toni. Was there some recommendation in the *de minimis* overall policy of looking at like three-year averages and stuff like that?

MS. KERNS: They were looking at those either two or three years that we averaged.

MS. STARKS: Eel uses a two-year average.

CHAIR EDWARDS: Are there any other questions?

MS. KERNS: Joe, the threshold in the *de minimis* policy, it is based on the average of three years of landings, and then it's less than 1 percent of the coastwide landings.

CHAIR EDWARDS: Erika.

MS. BURGESS: Mr. Chair, correct me if I'm out of order, but I believe at this point I could offer a substitute motion, which would be to have the motion up there, but to add Florida to the list of states with an approved *de minimis* request.

MS. STARKS: Erika, you can make a motion to amend.

MS. BURGESS: Okay, I would like to make a motion to amend to include Florida in the list of states with *de minimis* status.

CHAIR EDWARDS: Okay, can we have a second? John Maniscalco. Any discussion on this motion? Rick.

MR. JACOBSON: Did I just hear two pieces of information, one that the most recent harvest for Florida was 2 point something percent, and that the policy calls for those that qualify for *de minimis* status are less than 1 percent of the coastwide harvest?

MS. STARKS: Yes. It's less than 1 percent of the coastwide harvest for the last two years, which I'm currently calculating.

MS. KERNS: The policy is the average of the last three years, but this FMPs is two years.

CHAIR EDWARDS: Doug Grout.

MR. DOUGLAS E. GROUT: Would we have to do an addendum to change the average to three years, or does the policy supersede what's in the current management plan?

MS. KERNS: The policy does not supersede the FMP. Changes to the FMP would be made to reflect the policy. But the Board still has the prerogative to do something different if they so choose, in terms of the approval of these requests.

MR. GROUT: Just a follow up, I guess at this point, if we were to support this motion, this amendment was to pass. I would also, I will put

up a motion to try to develop an addendum to change the *de minimis* policy to more reflect the current policy of three years, change the management plan so that it reflects a three-year average.

MS. STARKS: Just a quick follow up question on that. Would it be your intention to move forward with such an addendum before we potentially move forward with an addendum to consider changing the coastwide landings cap for yellow eel?

MR. GROUT: If we were to approve this amendment to allow Florida, could we get a change to, if we were to wait until we had an addendum to change the cap. Could we get that done before the next time we have to approve *de minimis* or not?

MS. STARKS: That is highly unlikely, given the timeline for an addendum to change the TAC would probably take place starting potentially later this year, which is when you would reevaluate *de minimis*. Just I want to make one more clarification on Florida's current status. The landings for 2021 and 2020 combined are 1.4 percent of the total coastwide landings from those two years.

CHAIR EDWARDS: Erika.

MS. BURGESS: I appreciate that clarification, Caitlin. I think it might make others around the table feel more comfortable. I believe it was Delaware that we recently allowed two years to go for spot and croaker, or one of the species, where they were just over. I believe that this would follow a pattern or a practice that other boards have taken. Thank you.

CHAIR EDWARDS: Lynn.

MS. FEGLEY: I just wanted to speak in favor of the amendment. I think we should be careful about splitting hairs here. What is interesting is that this is not the result of Florida's fishery growing, this is the result of the total fishery contracting, and Florida maybe just didn't

contract quite as fast as everybody else. When we do this, you know assuming we're going to set a new cap. Everybody's rules are going to change, and that's going to reshuffle where our landings are proportionally to everyone all over again. I think this is a fair addendum to the motion.

MS. KERNS: Just another point. I don't think that we would be able to move super quickly on an addendum for this, because I think that the TC or the SAS would need to really take some consideration. In addition, in the policy, there are recommendations for sampling requirements and this species does have sampling requirements for non *de minimis* states.

I think it would be important for the TC and SAS to have the time to go through what they would really be recommending states be exempt from and not exempt from if we're going to make a change to the addendum. Erika is correct, spot and croaker have routinely let other states that sort of fluctuate right on the borderline to be *de minimis*.

CHAIR EDWARDS: Okay, are there any other questions? I'll read the motion into the record. Just call the question for the motion to amend. Is there any opposition to this motion? Doug Grout.

MR. GROUT: Just saying that we have opposition to the motion.

CHAIR EDWARDS: Please raise your hand to opposition to the motion. Could I have the votes in favor? Abstentions and null votes. The motion passes 15 approved, 3 oppositions, 1 abstention and 1 null.

I'll read the motion now as amended. Move to approve the American eel FMP Review and State Compliance Reports for the 2021 Fishing Year and *de minimis* request from New Hampshire, Massachusetts, Pennsylvania, District of Columbia, Florida and Georgia for their yellow eel fisheries.

Please raise your hand in favor of the motion. Please raise your hand in opposition. Any abstentions? Any null votes? The motion passes 18 to 1.

ELECT VICE-CHAIR

CHAIR EDWARDS: Moving on to the next agenda item, Elect a Vice-Chair. Do we have any nominations? Shanna.

MS. MADSEN: From one Commonwealth to another, I would like to nominate Kris Kuhn as our American Eel Management Board Vice-Chair.

CHAIR EDWARDS: Do we have a second? Seconded John Clark. Is there any discussion around this motion? **Any opposition? Without seeing any opposition, this motion is approved by the Board by consent.**

ADJOURNMENT

CHAIR EDWARDS: Our last agenda item, is there any Other Business to come before this Board? Not seeing any, can I have a motion to adjourn this meeting? Malcolm Rhodes, seconded by Doug Grout. Thank you everyone.

(Whereupon the meeting adjourned at 11:15 p.m. on Wednesday, February 1, 2023)