PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

ATLANTIC MENHADEN MANAGEMENT BOARD

Beaufort Hotel
Beaufort, North Carolina
Hybrid Meeting

October 17, 2023

Approved April 30, 2024

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ATTENDANCE

Board Members

Megan Ware, ME, proxy for Pat Keliher (AA)
Steve Train, ME (GA)
Rep. Allison Hepler, ME (LA)
Renee Zobel, NH, proxy for C. Patterson (AA)
Doug Grout, NH (GA
Dennis Abbott, NH, proxy for Sen. Watters (LA)
Nichola Meserve, MA, proxy for D. McKiernan (AA)
Raymond Kane, MA (GA)
David Borden, RI (GA)
Conor McManus, RI, proxy for J. McNamee (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Justin Davis, CT (AA)
Robert LaFrance, CT, proxy for B. Hyatt (GA)
Craig Miner, CT, proxy for Rep. Gresko (LA)
Marty Gary, NY (AA)
Emerson Hasbrouck, NY (GA)
Joe Cimino, NJ (AA)
Jeff Kaelin, NJ (GA)
Adam Nowalsky, NJ (LA)
Kris Kuhn, PA, proxy for T. Schaeffer (AA)
Loren Lustig, PA (GA)
John Clark, DE (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Lynn Fegley, MD, AA (Acting)
Russell Dize, MD (GA)
David Sikorski, MD, proxy for Del. Stein (LA)
Pat Geer, VA, proxy for J. Green (AA)
Bryan Plumlee, VA (GA)
Chris Batsavage, NC, proxy for K. Rawls (AA)
Jerry Mannen, NC (GA)
Chad Thomas, NC, proxy for Rep. Wray (LA)
Malcolm Rhodes, SC (GA)
Ben Dyar, SC, proxy for Sen. Cromer (LA)
Doug Haymans, GA (AA)
Spud Woodward, GA (GA)
Erika Burgess, FL, proxy for J. McCawley (AA)
Gary Jennings, FL (GA)
Ingrid Braun, PRFC
Max Appelman, NMFS
Rick Jacobson, US FWS

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

Ex-Officio Members

Caitlin Craig, Technical Committee Chair

Staff

Bob Beal
Toni Kerns
Tina Berger
Madeline Musante
Lindsey Aubart
Tracey Bauer
James Boyle
Caitlin Starks
Chelsea Tuohy
Katie Drew
Kristen Anstead
Jeff Kipp
Jainita Patel
Joe Myers
Trevor Scheffel
Gabe Thompson
Alex DiJohnson
Geoff White

Guests

Michael Academia, WM
Mike Armstrong, MA DMF
Steve Atkinson, VSSA
Pat Augustine
Larry Beggs, Reef Innovations
John Bello, VSSA
Alan Bianchi, NC DMF
Jason Boucher, NOAA
Robert T. Brown, MWA
Simon Brown, MD DNR
Jeffrey Brust, NJ DEP
Debbie Campbell
Michael Celestino, NJ DEP
Benson Chiles
Matthew Cieri, MA DMF
Haley Clinton, NC DEQ
Brian Cloutier
Brian Collins
Margaret Conroy, DE DNREC
Heather Corbett, NJ DEP
Scott Curatolo-Wagemann

Guests (continued)

Monty Deihl
Taylor Deihl, Omega Protein
Dustin Delano, NEFSA
Bill DeSteph, Senate of VA
Bill Dunn
Wes Eakin, NYS DEC
Steven Epstein, Chesapeake Bay defenders
Julie Evans
Jennifer Farmer
Maria Fenton, NOAA
James Fletcher, United National Fishermen's Assn.
Dawn Franco, GA CRD
Robin Frede, NEFMC
Tony Friedrich, ASGA
Alexa Galvan, VMRC
Lacie Gaskins, Omega Protein
Matthew Gates, CT DEEP
Shawn Gelion
Paul Genovese, MD DNR
Brent Girard
Kurt Gottschall, CT DEEP
Charles Green, MD Charter Boat Assn.
Joseph Grist, VMRC
John Harker, Avangrid
Jaclyn Higgins, TRCP
Harry Hornick, MD DNR
Jesse Hornstein, NYS DEC
Caela Howard, Avangrid
Bill Hyatt, CT (GA)
Todd Janeski, VCU
Chuck Karr, NJ DEP
Roberta Kellam
Liz Kellum, Kellum Maritime LLC.
Gregg Kenney, NYS DEC
Rob Latour, VIMS
Nicole Lengyel Costa, RI DMF
Thomas Lilly
Brooke Lowman, VMRC
Chip Lynch, NOAA
Shanna Madsen, VMRC
John Maniscalco, NYS DEC
Chris McDonough, SC DNR
Joshua McGilly, VMRC
Daniel McKiernan, MA (AA)
Kevin McMenamin, Annapolis Anglers Club
Steve Meyers
Tina Moore, NC DMF
Chris Moore, CBF
Brandon Muffley, MAFMC
Allison Murphy, NOAA
Dale Neal
Brian Neilan, NJ DEP
Jean Nelson
Robert Newberry, Delmarva Fisheries Assn. Inc.
Thomas Newman
Rebecca Nuzzi, ME Lobstermen's Assn.
Conor ODonnell, NH FGD
George O'Donnell, MD DNR
Mike Ostrander, Discover the James
Ronald Owens, PRFC
Cheri Patterson, NH (AA)
Rich Pendleton, NYS DEC
Michael Pierdinock
Will Poston, Saltwater Guides Assn.
Jill Ramsey, VMRC
Kathy Rawls, NC (AA)
Jeff Renchen, FL FWC
Harry Rickabaugh, MD DNR
Paul Risi
Matthew Rogens, VMRC
Mike Ruccio, NOAA
Lela Schlenker, Avangrid
Erin Schnettler, NOAA
Amy Schueller, NOAA
Zachary Schuller, NYS DEC
Christopher Scott, NYS DEC
Alexei Sharov, MD DNR
Ethan Simpson, VMRC
Joseph W. Smith
Melissa Smith, ME DMR
Somers Smott
Kevin Sullivan, NH FGD
Helen Takade-Heumacher, NOAA
Mike Thalhauser, ME Center for Coastal Fisheries
Scott Travers, RI Saltwater Anglers Assn.
Troy Tuckey, VIMS
Andrew Valmassoi, NC DMF
Taylor Vavra, Stripers Forever
Mike Waine, ASA
Craig Weedon, MD DNR
Ritchie White
Holly White, NC DMF
Shelby White, NC DMF
Kate Wilke, TNC
Kate Wilke, The Nature Conservancy
Anthony Wood, NOAA
Chris Wright, NOAA
Phil Zalesak
Daniel Zapf, NC DEQ
Erik Zlokovitz, MD DNR

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in the Rachel Carson Ballroom via hybrid meeting, in-person and webinar; Tuesday, October 17, 2023, and was called to order at 1:30 p.m. by Chair Connor McManus.

CALL TO ORDER

CHAIR CONNOR McMANUS: Good afternoon, everybody. I would like to call to order the Atlantic Menhaden Management Board. By way of introduction, my name is Connor McManus; I'm the Vice-Chair of the Menhaden Management Board. Mel Bell was unable to join us today in person, so I'll be serving in this capacity today as Chair.

APPROVAL OF AGENDA

CHAIR McMANUS: The first item we have in our agenda is approval of the agenda. Is there any interest or questions or modifications to the agenda before us? Seeing no hands; I'll take that as approval by consent.

APPROVAL OF PROCEEDINGS

CHAIR McMANUS: That brings us to our next item on the agenda, for Approval of Proceedings from May, 2023 meeting from the Menhaden Management Board. Are there any amendments or questions or revisions proposed regarding those proceedings? All right, seeing no hands, we'll take that as approval by consent.

PUBLIC COMMENT

CHAIR McMANUS: With that, that moves us on to Public Comment. We'll be looking to take public comment up to three minutes per individual. I'll look first in the room. If there is anybody who would like to make public comment.

MR. SHAUN GEHAN: Thank you, Mr. Vice-Chair and members of the Commission. My name is Shaun Gehan; and I'm here representing Omega Protein and Ocean Harvesters. Over the course of the past year or so, a lot of the opponents of the Atlantic menhaden reduction fishery have taken up a lot of space in the written comments and time at the microphone, and we've kind of sat back.

But there are a lot new people on the Commission that haven't been deeply involved in the menhaden management process, or seen the fishery that's evolved over the years, so we thought that it would make sense just to take a moment to sort of present a little background and some context for the comments.

I think one of the things it's important to understand here is this fishery used to be comprised of over 150 vessels, up to 20 operating reduction plants from Florida to Maine since the early 1950s. Today it's one plant, nine boats, three of which are just carry vessels. In terms of the health of the fishery, it's been above its ecological reference points, abundance levels since 1991, and it hasn't been subject to overfishing, according to the current definition of overfishing since 1986. Keep in mind that we've only been, the management process prior to that time had much less observed the management target. This fishery has been very healthy for a long time, it's among its second highest biomass estimate in 2021. In terms of the Chesapeake Bay, current harvest levels are about a third of what were prevailing in the mid-1980s, about half of you locals from the early 2000s, both in part to management action, a cap on reduction fishery in the Bay since 2006, and efforts by Omega and Ocean Harvesters to minimize user conflicts and reduce their footprints.

One of the things that has occupied a lot of my time is a new study about osprey in Mobjack Bay, and I'm asked James to forward something, which I really apologize, I just did like half an hour before this meeting. If he hasn't e-mailed it out, you'll see a document that specifically addresses that, and has some of the background materials

I know that Rob LaTour is here, and he can certainly speak to it better than a lawyer can, for scientific merit. But essentially, they fed osprey menhaden, and then determined that the reduction fishery and somehow not the bait fishery in the Chesapeake Bay was causing nest failures. One of the things

that will be in that document is Dr. Brian Watts, one of the authors on the study was at the Ecological Reference Points meeting, and it indicated that most of the mortalities, the nest failures had occurred in May.

CHAIR McMANUS: Shaun, just wanted to acknowledge the timer, your three minutes being up, so if you could.

MR. GEHAN: Let me just wrap that, I just wanted to point out that menhaden entered the Bay, but all fishing occurred north of the Bay, so if they entered the Bay, it was not the fishery that was keeping them from osprey's trip. But do take a look, the fishery has been well managed by this Board, and you should congratulate yourself on an excellent job managing the stock. Thank you.

CHAIR McMANUS: Thank you, Shaun, for your comments. Are there any other public comments in the room on items not related to agenda items? Okay, seeing none in the audience, I'll look to those online. We will go to you, James Fletcher. Feel free to unmute yourself.

MR. JAMES FLETCHER: My concern is that we're not talking about the microplastics or the manmade chemicals that are affecting menhaden. If we find out that there are microplastics, manmade chemicals affecting the menhaden, should we not be trying to come up with a way to enhance the management by spawning the eggs and releasing them in the grow-out areas?

In other words, right now, we've not looked anywhere into the future. My question for this Board is, should you direct staff to look at the possibility of just spawning the menhaden and then releasing the eggs by the billions with a B. We're reactive management, and the rest of the world is proactive management.

My question back to the Board. Should you not direct staff to look at microplastics accumulating on the gills of these fish, and then the possibility of enhancing the stock through just spawning the eggs, getting them fertilized and then releasing them? We need to look a different way. Thank you, James Fletcher, United National Fishermen's Association.

CHAIR McMANUS: Thank you, James, for your public comment. Is there anybody else online that would like to make comments on materials not currently on the agenda? Okay, feel free, Tom Lilly, to unmute your microphone. Again, just for folks interested, three minutes.

MR. THOMAS LILLY: Yes, I have a couple questions for the Board. As the Board realizes, the collapse of the striped bass spawning stock has just been recorded for this year, which makes five straight years of the deteriorate of our striped bass spawning stock in Chesapeake Bay. I have some questions, really quick here.

Does the Board agree that the striped bass spawning stock is the Commission's flagship species, and the most important species for food, charter and anglers, not only in Chesapeake Bay, but otherwise. I presume you agree with that. Does the Board agree that the ERP science says that striped bass are the most sensitive species to the menhaden harvest? I believe you probably agree with that, because that's what all of your science says.

Do you also agree, by sensitive in the ERP science, you mean that it is the species most harmed by an improper menhaden harvest. Do you agree with that? Do you agree that the most harmful effect a species can have is reproductive failure? I think you agree with those four things. Okay, since you're likely agree that striped bass are having a terrible problem in the Bay, and you agree the problem is caused by the level of the menhaden harvest.

I think you agree the harvest is too great. I think you agree to all those things, don't you? Do you agree to all those things or not? Okay, so the last and most important question is that affects about all of Chesapeake Bay and the Atlantic Coast wildlife and all the people. The question is this, will this Menhaden Board right now make this an agenda

item to be discussed, and the solutions recommended?

In other words, will you make an agenda item right now of the relation between the menhaden harvest and the terrible failure of the striped bass spawning stock, which your ERP science is connected. Your ERP science stablishes the causal connection of these two things. The question is, please make this an agenda item to be discussed right now at this Board meeting. Will you do that? I'm waiting for an answer.

CHAIR McMANUS: Thank you, Phil, for your public comments. The public comment period is a time for comments, not dialogue, so we appreciate your comments, and the Board has heard them, and will consider them moving forward. We have reviewed the agenda already, and have approved that for today, so thank you for your comments. With that, I'll move on to Phil Zalesak.

MR. PHIL ZALESAK: Mr. Chairman, over 60 percent of the coastal stock of striped bass begin as spawn in the Chesapeake Bay, and its tributaries. The mortality rate of striped bass is directly tied to the mortality rate of Atlantic menhaden. The higher the mortality rate of Atlantic menhaden, the higher the mortality rate of the striped bass will be.

The Atlantic menhaden reduction fishery allocation in Virginia is currently 67 percent of the total allowable catch for the entire Atlantic Coast. That is over 158,000 metric tons, or three-quarters of a billion fish being removed from Virginia waters this year. Intense reduction fishing is occurring during the same time when there is little migration of Atlantic menhaden in Virginia waters. That is called localized depletion. Currently the reduction fishery has had great difficulty finding menhaden in the Chesapeake Bay and its entrance.

The latest NOAA data indicates that the recreational harvest of striped bass in Maryland waters has declined 72 percent since 2016, and the Maryland Chesapeake Bay Juvenile Index for striped bass is at an all-time low. The decline of striped bass in the Chesapeake Bay is due to the lack of menhaden in the Chesapeake Bay.

It is not due to overharvesting by recreational fishermen. Further, in 2016, the Maryland GDP associated with striped bass industry was over 800 million dollars. That is no longer true, after a 72 percent decline in recreational harvest. In 2020, this Board reaffirmed its commitment to manage the fishery in a way that accounts for the species role as forage fish. This Board has failed in that commitment.

I attended the Ecological Reference Point Working Group meetings two weeks ago, and heard no discussion of striped bass mortality rates, as it relates to Atlantic menhaden. In the interest of conservation and sound fishery management, it's time to (blanked out) to federal waters. This will bring an end to Governor Yonkin's Canada First fishing policy to the benefit of American taxpayers who fish. It's also time to call Governor Yonkin's office at 804-786-2211, and raise holy hell. I thank you for your time.

CHAIR McMANUS: Thank you, Phil, for your comments. Is there anybody else online with comments not related to agenda items? All right, seeing none.

PROGRESS UPDATE ON ECOLOGICAL REFERENCE POINT BENCHMARK ASSESSMENT

CHAIR McMANUS: That will bring us to our next agenda item, which is a Progress Update on Ecological Reference Point Benchmark Assessment, and with that I will pass it to Dr. Katie Drew.

DR. KATIE DREW: Basically, I'm just going to provide an overview of where we are in terms of our timeline, and then some of the issues that we discussed at our recent Data and Methods Workshop. As you all know, this assessment is schedule for completion in 2025. We had our Methods Scoping Webinar earlier this year in May.

We had a deadline for new data submissions by September 1st, so that was for data sort of outside

of our usual TC and state federal partnership for external data submission. Then we had our Data and Methods Workshop a couple weeks ago, to start discussing some of the high priority issues for this assessment.

Going forward, we anticipate that the 2023 data will be submitted sort of in waves from February to August of next year, so starting with some of our fishery independent data for menhaden, all the way through the multispecies assessments for some of our ERP species, which should be completed over the summer.

Then followed up by a couple more Methods and Assessment Workshops, so that we can ideally have a TC call to kind of approve the reports on our end in mid-July, to go to a peer review through the SEDAR process in August, and have the assessment presented to the Board at annual meeting of October or November next year. At the Data and Methods Workshop, we reviewed new data sources for menhaden and their predators. We identified new predators to explore, adding to the intermediate complexity model. If you recall that previously, our key ERP species were menhaden, with an alternative prey of Atlantic herring in the models, and the key predators were striped bass, bluefish, spiny dogfish and weakfish.

We have identified new potential predators to consider adding, based on existing data, and if we can gather enough information to support, including them in these intermediate complexity models. They are of course included in the full NWACS EWE model. But that includes nearshore piscivorous birds like osprey, bluefin tuna, smooth dogfish, or elasmobranch as a group.

We did consider blue catfish, but decided not to pursue it, based on the limited spatial overlap with menhaden. Right now, blue catfish are only concentrated in the Chesapeake Bay, and are really only in the more freshwater areas. The diet studies indicate menhaden do not make up a large proportion of their diet, so we do recommend, as we get more spatially explicit in the future, benchmark assessments, and as the blue catfish population continues to spread and expand, that that be reconsidered. But for now, we will not be including it in this benchmark.

We discussed high priority updates to our ecosystem models. We will be going forward with the NWACS MICE and NWACS Full models again, as well as the VADER multispecies statistical catch at age model.

Those were all peer reviewed during the last benchmark assessment, and of course we used the NWACS MICE model to set reference points. We are adding an ecosystem harvest control rule simulation model, in order to provide some context to these models, and explore alternative harvest control rules in an ecosystem context.

The highest priority is increasing the spatial and seasonal detail in the models, but we will likely not produce a fully spatial reference point or management advice with this benchmark assessment. We did discuss ongoing ecosystem indictor work in the Chesapeake Bay, including some work from Maryland and from VIMS, including some of what will be discussed in the next presentation.

The ERP workgroup recommending allowing these projects to sort of come to completion on their own timeline, rather than trying to duplicate effort with what they are doing. If you recall, we did discuss back in 2021, one spatial option for management is to use our current coastwide models with some kind of spatial indicator approach. But the Board was kind of cool on that idea, and was not interested in pursuing it.

The ERP Workgroup recommends allowing these projects to continue on their own, and then if the Board wants to revisit this indicator approach linked to management areas, for the Bay or for other areas, that you can task the workgroup with working on that after the benchmark, after this other work has been completed, and dedicating more time after that. That about sums it up for the main topic of discussion at our Data and Methods Workshop, and I'm happy to take any questions.

CHAIR McMANUS: Are there any questions from the Board? Yes, Jeff Kaelin.

MR. JEFFREY KAELIN: Thank you, Dr. Drew. I listened in on that too. A couple of gentlemen talked about the ERP model outcomes or reference points. Isn't it true that those reference points leave enough menhaden in the water to fully rebuild striped bass by 2029? Is that the reference point that was the outcome from that model?

DR. DREW: The current reference points are based on the coastwide stock of both menhaden and striped bass, and the reference points are designed to leave enough menhaden in the water to support striped bass when they are fully rebuilt to their target. It's not specifically tied to that 2029 deadline, but in the long-term people equilibrium.

MR. KAELIN: Excuse me, can I continue? It's not tied to 2029, I guess I misunderstood that, so it's just generally the fact.

DR. DREW: Right. In the long term, basically, as at equilibrium.

CHAIR McMANUS: Are there any other questions for Katie? Yes, Lynn Fegley.

MS. LYNN FEGLEY: Mr. Chair, if I may, I have a comment and a question. I'll start with a comment. I just wanted to provide some clarity for the Board about the indicators that we've been working on in Maryland. We have a broad array of data that we collected for many, many years on both striped bass, things like striped bass body condition, being one in particular.

The piece that we're working on is really right now going to be geared as a communications tool. It's not geared to be a management tool, but it's really a synthesis of all of the data that we have. We spend a lot of time scrolling through the information that we collect. I think it's going to be a really nice way to inform stakeholders of how we're monitoring the situation around menhaden and striped bass, and the ecosystem in general in the Bay.

We're hoping to be rolling that out in the not to distant future. That's one. I want to make it really clear that that is a communications tool right now, not a management tool. It would be really nice if in the years to come we could take it to the next level, but it's not there yet. That is my comment. My question is for Dr. Drew and then maybe I know Dr. LaTour, you're going to follow on. But you know we have had our fifth consecutive year of low striped bass recruitment in Chesapeake Bay. We just heard from a couple of our constituents.

There is concern in the Bay about this. Any potential relationship between menhaden abundance in the Bay, and striped bass reproduction? The link is between menhaden abundance and the recruitment of the young striped bass. I wanted to just toss that out to the scientists. I don't know if you can provide an answer now, but I would kind of like to hear your thoughts on that, given the concerns that we're hearing from our stakeholders. Thank you.

DR. DREW: Sure, I would say, I don't want to say there is no relationship. Obviously that menhaden are an important food source for striped bass, and our coastwide ERP model does show that striped bass are sensitive to the amount of menhaden that are available for them. If your menhaden levels are too low, your SSB levels will be too low for striped bass, and that can contribute to low recruitment. But striped bass recruitment is of course driven by a lot of factors. Obviously, of the abundance of the spawning stock is part of that. But we also know environmental conditions like temperature, like water flow, like the availability of the plankton prey for those newly born striped bass. All are significant contributors to the overall success of that year class.

Menhaden abundance is part of that equation, but it's not the only component, and it may not even be the most important component. I will say, our ERP model on the coastwide level, that is what that tracks. That is looking at that relationship of how much menhaden do we need to make sure that striped bass can survive and produce recruitment, and that is all tied together, that stock recruit

relationship for striped bass is in that model, and the effects of menhaden on striped bass survival is all in that model.

At the coastwide level, these reference points are intended to leave enough menhaden in the water, so that striped bass can maintain their target biomass, and maintain that spawning stock biomass. Obviously, I think maybe a bigger question that we still need more work on, is that relationship the same at different spatial scales.

What is happening in Chesapeake Bay versus what is happening at the coastwide level, versus what is happening in the Gulf of Maine. Those dynamics we don't have a good handle on. We're hoping to get a better handle on it through this next benchmark assessment, but that is definitely something we need more work on.

CHAIR McMANUS: Great, thank you, Lynn, and we have Allison Colden online with a question, so Allison, feel to unmute when you're ready.

MS. ALLISON COLDEN: Thank you for the presentation, Katie. I also had the opportunity to attend the ERP Workgroup meeting, and observed some of these conversations, and just hope that I have absorbed some of that genius out of this group by osmosis. A lot of really exciting conversations going on, particularly around spatial models and a future benchmark assessment.

But I wanted to just sort of ask a quick question and comment on a couple things as well. Katie, maybe in particularly to the blue catfish issues to start. It's obviously a huge concern for us in the Chesapeake Bay, and we're seeing its influence grow, both in the scope of where they are being found and the species that we believe that they are impacting.

I believe that I saw in the ERP Workgroup, maybe some conflicting data, where one data source was showing that blue catfish were consuming a large quantity of menhaden, or at least menhaden were making up a relatively significant quantity of their diet composition. But then other comments about the lack of spatial overlap between blue catfish and menhaden, because of the difference in the salinity tolerances. Could you just briefly comment on kind of the thought process for the group, in not continuing to pursue blue catfish as an ecosystem component.

DR. DREW: Sure. Some of the initial work on blue catfish did have menhaden making up a bigger percentage of their diet than you would be comfortable with. But as part of that literature review, we looked at some other studies, and more recent, much more comprehensive studies with thousands of blue catfish stomachs from multiple different areas and multiple different kinds of years. Then multiple different size classes showed that the actual percentage of menhaden in their diet was relatively low, especially compared to some of the other predators that are already in our model.

I think this is because blue catfish are omnivores, incredibly unspecialized. You need a really large sample size in order to be able to get a good handle on their diet, otherwise you're just going to be getting, it's too influenced by small sample size, which is probably why you saw in some of the initial studies.

If the timing was right, you saw a lot of menhaden, but this larger, more comprehensive study said that the proportion of menhaden in their diet was much lower. The Workgroup had some more comfort, as they are not specializing in menhaden, perhaps the way that we had concerns about. Then of course their range right now is predominantly in the more freshwater areas, and again, limited only to the Chesapeake Bay, as opposed to our full coastwide model.

Kind of the overlap of blue catfish versus the rest of the model, we felt that that was a relatively minor component of the total mortality. To be clear, these models, even the intermediate complexity models, have space for additional mortality that is not explained by our explicit predators. It's not like a source of mortality is necessarily being missed, it's just being lumped into other predators.

Given the limited spatial overlap, and the fact that both the fact that they're really only in Chesapeake Bay at the moment, and the fact that they are predominantly in the more freshwater areas of Chesapeake Bay. The Workgroup felt that this was not as useful of a predator to focus on, and that we should instead focus on kind of our other key species, where we expect a stronger relationship, not just between predator abundance and menhaden abundance, but also between menhaden abundance and predator abundance.

That is why we recommended not going forward with it at this benchmark. But we definitely do want to keep an eye on that, so that for the next benchmark, once we have a fully spatial model, and can get down to the more nitty-gritty of modeling the Bay, more distinct, as well as potentially seeing increases in blue catfish out beyond that freshwater range, or into the Delaware Bay, or other areas on the coast. We think it's definitely worthwhile keeping an eye on for the future. I hope that helps.

MS. COLDEN: Yes, it did, thank you so much, Katie. Although I think I read an article, maybe even this week, about catfish being found in Delaware River/Delaware Bay, so hopefully it will continue to stay a relatively confined problem. I have one quick comment to wrap up here. I just wanted to reiterate something that Lynn mentioned earlier, about the options and the efforts that we have going on in the Chesapeake Bay.

I just want to extend some thanks to the folks in Maryland for spending a lot of time doing a deep dive on the striped bass and menhaden indicators. I think Lynn made it clear that it was not intended to be a management tool, and I know we're about to hear a presentation from Virginia on some work that was discussed there. But I think that the Board will see that it's a pretty extensive body of work, that if it were to be completed would be a huge undertaking, especially just if it's being taken on by one state. Some of the other things I noticed in the ERP Workgroup were that at least the spatial models that I saw discussed, were not going to be able to resolve the Chesapeake Bay, or maybe even some of the other estuaries along the coast.

I don't want to lose sight of the issues that we all know are lingering in the Chesapeake Bay, and questions lingering about the Chesapeake Bay. Katie, I don't know if the tasking about indicators is the right path forward. But I just wanted to flag that I don't necessarily know that what the efforts that Maryland and Virginia are undertaking now are going to result in direct management applications.

I would like the Technical Committee and the ERP Workgroup to continue to keep Chesapeake Bay kind of on their minds and in the forefront, as to how we can continue to resolve these questions, and get the data that we need moving forward to resolve these issues. I just wanted to say that, thank you.

CHAIR McMANUS: Are there any other comments or questions from the Board? Seeing none.

REVIEW VIRGINIA CHESAPEAKE BAY MENHADEN STUDY DESIGN REPORT

CHAIR McMANUS: We'll move on to our next agenda item, which is a presentation that reviews the Virginia Chesapeake Bay Menhaden Study Design Report, which will be presented by Dr. Rob Latour, joining us today. With that, take it away, Rob.

DR. ROBERT J. LATOUR: Thank you to Bob for the invitation to come back. It was nice to see some familiar faces last night, and meet some new faces. It's been a while since I've been in the hot seat, as you say. I'm not really sure I really want to come back that often, but I'm happy to be here. The title here indicates menhaden research planning, and by no means am I trying to suggest that all the research for menhaden is happening here at VIMS.

It is certainly in coordination with the TC and the ERP Workgroups. It's a broad, inclusive effort, although it was stimulated this year by some legislation, which I will review briefly. By way of background, the fall of '22 brought a great deal of activity, you could say, from stakeholders, specifically directed at the Governor's office.

That carried forward into the 2023 Virginia Legislative Session of the General Assembly. There is lots of discussion, lots of concern, lots of perspectives raised, such that Senator Lynwood Lewis initiated the introduction of the bill, Senate Bill 1388 that occurred on January 11. It said VIMS shall do everything.

We will solve all the problems, we will study everything, ranging from economics to ecology to fishery impacts to, you name it, movements, everything. In conversations with Senator Lewis and the staff, we sort of tried to manage expectations, and bring us down to a little more level of realism.

Some substitute language was modified and introduced, and amendments were introduced, such that in the end what passed through the General Assembly was a bill that directed VIMS to engage stakeholders for a planning effort. What do we need to know? What are the most crucial things that we should study, and outline them for consideration moving forward? For anyone curious, this is the exact language of the bill. I don't expect you to read everything, other than the highlighted portion here, basically breaks the bill into three sections, Study the Ecology, The Fishery Impacts, and The Economic Importance of Menhaden in the waters of the Commonwealth.

What follows is a summary of our activities relating around those three themes, ecology, fishery impacts, and economics. The way in which we approach this, the bill did not give direct procedural guidance per say. I suppose we could have done it at our desk and come up with some really cool research activities with some ideas.

But rather than doing that we elected to hold a stakeholder workshop, so we invited representatives from all the various sectors, trying to achieve broader representation from the commercial to recreational, the NGOs the academics, the federal agencies, the management community. We held a workshop for a day and a half at William and Mary in August 8 through 9. We engaged a professional facilitator to manage the meeting, and she did a fabulous job, from the Institute of Engagement and Negotiation at UVA. Just by way of transparency, all the recommendations that you'll see from us were based on consensus. There was voting, but it wasn't really voting in a strict sense, it was more consensus based. In my opinion, and some of you were here, some of you online were there. It was collegial and it was productive. What follows now in the next few slides are just a summary of the three themes.

What I'm providing are the top three consensus items in each of those themes. You can imagine that during the brainstorming sessions we had lots of ideas, including the kitchen sink brought forward. But whittling those down over time, over the course of the workshop, led to these three areas for ecology, and that is number one ranked was estimate the seasonal abundance of Atlantic menhaden in the Bay.

Breaking out abundance estimation, which routinely happens with the coastwide assessment, and also with some of the ERP work. But on a coastwide scale, try to break that down into a Chesapeake Bay versus coast level of estimation. This would be akin to the spatial modeling activities that Katie referred to, and that are perhaps on the horizon.

By way of methods, this was analyzing commercial catch and effort data, and also enacting new survey methods, since the commercial catch and effort data do not cover the entire Bay. Those data are restricted to Virginia. Some of these new survey methods, ASMFC invested in the design of a survey for using aerial methods with the University of Maryland.

Making use of that survey designed for aerial survey, as well as VIMS has capability now of a multi-beam Simrad EK80 hydroacoustic package on their research vessel, The RV Virginia. Making use of that has shown promise in other fisheries and other countries, as a way of estimating abundance for pelagic schooling fishes. Second was evaluate movement rates. This is mainly focused on the exchange between the Bay and the Coast. You

might think of this as adding to the body of knowledge, as to whether a depletion is happening at a scale that is measurable or not, so how fast do fish move into the Bay, out of the Bay, how frequently does it happen over seasons, over time? Reproducing the 1960s tagging data, sorry tagging study, would be virtually impossible. We have to resort to some sort of a hydroacoustic or some sort of other technology to do this. The hydroacoustic tagging technology, the tags are getting smaller and smaller. There is hope that this could be utilized for Atlantic menhaden who would be sensitive to capture and sensitive to processing.

The third was assessing impacts of predator demands and consumption of Atlantic menhaden. There are extant data that could be used. But some of the seasons, some of the spaces is where the predator/prey dynamics unfold, are not well sampled, are not well covered, so the combination of data analyses, new methodologies, as well as new field work.

On the fishery impact side, number one ranked concept was to analyze the patterns in the commercial fishing effort and catch data for Chesapeake Bay, the idea being that the fisheries know where the fish are, so they are going where the fish are, maybe we can glean some insight as to possible changes in movement, possible changes in distribution, shifts in abundance and this sort of thing.

Through the analyses of those data acknowledging that those are not necessarily statistically designed catch and effort data, so we would have to bear in mind the associated human element of those data. Number two, assess the possibility of localized depletion. We heard a public comment regarding localized depletion. It is a very difficult concept to address.

Certain criteria need to be met, and we don't know if those criteria are even being met to assess localized depletion. We thought that synthesizing the ecology topics one through three would be necessary, in order to really address this issue in a serious manner, although certainly it's consistently discussed.

Third, kind of surprising to me, was to quantify changes in the recreational fisheries in the Bay. Not a lot of effort has been put forth to understand the demographic changes, the number of licenses, the age structure of the fishery, types of species that are being targeted and how those shifted over time.

Again, this might provide some insight into availability of menhaden and associated dependencies. Lastly, or thirdly, I should say, Economic Importance. I'm being true to the ranking system here, but to be honest with you, Number two has to happen before Number one. But this is the way it fell out of the group.

But basically, conduct a contemporary assessment of the socio and economic importance of the Atlantic menhaden to the Bay. Certainly, there are some historic studies to draw on, one by Jim Kirkley at VIMS, one funded by ASMFC more recently. But updating those, it's a different fishery, it's a different management regime, it's a different economic climate.

Updating that was of top priority. Given that tool, perhaps we could then assess the economic impacts of management decisions. This is sort of getting at the concept of a management strategy evaluation with an economic component. Decisions that you make as a Board, what are the tradeoffs, what are the implications of those decisions? We learned a lot about how industries, products, ripple through the entire Commonwealth, beyond the Commonwealth, all along the eastern seaboard, even internationally. Honestly, in most of the fishery's management, biological sustainability is the number one priority, but there is some importance to understanding how your management decisions ripple through the economics of the fisheries, and those industries that depend on that.

Evaluating that was certainly of an importance. Third here was, I'm using the word bioeconomic. It wasn't articulated in such a way at the workshop,

but there was lots of discussion about moving fishery removals out of Chesapeake Bay to the coast, restricting the harvest by the reduction fleet to the coast.

It's not as simple as it seems, there are lots of tradeoffs there. Irrespective of the impact it would have on the reduction industry, moving all the harvest to the coast means you're harvesting bigger, older animals. These are more fecund, as opposed to those that are typically in the Bay. You would actually be having a larger impact on the spawning stock, and the spawning reproduction of animals than if you keep things as currently status quo.

Bioeconomic mean tradeoffs economically as well as biological impacts to the stock, about where the landings are coming from over time and space. That pretty much summarizes here, I've got just a list of contributors. I want to thank everybody for being involved. In case you're curious about who attended the workshop, these are the participants.

Like I said, we tried to be broadly inclusive for all sectors and all stakeholders. Lastly, before I take any questions, I just want to give some acknowledgement, particularly to Shanna Madsen, and Commissioner Green for allowing Shanna to dedicate some time to this project. I know it's outside the scope of her duties, but she was integral in providing a lot of support and a lot of guidance.

Kristina was our UVA facilitator who did a fabulous job. Mark Luckenbach, Cecilia Lewis and the VIMS administrations for funding the workshop out of here own pocket. This was my idea to have it happen, and VIMS was onboard with it, so I appreciate that, and Jim and Caroline, who are my students and staff for participating in the meeting and being great notetakers. If there are any questions, I will be happy to take them. Thank you.

CHAIR McMANUS: Thank you, Rob, for your presentation. Are there any questions or comments from the Board? Yes, Dennis Abbott.

MR. DENNIS ABBOTT: Thank you, Mr. Latour. What are the plans for achieving results? When will we see something coming out of all these good ideas?

DR. LATOUR: Really good questions. I can't give you an answer, because we haven't been instructed or provided resources to conduct the work. This was a planning exercise. Initial feedback from the General Assembly and from the Governor's Office has been positive, at least with respect to the content of the report. Whether it gains traction with the Governor's budget, which will be released in December, and/or the General Assembly session in 2024, remains to be seen. But I think we tried to do our best in providing a roadmap and a plan with some cost estimates, with some guidance as to who might be most poised to do the work, to give some instruction and some guidance to the Administration. But where it goes from here is out of my control.

MR. ABBOTT: Thank you, good answer. However, are there any thoughts of looking for money in other directions, from NOAA or any other sources, Omega Protein, anyone else that has deep pockets, and how much money are you talking about to do, at this point, what you planned or would like to do?

DR. LATOUR: The report structure outlined those nine items in a stepwise fashion, and there were cost estimates associated with each. As you can imagine, those that involved novel field work are more expensive than those that involved desk work. The sum total for all of them was under 3 million, spread over three to five years.

We haven't pursued funding opportunities outside of the state, because really, this was initiated by the General Assembly. It's not an unreasonable thing to do. I suppose with some more thinking and some more time, we could come up with ideas and pursue avenues outside of the Legislature, but for right now that is where we are.

CHAIR McMANUS: Thank you, Dennis. Next up I have Roy Miller.

MR. ROY W. MILLER: Dr. Latour, I was wondering who would do the prioritization of all of this work that you outlined, all of which looks like important work. But will the General Assembly be doing the prioritization? Will Virginia Marine Resources Commission? Will VIMS or some combination thereof?

DR. LATOUR: Thank you for the question, it's a good one. Initial indications are that VIMS and VMRC, again, if Commissioner Green is willing to participate, would be involved in shaping any budget amendments that would go through. Therefore, we would be able to prioritizes things in such a way that order of operations matters.

Some of these studies depend on other things being done, so we could set that pathway clear from the get go. What we don't know is what the appetite is to fund any of this. You know upon learning that, then we could move into the motion of actually drafting preliminary language for any kind of amendment that would go forward. It would be a combination of VIMS, VMRC, other constituents as well. By no means are we trying to make this a closed process.

CHAIR McMANUS: Are there any other questions or comments from the Board? Yes, Lynn Fegley.

MS. FEGLEY: Just really quick, I just want to thank Dr. Latour and the entire team listed on the screen. I was at that workshop, it was excellent. It was just a great reminder that it's often very helpful to walk into a room and sit down and have very frank and open conversations with a broad cross section of people involved in a fishery. I know I went in with my back up a little bit, and came out having learned a lot, and feeling, it was a great effort, appreciate it.

CHAIR McMANUS: Are there any other questions or comments from the Board? Looking around the room, not seeing any hands. Are there any online? There are no more questions or comments from the Board. We are a bit ahead of schedule, so if there are folks from the public who have comments for some of the scientific presentations we've heard. We'll be able to take those comments if you so choose to present them. I'll start first with those in the room, if we have anyone with a comment, explicitly comments, no questions. Okay, seeing no one in the room, I'll go to those online. Bill DeSteph, feel free to unmute and when you're ready.

MR. WILLIAM R. DeSTEPH: I apologize. I am trying to figure out this platform still. This is Senator Bill DeSteph, representing Virginia Beach coming up the eastern shore in Norfolk. On menhaden, I listened to the comments. I had heard what I believe his name was Shaun, was speaking, he said that all fishing for menhaden occurred north of the Chesapeake Bay.

I see actually the boats out there with the nets, surrounding the nets and fishing, not just within the Chesapeake Bay, but on the other side on the east western side of the Chesapeake Bay Bridge Tunnel. There has always been a lot of conflict between the sport fishermen and those out of Reedville with Omega 3 and others.

We're hoping from the Legislature, that we can get a better handle on what is going on. We've had multiple agreements at multiple times, Gentlemen's Agreements of hey, there won't be fishing within three miles of the beach, they will be outside of three miles outside of the Chesapeake Bay Bridge Tunnel.

There has been multiple conversations and multiple agreements that never seem to hold much water, and get violated frequently. I truly just got put on this Commission. I'm looking forward to it, and learning, and seeing what I'm missing. I know a few of the folks that are here and have been briefing. I'm here listening, but I'm having a hard time with understanding that everything is all good and well.

Then, I don't know if this is the platform for it, or if I should write in and ask to VMRC or VIMS. How many violations did Omega receive this year, over the last three years? I'm trying to get a lot smarter on this, because what I'm hearing today is a little different than what I actually see, not just in my

neighborhood, but when I cross the Chesapeake Bay Bridge Tunnel. Thank you.

CHAIR McMANUS: Thank you for your comment. I'm going to pass this to Bob Beal really quick, for a response.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Not a direct response to Senator DeSteph's comments, but I just want to let everyone know, Senator DeSteph is the new Legislative Commissioner from Virginia. He was appointed replacing Monty Mason in the last week or so. The previous commenter was one of the new commissioners for ASMFC, and I assume will be participating in future meetings. I just wanted to welcome him, and let the Board know that that is where the comment came from.

CHAIR McMANUS: I'm going to look to staff to see whether the time to provide response to those specific comments is now or subsequent to the meeting, given the scope of the topic. Yes, staff will follow up with you, if that works for you. I appreciate your comment and your time. Is there anybody else online? Brian Collins, feel free to unmute when you're ready.

MR. BRIAN COLLINS: Yes, I've been listening. I had, I guess you could call them comments, questions that I would share. I've been studying this issue as a lay person, and it's a little baffling to me that the Chesapeake Bay is not considered a separate ecosystem. Earlier we heard those estimates that 60 to 90 percent of all Atlantic coast striped bass occupy, or they go in the nursery of the Bay.

It looks like we might be starving them, and we see indicators that striped bass populations are stressed. Most of the time what you see is people blaming sport fishermen, no mention of industrial harvest. I don't think it makes sense to take the Atlantic Coast stock and assume that it's okay to take 51 metric tons, 100 million pounds of fish, menhaden bait fish out of the Bay.

That is separate from the idea that the definition of the Bay boundary is right at the Chesapeake Bay Bridge Tunnel, so just outside the Bay the industrial fishing can use that additional limit to capture all the fish that are funneling into the Bay and out of the Bay. It's quite a way more than 100 million pounds.

You know with this idea that we're doing a Virginia assessment, it doesn't make sense to me that Virginia, in a Bay that is about, I forget, I think Maryland has the biggest portion of the Bay, how can it not be a multi-state effort? How does ASMFC feel about it? Why isn't ASMFC taking the lead on this?

I heard a gentleman earlier saying, why not NOAA? Why isn't the federal government stepping in? Virginia can only do a compromised survey in Virginia waters. I'm wondering right now, I've asked this question before to ASMFC and waiting for a response is, do we know if there are any schools of menhaden in the Bay right now? I don't think anybody knows.

We could be starving. I went to an osprey nesting meeting. The osprey nesting performance for 2023 fell off like a rock. We may not have the time that has been kicked around to actually save the Bay. I mean I think we're actually at a point where we might really want to consider seriously a moratorium, until we can figure out what is going on. I appreciate the opportunity to comment, thank you.

CHAIR McMANUS: Thank you, Brian, are there any other comments specific to the presentations from Katie and Rob? Yes, James, please feel free to unmute when you are ready. James Fletcher, have you unmuted? We are not hearing you, so I might suggest as an alternative to reach out to staff or Rob.

If you have additional questions or comments regarding their work that you would like to discuss. Seeing no more comments on the presentations we received.

CONSIDER FISHERY MANAGEMENT PLAN REVIEW AND STATE COMPLIANCE FOR THE 2022 FISHING YEAR REVIEW

CHAIR McMANUS: I would like to move to our next agenda item on Considering Fishery Management Plan Review for State Compliance regarding the 2022 Fishing Year. With that I will pass it to James.
MR. JAMES BOYLE IV: Good afternoon, everyone, I will just jump right in and start. Here is a quick overview of the presentation. I'll start with a pretty brief reminder of the statuses of the FMP and the fishery, before providing the 2022 landings and monitoring information, and ending with the PRT recommendations.

In 2022, the fishery operated under Amendment 3, which was approved in 2017, and implemented in 2018. The total allowable catch or TAC for the 2021 and 2022 fishing season was set at 194,400 metric tons, based on the Board approved ecological reference points. Also based on those ERPs, which were adopted in 2020, and the 2022 single-species stock assessment update, fishing mortality is below both the ERP target and threshold, and fecundity is above both the ERP targets and thresholds.

Therefore, the stock is neither overfished nor experiencing overfishing. Moving on to 2022 landings. Total commercial Atlantic menhaden landings in 2022, including directed incidental catch and episodic event set aside landings are estimated at 195,387 metric tons, or about 430.8 million pounds, with an approximate 0.15 percent increase relative to 2021, and is 0.51 percent over the TAC.

If you remove the incidental catch and small-scale fishery landings, so that leaves you with just directed landings and the EESA landings, the total for 2022 is estimated 187,231 metric tons, or about 413 million pounds, which is a 1 percent decrease from 2021, and represents approximately 96 percent of the coastwide, around 8,156 metric tons or 18 million pounds, so they did not count towards the coastwide TAC.

The 2022 reduction harvest is estimated at 134,477 metric tons or 296 million pounds, which is a 2 percent decrease from 2021 and 1.5 percent below the previous 5-year average, which is about 301 million pounds. Of that in the Chesapeake Bay, about 50,000 metric tons were taken, which is under the Chesapeake Bay cap, by about 1,000 metric tons.

This figure shows landings from the reduction and bait sectors through time. You have the reduction landings on the left-hand axis and bait landings on the right, and I'll make a note to please notice the different scales of those axes, so reduction landings are generally about an order of magnitude larger than bait landings.

Generally, the trend shows a decline in reduction landings over time. Relative to last year, bait landings had a slight uptick and reduction landings had a slight drop, but the overall trend remains fairly consistent. As mentioned, incidental catch and small-scale fishery landings are estimated at 8,156 metric tons or 18 million pounds, which is a 46 percent increase relative to 2021.

Incidental catch trips also increased to the highest level since 2015. Maine, Massachusetts and Virginia's non purse seine bait fishery specifically, reported incidental catch landings, about 82 percent of which were from purse seines, 10 percent from gillnets, and Maine accounted for approximately 87 percent of incidental fishery landings in 2022. Maine and Massachusetts were the only participating states in the episodic even set aside program. Their combined landings were 1,992 metric tons, or 4.4 million pounds, which was a 10 percent decrease in 2021, but is over the total set aside by 104,723 pounds. To alleviate this, Massachusetts transferred 64,000 pounds to the EESA in January of 2023, and the remainder was deducted from the 2023 set aside. Quota transfers remained high. There were 24 state to state transfers, some involving several states in 2022, which was an increase from 16 in 2021.

Although the PRT noted in the document that one of the purposes of the commercial allocation changes in Addendum I to Amendment 3, was to reduce the need for quota transfers, and the PRT

will monitor the change in quota transfers after implementation in 2023. Non de minimis states are required to conduct biological monitoring based on their bait landings, as well as their geographic region.

From Maine to Delaware, one-ten-fish sample is required for 300 metric tons, and from Maryland to North Carolina, one-ten fish sample is required for 200 metric tons. In 2022, Maine fell just short of their required samples, collecting 35 of 39 required samples. For de minimis, Pennsylvania, South Carolina, Georgia and Florida all requested continued de minimis status, and qualified based on their commercial landings.

As far as PRT recommendations, the PRT continued to discuss whether a sufficient number of biological samples are being collected from different gear types and regions, and whether substituting samples from fishery independent sources is appropriate for meeting the requirement.

Having said that, in discussions with science staff, it will be a topic that is considered in the single-species assessment update, which is scheduled to be presented to the Board in 2025. With that, the action for the Board today to consider or to approve the 2022 FMP Review, State Compliance Reports and De Minimis requests. With that I'm happy to take any questions.

CHAIR McMANUS: Thank you for your presentation, James. Questions for James. Yes, Megan Ware.

MS. MEGAN WARE: I just wanted to provide some context for our biological sampling. To bring us back to last year, end of August, Maine closed its small-scale fishery due to the volume of landings we were receiving, so that prohibited us from being able to collect additional samples. We're at 55 samples this year, so we should be well and above what we need for our landings so far.

CHAIR McMANUS: Thank you, Megan, any other questions from the Board, in person or online? Yes, Emerson Hasbrouck.

MR. EMERSON HASBROUCK: It seems like there are no more questions, so if you're ready, I'll make a motion to accept the review.

CHAIR McMANUS: Thank you, Emerson, staff has been kind enough to prepare a motion, if you are willing to read that in for the record.

MR. HASBROUCK: **Move to approve the Fishery Management Plan Review, the State Compliance Reports and De Minimis requests for Pennsylvania, South Carolina, Georgia and Florida for Atlantic menhaden for the 2022 fishing year.**

CHAIR McMANUS: Thank you, Emerson, do I have a second? Seconded by Roy Miller. I may ask to see if **there is any opposition to the motion. Seeing none; I would consider this approved by consent.** Thank you for getting us through that pretty quickly.

ADJOURNMENT

CHAIR McMANUS: With that, now we're on to Other Business. Is there any other business from the Board?

I guess I would just like to say, this would have been Mel Bell's last meeting as Chairing the Menhaden Management Board, so I just wanted to say thank you to him for his leadership after the last couple of years. Now you have yours truly for the next two years, so thank you for bearing with me. Yes, thank you again, Mel, for your service on the Board as Chair. With that I will look to see if we have a motion to adjourn. I see many hands; thank you and we can consider the meeting adjourned.

(Whereupon the meeting adjourned at 2:32 p.m. on October 17, 2023)