

**PROCEEDINGS OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
HORSESHOE CRAB MANAGEMENT BOARD**

**Webinar  
October 21, 2021**

**Approved January 26, 2022**

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1. **Move to approve agenda** by Consent (Page 1).
2. **Move to approve proceedings of October 21 , 2020** by Consent (Page 1).
3. **Move to select Harvest Package 3, 500,000 male only crabs for the 2022 horseshoe crab bait harvest in Delaware Bay** (Page 4). Motion by Mike Luisi, second by Pat Geer. Motion carried (Page 4).
4. **Move to approve the FMP Review for the 2020 fishing year, state compliance reports and *de minimis* status for South Carolina, Georgia and Florida** (Page 13). Motion by Emerson Hasbrouck; second by David Borden. Motion carried (Page 14).
5. **Move to task the PDT review the threshold for biomedical use to develop biological based options for the threshold and to develop options for action when the threshold is exceeded. Also, task the PDT review best management practices for handling biomedical catch and suggest options for updating and implementing BMPs** (Page 14). Motion by Emerson Hasbrouck; second by David Borden. Motion carried (Page 17).
6. **Move to nominate my friend and colleague from the state of Delaware, Mr. John Clark as Vice-Chair to the Horseshoe Crab Management Board** (Page 17). Motion by Mike Luisi; second by Marty Gary. Motion carried (Page 18).
7. **Motion to adjourn** by Consent (Page 18).

## ATTENDANCE

### Board Members

Dan McKiernan, MA (AA)	Roy Miller, DE (GA)
Raymond Kane, MA (GA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Mike Luisi, MD, proxy for Bill Anderson (AA)
Conor McManus, RI, proxy for J. McNamee (AA)	Russell Dize, MD (GA)
David Borden, RI (GA)	Pat Geer, VA, proxy for S. Bowman (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Shanna Madsen, VA, proxy for B. Plumlee (GA)
Justin Davis, CT (AA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Rob LaFrance, CT, proxy for B. Hyatt (GA)	Jerry Mannen, NC (GA)
Sen. Craig Miner, CT (LA)	Mel Bell, SC, proxy for P. Maier (AA)
John Maniscalco, NY, proxy for J. Gilmore (AA)	Doug Haymans, GA (AA)
Emerson Hasbrouck, NY (GA)	Spud Woodward, GA (GA)
Joe Cimino, NJ (AA)	Erika Burgess, FL, proxy for J. McCawley (AA)
Peter Clarke, NJ, proxy for T. Fote (GA)	Marty Gary, PRFC
Adam Nowalsky, NJ, proxy for Sen. Houghtaling (LA)	Chris Wright, NMFS
John Clark, DE (AA)	Mike Millard, USFWS

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

### Ex-Officio Members

John Sweka, ARM Subcommittee Chair

### Staff

Robert Beal	Lisa Havel
Toni Kerns	Chris Jacobs
Laura Leach	Jeff Kipp
Lisa Carty	Savannah Lewis
Maya Drzewicki	Kirby Rootes-Murdy
Kristen Anstead	Sarah Murray
Tina Berger	Caitlin Starks
Pat Campfield	Deke Tompkins
Emilie Franke	

### Guests

Dennis Abbott, NH, LA proxy	Jeff Brust, NJ DEP
Karen Abrams, NOAA	Thomas Burrell, PA F&B
Max Appelman, NOAA	Margaret Conroy, DE DFW
Pat Augustine, Coram, NY	James Cooper
Linda Barry, NJ DEP	Heather Corbett, NJ DEP
Alan Bianchi, NC DENR	Claire Crowley, FL FWC
Nora Blair, Charleston, SC	Jessica Daher, NJ DEP
Jason Boucher, DE DFW	Andrea Didden
Rob Bourdon, US FWS	Sheila Eyler, US FWS

**Guests (continued)**

Lynn Fegley, MD DNR

Cynthia Ferrio, NOAA

Lewis Gillingham, VMRC

Michael Ginex

Hannah Hart, FL FWC

Helen Takade-Heumacher, US FWS

Jaclyn Higgins, TRCP

Jessie Hornstein, NYS DEC

Bill Hyatt, CT (GA)

Ryan Jiorle

Adam Kenyon, VMRC

Wilson Laney

Christina Lecker, Fuji Film

Chip Lynch, NOAA

Shanna Madsen, VMRC

Jason McNamee, RI (AA)

Nichola Meserve, MA DMF

Steve Meyers

Matt Mobley

Jerry Morgan

Allison Murphy, NOAA

Eileen Murphy, NJ Audubon Soc.

Josh Newhard, US FWS

Tamara O'Connell, MD DNR

Nick Popoff, US FWS

Jill Ramsey, VMRC

Daniel Sasson, SC DNR

Sommers Smott, VMRC

David Stormer, DE DFW

Benjie Swan, Limuli Labs

Marek Topolski, MD DNR

Scott Curatolo-Wagemann, Cornell Univ

Kristoffer Whitney, RIT

Beth Versak, MD DNR

Angel Willey, MD DNR

Sarah York, NOAA

Jordan Zimmerman, DE DNR

Renee Zobel, NH FGD

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Thursday, October 21, 2021, and was called to order at 8:30 a.m. by Chair Joe Cimino.

### **CALL TO ORDER**

CHAIR JOE CIMINO: Good morning, everyone, I'm Joe Cimino, coming to you live from the sad to not be hosting state of New Jersey, where it's another lovely day. I'm the Administrative Commissioner for New Jersey, and the Chair of the Horseshoe Crab Management Board.

### **APPROVAL OF AGENDA**

We've got 90 minutes and a couple important action items to get through, so we'll get started with approval of the agenda. Are there any additions or corrections that anyone has that they want to add to the agenda?

MS. TONI KERNS: I have no hands.

CHAIR CIMINO: Approved by consent then.

### **APPROVAL OF PROCEEDINGS**

CHAIR CIMINO: We'll move on to the proceedings from October of 2020. Hopefully, you all had a chance to look through those. Any concerns or additions there, please raise your hand.

MS. KERNS: I have no hands.

CHAIR CIMINO: Excellent, again that is approved by consent.

### **PUBLIC COMMENT**

CHAIR CIMINO: Moving on to Public Comment and for members of the public interested in making public comment today, this is for items that are not on the agenda. We do have a couple action items. If you wish to speak to those items, I will take hands during the harvest specification process. But if you have any

concerns that are not on the agenda, please raise your hand now.

MS. KERNS: I have no hands.

### **SET 2022 HARVEST SPECIFICATIONS**

CHAIR CIMINO: Okay, we shall get started. We have Dr. John Sweka of the U.S. Fish and Wildlife Service with us today, and John will be walking us through a couple items here. But that will begin with the Review of the ARM Model, so John.

### **REVIEW OF HORSESHOE CRAB AND RED KNOT ABUNDANCE ESTIMATES AND 2021 ADAPTIVE RESOURCE MANAGEMENT MODEL (ARM) RESULTS**

MR. JOHN SWEKA: Okay, thank you, Mr. Chair. Yes, our typical harvest specifications, based off the adaptive resource management framework for 2022. Our objective statement for this process is to manage the harvest of horseshoe crabs in the Delaware Bay to maximize harvest, but also maintain ecosystem integrity and provide adequate stopover habitat for migrating shorebirds.

Within the ARM framework we have red knot and horseshoe crab population thresholds in the utility functions which dictate when female and male horseshoe crabs would have value to harvest. The model takes red knot and horseshoe crab abundance indices and looks at these relative to those thresholds within the optimization procedure, and select from one of five harvest packages, and eventually we make our annual harvest recommendations like we've been doing for several years now.

The five harvest packages range from a full moratorium to a maximum harvest of 420,000 males and 210,000 females. These also include 2 male-only harvest options. Since the inception of the ARM was approved for management use, we've been recommending harvest package 3 every year. The threshold in the ARM utility function.

For horseshoe crab we have a female utility threshold of 11.2 million females, and that equates

to a negotiated 80 percent of carrying capacity. For red knots the harvest of female crabs starts to have value once red knots hit 81,900 birds. This is based off of a mark/recapture estimate and peak aerial counts, you know going back in time is how we came up with this threshold.

Ultimately, there is value to female horseshoe crab harvest if the threshold is met. Moving on to our abundance estimates of red knots. You can see in the graph here that the blue line represents our stopover population estimate, which is based upon mark/recapture estimation procedures within Delaware Bay.

It's fluctuated, you know some variation through time, and some uncertainty on those estimates. The green line on this graph represents peak aerial survey counts that are observed each year from a plane flying over the beaches of Delaware Bay, and an observer looking out and counting the number of birds seen on the shoreline.

You can see there is more variability in the peak counts than there is in the mark/re-site population estimates. The 2021 estimates were slightly higher than the 2020 estimates, and the stopover duration for birds, so this is how long they would spend in Delaware Bay, was 10.3 days in 2021, which was slightly less than 10.7 days in 2020.

The total population estimate for 2021 was 42,271 birds, and this is below the threshold of 81,900 birds. Moving on to the horseshoe crab abundance. Horseshoe crab abundance, as it's set by the Virginia Tech Trawl Survey, and the trawl survey wasn't funded every year, so there is some incomplete data from the Virginia Tech Trawl Survey.

What we did during those years of missing data, they span from 2012 to 2015, was we used the Delaware 30 Foot Trawl and a New Jersey Ocean Trawl to come up with composite index and estimate, based on the overlapping years, what that ratio between these non-Virginia

Tech Trawls were to the Virginia Tech Trawl, to fill in that time series gap. The survey is conducted in the fall of 2020, so 2020 had an estimate, when we decrement that by a half year's natural mortality to put it onto the same timeline as when the bird population estimates are conducted.

In the end we end up with an estimate of 9.5 million females, which is under the 11.2 million female utility thresholds. Total population, we have 9.5 million females and 29.7 million males. When we put these values of abundance for male and female horseshoe crabs and red knots into our decision maker, it comes from the optimized ARM model. We recommend for 2022 harvest package number 3 again, and this will be 500,000 male harvest and 0 female harvest. Again, both red knots and horseshoe crabs were below their utility threshold, and therefore no female harvest is recommended at this time. When we take those harvest recommendations and put it into our allocation algorithm, this is the breakdown by state of how many males each state could harvest of Delaware Bay origin.

For Delaware and New Jersey, roughly 152,000, Maryland 141,000, and Virginia 34,000. Also, within this we recognize that not all crabs in Maryland and Virginia waters are of Delaware Bay origin, so we account for that, which allows a total quota for Maryland and Virginia to be a bit higher, so for Maryland almost 256,000 and for Virginia 81,000 male only. With that I'll take any questions on this year's allocation and recommendations.

CHAIR CIMINO: Thanks, John, let's open it up to the Board, Toni, please, if you have any hands.

MS. KERNS: There are no hands currently. I have now, David Borden.

CHAIR CIMINO: David, go ahead.

MR. DAVID V. BORDEN: A question, I don't know a lot about red knots, but the decline in red knots, are there other indices from other areas that comport with the same rate of decline that we've seen in the U.S.?

MR. SWEKA: There are other indices, or there are counts down in South America. I don't know the specifics of those off the top of my head. You know they have shown a decline. Over the course of, you know since we've been monitoring and the ARM has been in use for management, from 2011 through current times, our mark/re-site estimate of birds has remained very stable. Prior to that, Delaware Bay observed declines in those peak aerial counts. There are some counts in other places like South America that did show a decline.

MR. BORDEN: Thank you. I guess the only observation would be, Mr. Chairman, it might be useful at some point, and I may have suggested this in the past, to get a little bit of the data from the other survey indices from other areas, to get a broader picture on what's happening with the population, to see whether or not this is indicative of overall population decline or not.

CHAIR CIMINO: Yes, that is something, you know we certainly have folks involved in this process that could help us put that together, so that is something to take into consideration, to present to the Board at another time. Any other hands, Toni?

MS. KERNS: Conor McManus.

CHAIR CIMINO: Go ahead, Conor.

MR. CONOR McMANUS: I had just a quick question on the missing data-points. It sounds like to estimate those it was kind of a cross walk comparing other surveys from the region to data fill, and I guess I was curious if there was discussion of other tools, like a moving average or some type of random walk to estimate those from the actual trawl survey, as opposed to estimating them from others, which can obviously have issues, in terms of comparability, catchability, spatial temporal overlap, so I just was curious if you could speak to that a bit.

MR. SWEKA: I guess we didn't really consider other methods. You know we looked at the correlation between the New Jersey and Delaware trawls with the Virginia Tech Trawl, and used a linear mix to sex model to combine the surveys overall. You know we did see that that combined composite index did show a good correlation to the Virginia Tech Trawl over for when we had overlapping years of both time series.

Then we just used the straight up regression equation to fill in those data gaps. We didn't explore other models; you know such as you say like a random walk model. Hopefully, the Virginia Tech Survey continues to receive funding every year. Our hope is this won't ever be an issue again.

But if it is, at the same time, the Delaware Trawl and the New Jersey Ocean Trawl are also starting to collect additional information similar to the Virginia Tech Trawl, so sexing crabs and staging crabs, in terms of primiparous and multiparous. If, in the rare chance that the Virginia Tech Trawl Survey isn't funded again, I think we will have the necessary data from the other trawls to inform annual population estimates.

MR. McMANUS: Great, thank you.

MS. KERNS: You have no additional hands, Joe.

#### **SET 2022 HARVEST SPECIFICATIONS**

CHAIR CIMINO: John said something, we've been really for a few years now. Caitlin, do you want to go into the specifications?

MS. CAITLIN STARKS: Yes. The specifications can be set by the Board based on a recommendation from the Committee.

CHAIR CIMINO: Great, thanks. We've seen kind of a status quo suggestion here, so I'll open it up to the Board for a motion on this.

MS. KERNS: You have Mike Luisi.



MR. MICHAEL LUISI: Thanks, Mr. Chairman, I'm happy to make the motion. Do you have something already prepared that I can read? I'm trying to come up with it off the top of my head. There we go. **I move to select harvest package 3, 500,000 male crabs only for 2022 horseshoe crab bait harvest in Delaware Bay.**

CHAIR CIMINO: Thank you, Mike, and do we have a second to that?

MS. KERNS: We have Pat Geer.

CHAIR CIMINO: Very good, thanks, Pat. Is there any discussion amongst the Board on the motion?

MS. KERNS: No hands are raised.

CHAIR CIMINO: To be true to my word, I did say that I would open this up to the public if there were any questions or comments that they had.

MS. KERNS: Just a reminder to the public, your hand is raised when the hand icon button has the red arrow pointing down. I don't see any hands.

CHAIR CIMINO: Very good. Okay, so is there any objection to this motion by members of the Board?

MS. KERNS: I see no hands in objection.

**CHAIR CIMINO: Okay, the motion passes by consent, one more year of harvest package 3.**

**PROGRESS UPDATE ON REVISION TO THE  
ARM FRAMEWORK**

CHAIR CIMINO: Let me bring up my agenda here, and I believe that takes us back to John for the Progress Update on Revision to the ARM Framework

MR. GEER: Hey, Joe?

CHAIR CIMINO: Yes.

MR. GEER: On the screen we don't have who the second was on the last motion. We need to get that in there for the record.

CHAIR CIMINO: Yes, okay, very good, thank you.

MS. KERNS: Maya, it was Pat Geer.

CHAIR CIMINO: John, before you start, I just wanted to give my thanks to the ARM Subcommittee who have been putting in a tremendous amount of work on this. I really appreciate it, and I think it's continuing to move us forward, as we did with the 2019 assessment. If you want to go through the Progress Update on the Revision, thank you.

MR. SWEKA: Yes, this has been a work in progress now for coming up on two years now. I just wanted to give you a progress update very quickly on where we're at in the process. Just to show a timeline. We've redone models, put a draft report together. On October 4, we had a webinar amongst the entire ARM Subcommittee to review the draft report and the results.

This draft report has now been sent to the Delaware Bay TC, that was on October 13. This coming Monday on October 25, we will have a webinar with the Delaware Bay Ecosystem TC and the Horseshoe Crab TC to review the report. Between October 25th and mid-November, we'll have an opportunity to make any tweaks or changes to the report. It's going to be sent to the peer review panel. The peer review workshop is scheduled for November 16th to 18th. After that we'll have some December, January we'll have some time to make any changes that the peer review might recommend. Then it's anticipated that we will present the reports and our findings to the management board in January, at the winter board meeting in January. We are going to have a couple minority opinions, so if there is not management board objection, we will add a term of reference to the peer review terms of references, to address any of these minority reports. That's where we stand with the revision to the ARM.

CHAIR CIMINO: Okay, thanks, John. I think we all look forward to seeing this through peer review. You did have something there for us, so I'll open it up to the Board for questions, and any comments on the TOR that John is suggesting, which is certainly not uncommon. But we thought it would be good to have it specifically spelled out as a TOR. Toni.

MS. KERNS: I have currently no hands. One hand, Mike Luisi.

CHAIR CIMINO: Go ahead.

MR. LUISI: John, regarding the minority report. My staff indicated to me that there might be some discussion about female harvest of horseshoe crabs. Is that what you're referring to, based on the minority report or can you get into any more detail about where that might go, as far as that term of reference?

MR. SWEKA: I hesitate to divulge too many details, because this hasn't gone through the Delaware Bay Ecosystem TC yet, and they haven't weighed in on the process. Also, it hasn't been peer reviewed. If you allow me to not specify any details that would be appreciated at this point in time.

MR. LUISI: That's totally fine, I just was wondering if there was any additional information you could provide. But I totally understand, that's fine, thanks.

MS. KERNS: There are no additional hands, Joe.

CHAIR CIMINO: Okay, well with that, and thank you once again, John. I appreciate that, and please pass on our thank you from the Board to the ARM group for all that hard work.

**CONSIDER FISHERY MANAGEMENT PLAN  
REVIEW AND STATE COMPLIANCE FOR THE  
2020 FISHING YEAR**

CHAIR CIMINO: We'll go to Caitlin for the FMP

Review and State Compliance for the 2020 Fishing Year.

MS. STARKS: I'll be going over the Horseshoe Crab FMP Review for the 2020 Fishing Year. Before I start, I do want to note that the draft FMP review document that went out in the supplemental materials to the Board has some numbers and information that need to be updated following this meeting, specifically the compliance report from Massachusetts was not available until earlier this week.

My presentation today will include those most up to date numbers, and I'll incorporate those into the document after that meeting. But just so folks are aware that there will be some discrepancies between the document and my presentation today. Okay, so I'll start off with a short and sweet review of the management history for horseshoe crab at the Commission. The FMP was originally approved in 1998, and then in 2000 Addendum I established the state quotas for bait harvest and de minimis criteria. In 2001 quota transfer provisions were established through Addendum II. Addendum III and Addendum IV established state quotas and seasons for the Delaware Bay Region, and then Addenda V and VI extended those provisions. Then in 2012, Addendum VII was approved, which established the current adaptive management resource framework for the Delaware Bay.

This figure is showing the annual values of reported horseshoe crab bait harvest, biomedical collections and estimated biomedical mortality in millions of crabs over the time series. As you can see, the bait harvest is lower in 2020 compared to 2019, while biomedical collections increased slightly compared to 2019.

For bait harvest in 2020, the total (breaking up) reported was 456,675 crabs, and that represents a 45 percent decrease from the 2019 landings, and approximately 20 percent of the Commission's coastwide quota for horseshoe crabs, which is 1.59 million pounds. The states of Massachusetts, Delaware, New York and Maryland made up for 90 percent of the total coastwide bait harvest when

combined, and each state harvested 36 percent, 27 percent, 14 percent and 13 percent of the total respectively.

It should be noted that the decline in landings observed in 2020 was likely a result of the COVID-19 pandemic, not necessarily due to declines in abundance. For biomedical in 2020, the number of crabs collected for the sole purpose of LAL production in the biomedical industry was just over 697,000 crabs.

This represents a 9 percent increase from the 2019 value, and the estimated mortality of biomedical only crabs was 106,339. As a reminder, this total is the sum of the number of observed mortalities plus 15 percent of the total crabs bled. The biomedical mortality represents about 19 percent of the total mortality in 2020, and that includes the bait harvest.

That total is about 563,000 crabs. Again, that total mortality number is a big decrease from 2019, considering the decrease to bait harvest. As you might expect, COVID-19 did have some impacts on state sampling in 2020. I just wanted to note that several state surveys were unable to be conducted, while others saw a significant reduction in sampling effort due to restrictions, as a result of the pandemic. Those are listed here and in the FMP review document.

For de minimis status, states can qualify if their combined average bait landings for the last two years are less than 1 percent of the coastwide bait landings for the same two-year period, and in 2020 South Carolina, Georgia and Florida requested and meet the criteria for de minimis status. New Jersey and Potomac River Fisheries Commission also meet the criteria, but did not request de minimis status.

These are some of the recommendations based on the PRTs review of the annual compliance reports. First, the PRT again is recommending the Commission continue to prioritize finding

long-term funding for the Virginia Trawl Survey. Again, this is a critical piece of information for our current management program. The PRT also recommends working towards getting annual estimates of horseshoe crab discard removals, and then lastly this is an item that has come up during the FMP review for a number of years, which is that the biomedical mortality threshold of 57,000 crabs has been exceeded. The FMP specifies that if this threshold is exceeded the Board is required to consider management action, and during the past few years when the Board has discussed this issue, the conversation has come back to the fact that we do not have scientific evidence that the biomedical mortality is affecting population status, and therefore action is not warranted.

In the 2019 assessment, a sensitivity analysis was run in which the total biomedical mortality for the coast was input into the catch multiple survey analysis models for the Delaware Bay stock, and the conclusion from that was that the biomedical mortality rate did not have an impact on stock status.

It's also worth reminding the Board that the threshold set in the FMP did not have a biological basis, but was based on biomedical mortality rates at the time. Given the biomedical mortality rate has continually exceeded this threshold in recent years, and that is likely to continue, and taking into account the advice from the assessment that says the recent levels have not likely had a negative impact on the stock.

I see the Board having two paths moving forward to address this. One is to do nothing, meaning the issue may present itself to the Board every year, and you'll have to keep discussing it annually as per the FMP. The other is to consider taking an action, and that action could be to consider modifying the threshold through an addendum, or otherwise change the FMP requirements to address this issue in some way.

Taking an action would also allow the Plan Development Team to put some work into analyzing options and coming up with recommendations for

how to address this issue, and on that note, I'll throw out just one thought, which is that if the ARM revision is peer reviewed and accepted by the Board early next year.

I do believe that would require an addendum to implement, so this could be another issue addressed in that same action. I know that was a chunk of information for the Board to digest, but I did want to give you all the opportunity to discuss this today. Then last slide here, with regard to state compliance.

The PRT found that with the exception of those surveys that were impacted by the COVID-19 pandemic, as well as a few late compliance reports, all states and jurisdictions appear to be in compliance with the requirements of the FMP, and they recommended approval of the state compliance reports, de minimis request, and the FMP review for the 2020 fishing year. That's all I have, Mr. Chair, I can take any questions.

CHAIR CIMINO: Great, Caitlin, thank you. That was very well laid out, very thorough report and recommendations from the Plan Review Team, as always. That was a lot, and like I said, I think Caitlin laid it out very well. Toni, do we have any hands, questions from the Board?

MS. KERNS: You have three hands, Roy Miller, John Clark and Mike Millard.

CHAIR CIMINO: Okay, in that order, go ahead, Roy.

MR. ROY W. MILLER: Caitlin, thank you for that report. Are you able to bring up a graph showing the biomedical harvest over the years? Thank you. Now we concluded that the biomedical mortality does not affect stock status, at least for the 2020 work. I assume there will be further analysis of that in the future, and the ARM group or the Delaware Bay Ecosystem Group.

MS. STARKS: If I could reply, Mr. Chair.

CHAIR CIMINO: Yes, please, Caitlin, for all of these questions, go ahead.

MS. STARKS: Correct. The 2019 assessment looked only at the Delaware Bay Region, because that's the only region we have a population model for. What it looked at was if you were to assume that all of the biomedical mortality comes from the Delaware Bay Region, if that is having an impact on the stock status.

The answer that they concluded was no, it doesn't appear to have an impact on the stock status. During the ARM revision there are considerations for biomedical mortality numbers to be included in the model, so that is work that is going into the revision and would be addressed, if that revision is approved on an annual basis. Does that answer your question, Roy?

MR. MILLER: Yes, thank you, Caitlin. Anyone can look at that graph and wonder if the biomedical collection is having a dampening effect, but it would only be speculation. I'll have to go with the conclusions of the PDT, concerning the annual report. Thank you.

CHAIR CIMINO: I believe John Clark was next.

MR. JOHN CLARK: My question kind of follows up on Roy's. If you could just refresh our memories as to why the threshold for biomedical mortality was set at 57,000, and you mentioned that it's been exceeded regularly for years. I know certain actions have been talked about, but nothing has been done. When was it set and why was it set at 57,000?

MS. STARKS: Thanks, John, I believe that it was set in the original FMP, if not a very early addendum. It's been exceeded for 13 of the past 14 years. It's not completely explicit in what I could find, but it seems that the number was based on what the biomedical mortality rates were at the time with the data they had available.

MR. CLARK: Thanks, Caitlin, I mean obviously it just seems like the Board will have to do something here, because it does seem very odd that we're

putting all these limits on commercial harvest, and yet biomedical is passing this threshold every 13 out of 14 years. Thank you.

CHAIR CIMINO: It's certainly been a concern of mine, and I think again, Caitlin kind of talked about a couple ways that we could deal with this. The fact that with a revised ARM model we might be starting an addendum process, once we get past peer review. I think that's something for the Board to consider. I know we have one more hand at least, and that's Mike Millard, so Mike.

MS. KERNS: I just wanted to let you know, Joe, you have two more hands, David Borden and Dan McKiernan. But I just want to make sure that everybody remembers when they read this graph that the biomedical collection is higher than this harvest, but biomedical mortality associated with those collections is significantly lower than mortality associated with bait harvest.

CHAIR CIMINO: Well said, Toni, thank you. Go ahead, Mike.

MR. MIKE MILLARD: Thank you Caitlin for that report. I especially appreciated your vision about how to possibly treat the biomedical issue. As people have already said, we've kind of looked the other way. We've exceeded it every year now for, I don't know 15 years or something and we've looked the other way.

But if the trend continues, not only are we exceeding it, we're essentially going to be doubling it. That has never set well with me that we just kind of look the other way, so I hope that we can address that one way or another in the near future. My question is, and perhaps either for you, Caitlin, or for John.

As we ponder that biomedical mortality, it makes sense to also think about the other non-directed mortality, the bycatch and incidental mortality in the other gear. I see a comment in this PRT plan review document that says that

bycatch is significant. I believe in the 2019 stock assessment, bycatch was documented, but that was just for Delaware Bay, I think.

My question is, are we looking at or considering bycatch up and down the coast? I guess I would like to hear John's reaction maybe. How do we put this biomedical mortality in context with all these other non-directed mortalities, when we say that it doesn't affect the stock? I would like to hear more about that.

MR. SWEKA: This is John, if I may, Mr. Chair.

CHAIR CIMINO: Yes, please.

MR. SWEKA: Okay, Mike, I mean this is obviously a good question, and something that comes up every board meeting, you know putting these other sources of mortality in perspective. As far as the bycatch is dead discards from other fisheries. You are correct in that we've only, in the 2019 assessment and currently in the ARM revision that we're going through right now.

We've only assessed and quantified dead discards for Delaware Bay. It probably is possible to do this for other areas along the coast, it just hasn't been done yet, because we didn't have a stock assessment model in those other areas that required that information as input. But as Caitlin said, you know one of the best ways to put everything in perspective is through our catch multiple survey analysis model that we're running for Delaware Bay, because all sources of mortality are included in that, you know natural mortality, bait, biomedical, and dead discards.

We obviously can continue running that to put things in perspective and parse out what portion of total mortality, at least within the Delaware Bay area comes from each one of those sources. In terms of putting things into perspective. Well, I guess, back to just one more thing on the discards. Something to note is that the discards of horseshoe crab have probably gone up because of our management. That is because we have a prohibition on the harvest of females in the

Delaware Bay area. When a commercial vessel pulls up a female horseshoe crab, they have to put it back, so it is basically discards.

Granted, some of those may succumb to mortality based on the fishing gear that was used. But to also put the biomedical mortality into perspective. You know during my presentation I presented that for 2020 we had 9.5 million females and 29.7 million males, so that's a total of 39.2 million crabs within the Delaware Bay area.

If we assume a worst-case scenario that all coastwide biomedical mortality came from Delaware Bay, now obviously it doesn't, because we have bleeding facilities in the Northeast and then also in the Southeast. But if you just consider that, for example that all of those biomedically-bled crabs that die came from Delaware Bay. You know, that really represents only 0.3 percent of the Delaware Bay population.

When you put that into perspective with the natural mortality associated with crabs in Delaware Bay, which is 26 percent annually that die from natural causes. You know the biomedical mortality is a very, very small proportion, and it would be very difficult for us to even really quantify an impact that that might have on the population, just given the natural variation and natural mortality. Does that answer your question?

MR. MILLARD: Yes, thanks, John.

CHAIR CIMINO: Thanks, John, I think it answers another question and it's why have we not taken action through all these years. But it does speak to, then do we have an appropriate threshold, of course. That is a question that doesn't need to necessarily be answered today, but it certainly sounds like there is a will from many Board members to at least further that discussion at some point. I know we have a few more hands, so I think David Borden was next.

MR. BORDEN: Yes, thanks, Mr. Chairman. My comment kind of follows up on John Clark's comment. I recognize that the biomedical harvest is low, but it kind of begs the question, are their handlings techniques or other methodologies we could use with that mortality sector, to kind of lessen the impacts, and if there are or if there are not, that is one thing.

But, if the technical folks could give us some recommendations on that sector we could then explore with the biomedical people to try to lessen the impact, it helps. Everything helps. We're trying to lower mortality on crabs, and we can't turn a blind eye to just one section of the mortality.

CHAIR CIMINO: Thank you, David. Dan.

MR. DANIEL MCKIERNAN: To just give a brief response to David Borden's comment. Massachusetts does have a biomedical firm in the state, and we do permit the company with a lot of permit conditions that have to do with maximum time that they can handle them, temperature that they're holding them, things like that to try to minimize the incidental mortality from the processing of the lysate. But the reason I raised my hand, and I know I brought this up last year. I'm going to make this a more urgent request. I would really like the Technical Committee or the Plan Review Team to stop presenting the years 1998, '99, and 2000, and maybe 2001 in the annual total harvest estimates. I believe that those years may not be accurate.

I know that data collection methods evolved, and they are much, much better today. In fact, our program really came into its own around, of course we all have to be counting crabs, but you know when the quotas were kicked in. But some of those numbers in '98, '99, or 2000, I know because I was around then.

Some of those were estimates that weren't reliable enough for us to even continue to manage our quota. We have a 330,000-crab quota under the interstate plan, but as a state we limit our harvest to 165,000, half of that, because we believe that

some of those early numbers were inaccurate. I just don't think that those numbers have the same quality, in terms of precision or accuracy.

I see this graph and it appears that there was an awful lot of bait harvest back in the late '90s and in 2000, and that you can see the management plan kick in. I agree the management plan has been effective at controlling harvest, but I don't think those early numbers are accurate. I would ask for next year's report.

If the PRT Or the Technical Committee could just weigh in on that, and maybe not show the trends during this time period, like cut those years off. I don't think they are meaningful. We obviously have no biomedical collection data in those years. Then we can move on to the years that we've been actively managing this fishery. Thanks.

CHAIR CIMINO: I guess Toni, you can correct me if I'm wrong, but I don't think we necessarily need a motion to task the PRT to consider that.

MS. KERNS: No, we don't need a motion, you can do it by consensus. But before we make the promise, if we could just say that we would let the PRT evaluate that, and see how it impacts the information we're giving you.

MR. McKIERNAN: Yes, that's all I'm asking for, an evaluation.

CHAIR CIMINO: Okay, I think that's fair. Of course, if anyone has any objections to that please raise your hand.

MS. KERNS: We have Chris Wright with his hand up, and David, I don't know if your hand is left over or not.

MR. BORDEN: It's up again, quick point.

CHAIR CIMINO: To that, David is it to Dan's suggestion?

MR. BORDEN: Mr. Chairman, you are a little broken up, are you calling on me?

CHAIR CIMINO: Oh, sorry. I was asking if your quick comment was to Dan's suggestion or it was another point entirely.

MR. BORDEN: Yes, I'm supportive of what Dan suggested, but I appreciate his response to my question, so once again it begs a question. Do all states require the additional restrictions and handling techniques that Mass does, and if they don't, then I think it would be useful to have a technical group review the Massachusetts requirements, and see whether or not we should make it a plan condition, or some variation of that plan condition. If we're going to get technical people together on one issue they could review that other issue, I think that would be informative.

CHAIR CIMINO: Sure, yes. I know there are best management practices throughout, but whether or not those are permit requirements I think is something, like you said. It would be useful to have a report in the near future on an important item. That's fair, thanks, Dave. Chris, go ahead.

MR. CHRIS WRIGHT: Yes, I just wanted to follow on of Mike's comments, in regards to the dead discards in the bycatch. At the last stock assessment that was the one thing that the Peer Review Folks noted, that that was the most important aspect, in regards to mortality that is not being necessarily addressed or accounted for.

If we're going to be looking at like threshold for the biomedical, which I think does need to be looked at. But it's not necessarily in my mind worrisome, it's more like it's an optics issue. Because the biomedical use is a valid use, it's just that we have to allocate those resources and account for them, and right now we're not really accounting for them correctly.

But I think the dead discards from the other fisheries need to be accounted for, and if I recall correctly, and John or any of the other tech folks from the TC can correct me. But I believe that it

was almost, it was estimated by the peer reviewers to be almost as high as the harvest, the direct harvest.

That is a little bit more concerning to me than the biomedical, which is much less significant. But I think we need to have the TC and the ARM address those things, so that we can just have proper accounting, because right now the optics look like biomedical is harming the stock and it's not. But we need to address that threshold, because it's not necessarily realistic with what's happening currently.

CHAIR CIMINO: All good points, yes thank you, and those were concerns of mine as well, as we went through the peer review presentation for management use. That went for all stocks, not just Delaware Bay. I know that the Stock Assessment Subcommittee did a tremendous amount of work trying to find all available data on the issue. I think it might lead more towards future research recommendations on being able to collect more information on this, so that they have something, new numbers to use in the future. Toni, any other hands?

DR. KRISTEN ANSTEAD: Mr. Chair, can I chime in on the dead discards?

CHAIR CIMINO: Yes, of course, go ahead.

DR. ANSTEAD: I figured the dead discard estimates for the benchmark and, at that time the Peer Review Panel made some great recommendations about how to improve those estimates because it was sort of our first shot at it. We have taken a lot of those recommendations for the ARM revision.

But as you all noted, that is just for the Delaware Bay. I just wanted to manage expectations, because these discard estimates are from the Northeast Fisheries Science Center's Observer Program, and that program does operate from Maine to North Carolina. It doesn't operate coastwide, as far as our horseshoe crab population is concerned.

While estimates could be made for sort of more of the coast, it will be potentially more challenging. That's not to say that we can't look into it on an annual basis, particularly if the ARM model passes Committee review and Peer Review. I'll be asking for that data every year, to support the ARM Framework, and I can get it from the entirety of the coast where that program operates.

But, we did look into that during the benchmark and it was challenging because it is a modeled approach, it's a ratio estimator. The Observer Program isn't necessarily designed for horseshoe crab, you know it's a federal program for federally permitted boats, and some of the states just didn't have the data to support those ratio estimators, and there were a lot of kind of modeling problem. It is certainly something we can look at in the future, but I think we should manage expectations about trying to do those coastwide on an annual basis, if that's possible.

CHAIR CIMINO: It's very helpful, Kristen, and I apologize. I forgot to mention to the Board that we had Dr. Anstead waiting in the virtual wings if we needed some assistance. With that, Toni, do we have any other hands?

MS. KERNS: We do. We have Rob LaFrance, Roy Miller, Craig Pugh, and then you have a member of the public.

CHAIR CIMINO: Okay that's fair. Let's start with Rob, go ahead.

MR. ROB LaFRANCE: I just wanted to be supportive of what David Borden was saying. I do think it's important that we look at what Massachusetts is doing, in terms of best practices, and take a look at how to improve the number of crabs that might die as a result of the activity that happens from that, and see what we can do to help reduce on the margin that mortality. I would also suggest that that analysis might be helpful in really making certain that we really, truly understand whether or not that 15 percent mortality rate is accurate. I just want to be supportive of David, and thank you for the time.



CHAIR CIMINO: Again, I think some of this has been covered in the past, including the fact that they do model other mortality estimates. But it is certainly something important to revisit. Sorry, Toni, I think Roy was next in line.

MS. KERNS: I can't remember if I said Roy or Craig first, but they are both in line.

CHAIR CIMINO: Okay, well how about this. We've heard from Roy, so why don't we let Craig go first and then we'll go to Roy, so go ahead, Craig.

MR. CRAIG D. PUGH: My comment or question is in the ever changing commercial fishery that I've been involved in with the state of Delaware. Our horseshoe crab fishery has changed extensively in the last 10 to 12 years. Almost all of our quota has been hand collected with little mortality whatsoever.

Years ago, 25 years ago, the dredge fishery, and there would have been a fair amount of mortality that went along with that. But in most recent years, almost all of our quota has been collected by hand, and then transported out either by truck or trailer to the markets, leaving very, very little mortality, so this is a pretty big change in the mortality statistics, I would expect.

CHAIR CIMINO: That's a great point, Craig, because you know we are talking about doing our best to make those estimates current, and future needs. But I guess in assessing stock dynamics it would be important to look back at the differences, or at least potential discard estimate differences, considering how fisheries have changed. Great point, thank you. Roy, go ahead.

MR. MILLER: I was just going to add. I think Dan's suggestion of the PDT taking another look at the early years of the bait estimates that you see on this graph that's before us. That is a good suggestion. But I would remind the Board that the reason we started this horseshoe crab

management plan in 1998, there were some pretty alarming numbers, in terms of harvest, back in the 1990s. That's how we embarked on this FMP process to begin with.

I wouldn't be too quick to prejudge those early numbers that you see in this graph as inflated, until a more thorough examination of the records from back then is done, including whatever information was anecdotal at the time. Let's not jump to too many conclusions yet, pending the further analysis.

CHAIR CIMINO: Sure, fair point, thanks, Roy. Toni, you said a member of members of the public?

MS. KERNS: We have one more commissioner, Emerson Hasbrouck, and then you have Allen Burgenson and Brett Hoffmeister.

CHAIR CIMINO: Yes, okay, Emerson.

MR. EMERSON C. HASBROUCK: I do not have any questions, but when you're ready, Mr. Chairman, I've got two motions to make.

CHAIR CIMINO: Okay, that sounds fair. In that case then we'll take it out to the public. Toni, you said, I'm sorry, it was Allison?

MS. KERNS: First was Allen Burgenson.

CHAIR CIMINO: Sorry, go ahead, Allen.

MR. ALLEN BURGENSEN: I would like to point out, to answer an earlier question regarding best management practices. The biomedical industry, the ASMFC, the state and a couple federal agencies all got together in October of 2011, and laid out the best management practices that we all adhere to. We've all incorporated them into our operating procedures, and we audit our fishermen, and it's followed up with the people who go out on the boats to watch.

We do adhere to the best management practices, and if I could address the 15 percent. That number has long been disputed, because it was set using methods that in no way represent the procedures

of the biomedical industry. It's set artificially high for planning purposes, but it's a worse case, but it's not the real case, and that's it.

CHAIR CIMINO: Thanks, Allen, we appreciate the perspective. I do think there was another element of that request that I still would like to have reported out to the Board, and that's just kind of where it falls from state to state on permit requirements regarding all this. But I appreciate that, and go ahead, Brett.

MR. BRETT HOFFMEISTER: For the record, my name is Brett Hoffmeister, LEL Production Manager and Associates, Cape Cod. I also serve on the Advisory Panel. Two quick comments, first regarding the 57,000-threshold for biomedical. You know when you look at the overall quotas, coastwide quota for horseshoe crab bait is about 1.5 million.

That is reduced down to about 1 million crabs coastwide by the states themselves, and that includes states that don't include any harvest whatsoever. You're looking at the total mortality of the biomedical and Bay combined, and that's well, well below these thresholds. When the question of whether or not the Board needs to take action on the biomedical threshold, I think that that is something that in the past has been taken into consideration.

I mean we're not even approaching the thresholds or quotas for bait, so when you roll in the biomedical, it's clearly not something to be overly concerned about. Second comment, very quickly would be regarding the biomedical mortality. Again, a lot of comments and questions surrounding that. The one thing I would point out was that the most recent published paper in 2020 by U.S. Geological Service and the Fish and Wildlife Service, I think Dr. Smith worked on that, did look at biomedically-bled crabs.

There was about 78,000, 75-78,000 crabs that were bled by biomedical companies in the Delaware Bay Region that were tagged and

analyzed over years, and that mortality was better than the controls in some cases. You know to Allen's point, the mortality that we have estimated or you have estimated for the purposes of management at 15 percent is high, assuming some worse case scenarios. The actual mortality is demonstrated by at least one large scale study, significantly lower. Very low in contrast to some of these other studies, where you know they did not even remotely follow the practices of the biomedical companies. It's suggested for the future that that may be something that they included, or at least considered in future biomedical estimates. That's all, and I appreciate the time, thank you.

CHAIR CIMINO: Yes, and thank you. I am sure that the group working on it at every benchmark will continue to evaluate that. Toni, we know that Emerson is waiting with a couple of motions, and I appreciate hearing that, Emerson, because I think that this would require two potential motions if we're interested in taking action on the threshold. But are there any other hands, Toni?

MS. KERNS: No other hands, I think you're ready for Emerson.

CHAIR CIMINO: Sounds good, go ahead, Emerson.

MR. HASBROUCK: My first motion would be to accept the FMP Review, so does staff have a motion prepared for that? **Yes, move to approve the FMP Review for the 2020 fishing year, state compliance reports and de minimis status for South Carolina, Georgia and Florida.**

CHAIR CIMINO: That's great, thanks. If we could get a second to that, and Emerson, if you don't mind. I think this is going to be pretty easy, so I would like to dispatch this entirely before we move to your second. Do we have a second, Toni?

MS. KERNS: David Borden.

CHAIR CIMINO: Great, thanks, David. We have a motion and a second, is there any discussion on this?

MS. KERNS: No hands.

CHAIR CIMINO: Okay, I kind of had a feeling. **A show of hands if there are any objections to this, if not we can approve this by consent.**

**MS. KERNS: I see no hands in objection.**

CHAIR CIMINO: Sounds great, back to you, Emerson.

MR. HASBROUCK: I'm just doing this next motion on the fly here, so I'm open to edits and suggestions on it. **Move to initiate and addendum to review the threshold for biomedical use to develop biological based options for setting the threshold, and to develop options for action for when this threshold is exceeded. Also, in the addendum to review best management practices for handling biomedical catch, and suggest options for updating and/or implementing these best management practices.**

MS. MAYA DRZEWICKI: Can you just repeat that last section of the sentence?

MR. HASBROUCK: Yes, like I said, I was doing this on the fly. Best management practices for handling biomedical catch and suggest options for updating and implementing BMPs, and implementing BMPs, best management, yes.

CHAIR CIMINO: Take a look, Emerson, do you think the wording is what you were hoping for.

MS. STARKS: Maya, I believe the word settle should be develop, in the third line.

MS. KERNS: Hold on one second, Joe. Maya, instead of and to develop options for action, right, Caitlin?

**MS. STARKS: It should be to develop biological based options for the threshold, and to develop options for actions when the threshold is exceeded.**

MS. KERNS: Thanks, Maya.

MR. HASBROUCK: That looks okay, again I'm open for edits and suggestions here, because I did this on the fly.

MS. KERNS: Before I give you a hand that was maybe up for a second, Joe, can I just ask Emerson if his intention for something? Caitlin had mentioned that we'll get the ARM model review and peer review, hopefully at the winter meeting. There potentially could be some management action following that review.

Emerson, is your intention to wait until after we have that peer review? Could we have, instead of initiate an addendum, have the Plan Review Team or Plan Development Team, either one, review the information and bring it back to you all before you decide if you're going to start the addendum? I just was hoping we could have an addendum that was potentially on one track.

MR. HASBROUCK: That's fine with me, Toni, if you think that's a better process. I just don't want to in a way ignore the fact that we have a threshold that we continue to ignore when we exceed it. If you think it is better to have this reviewed, and then circle back to it in our winter meeting, I'm fine with that. But I just wanted to initiate an action right now, whatever is most appropriate to start to move this forward.

CHAIR CIMINO: I appreciate that, Emerson, and to Toni's point. I was kind of hoping that we could do this all-in-one time. Again, we let this roll along for quite some time, and we should have the peer reviewed revised ARM at our next meeting, and that will begin an addendum process. It would be great if we could roll this in. I don't see this going away, since I think the threshold needs to be revisited. With that in mind, and the wording to that timing is a little complex. I guess, Toni, do we need to correct or should I look for a second with an understanding on the record of the intent?

MS. KERNS: I think it would be great to correct, and instead of saying initiate an addendum, we would

just in the two places where it says addendum, just say move to have the Plan Development Team review, also have the PDT review.

MR. HASBROUCK: Yes, I'm fine with that. For the justification, I'll give it now. You know we shouldn't have a threshold that we continue to ignore. It seems that the threshold has no biological basis, and then we also have no basis to ignore it. I think we need to have a more solid development of this threshold, and then have a better reason for us to either ignore it or initiate some action. I don't think we should just keep going along from year to year saying, okay it's been exceeded but it doesn't mean anything, so we'll ignore it.

CHAIR CIMINO: Sure, understood. Do we have a second to Emerson's motion?

MS. KERNS: David Borden has his hand up. I just want to make sure that he is seconding. David, are you seconding?

MR. BORDEN: Yes, but I would like to comment on this.

CHAIR CIMINO: Yes, go ahead, David.

MR. BORDEN: My suggestion is I'm totally supportive of what Emerson is attempting to accomplish. I think he's 100 percent right. I don't think we need a motion. I think if we just took out move to have the PDT, or change that to task the PDT, so it would be a directive. As Toni suggested it would go to the groups.

It would be reviewed, and then it would come back to us, and I think we would be in a better position to actually decide on whether or not we want to initiate an addendum, or what path we want to follow at that point. We would be better informed. If Emerson were willing to make that editorial change, I think we can dispense with the motion.

MR. HASBROUCK: Yes, I'm fine with that, but I don't know, do we need a motion though to task the PDT to do something?

MS. KERNS: Mr. Chair, you have a motion on the table now, so I think if you just wanted to vote on it, it would be the cleanest, now that you have a motion on the table with a second.

CHAIR CIMINO: I appreciate the review, Toni, and also, I think it might be good to have a discussion on the motion. Yes, it sounded like there is a lot of support, but we do have a motion, as Toni mentioned. We have a second, so hands for any discussions or thoughts on the motion.

MS, KERNS: We have Roy Miller.

CHAIR CIMINO: Go ahead, Roy.

MR. MILLER: Thank you, Joe. I just wonder if the Plan Development Team is the best body to review best management practices for handling biomedical catch. I confess I don't recall who is on the PDT exactly, but they may need outside expertise from the biomedical industry, in order to review best management practices.

CHAIR CIMINO: As we had a couple industry members today mentioned that those BMPs are out there, they are updated, and being used currently. I think that information would be available to a Plan Development Team, and Toni, I don't know if we have a current Development Team sitting, or if this is something that needs to be created after we move forward.

MS. KERNS: Joe, you are correct. We would create a PDT and we'll get the (fade) best, we might even create two different ones. Caitlin and I will talk about it, and figure out if we need to have some people doing the BMPs, and other folks reviewing the threshold. We'll determine that after the meeting, and then send an e-mail out to the Board for nominations.

CHAIR CIMINO: Very good, thank you, any other hands?

MS. KERNS: We have Dan McKiernan, and Maya, can you just say move to task the PDT? Then Chris Wright, followed by Dan, I mean Dan followed by Chris.

CHAIR CIMINO: Now you're saying Chris had his hand up first, go ahead, Chris.

MR. WRIGHT: I just had a question. I'm in support of analyzing, then the motion of getting to what the threshold is. But I guess with the PDT, are they going to have enough information to come up with some kind of recommendations back to the Board? Because one of the things that has happened since the COVID pandemic is, I believe that the demand for the product from that biomedical harvesting has increased. I believe that's why we're seeing an increase in that threshold being exceeded the last couple years.

But if there is a demand there then it turns into an allocation type of situation, where if there is a use that is being used for biomedical and it's a valid use, we need to account for that in the Board, and balance that with the bait fishery and all the other things, bycatch and what have you. I'm just wondering, is the PDT going to have enough information on what's currently happening with that biomedical, I guess use, so that we can actually come up with some kind of recommendations for the Board.

CHAIR CIMINO: You know without having a team together or having started the process, I'm not sure anyone wants to be put on the spot to attempt to have (faded).

MS. KERNS: I think, Joe, we'll just figure that out once we have the team together. We'll compile the information that we have available to us, and then they will be able to look at what they have and provide information back to the Board.

CHAIR CIMINO: I think that's fair, Toni. As Board Chair, I do know the industry has put out some statements regarding the need for the

product during the pandemic. I think information is out there. Let's go to Dan.

MR. MCKIERNAN: I'm going to vote against this motion. I agree with the previous speaker that ultimately it becomes an allocation challenge. We've seen in the graphs that the bait harvest appears to have dropped off in the last few years. It's been mentioned that the demand for crabs to be used for biomedical uses has increased. I don't think it's possible for the PDT to establish a biologically based threshold. This was discretionary when the Board enacted it two decades ago, trying to, I think, capture things as they were. Clearly, we've exceeded that, but I don't think, at many local levels there hasn't been impacts on stocks, especially up our way in the Mass/Rhode Island area. I wasn't expecting this to be dealt with at today's meeting. I think it's a little rushed. I would recommend the Board take this up in a more substantive way, maybe in February. I think it's premature.

CHAIR CIMINO: I think that although one thing that would be initiated from this motion today would probably be getting together one or two plan development teams. But other than that, I think a lot of this will be following our peer review. But those are all good points, and I don't know that everyone was thinking along the lines of there is potential discussion that needs to happen on allocation for the competing uses here. Any other hands, Toni?

MS. KERNS: I have no additional hands.

CHAIR CIMINO: With that, we have ten minutes left. Dan and others might have not been expecting this, so I'm going to give two minutes for caucus. I in fact have to get together with my delegation on this as well. Let's get that started and then I'll call the question. Okay, hopefully that was enough time for everyone. I'll give a second or two. Throw up your hand if you do need another minute, if not I would like to call the question.

MS. KERNS: Joe, I don't see anyone with their hands raised. Do you mind reading the motion, since we altered it?

CHAIR CIMINO: Not at all, I would be happy to do that. We know there are some objections, so I will be looking for a true vote on this. The motion is: Move to task the PDT to review the threshold for biomedical use to develop biological based options for the threshold, and to develop options for action when the threshold is exceeded.

Also task the PDT to review best management practices for handling biomedical catch, and suggest options for updating and implementing BMPs. That motion was made by Mr. Hasbrouck and seconded by Mr. Borden. We have a motion in front of us, can I see a show of hands of all those in favor.

MS. KERNS: I'm just going to let the hands settle for one second. I have NOAA Fisheries, Florida, Rhode Island, New York, Connecticut, Georgia, New Jersey, South Carolina, Delaware, North Carolina, PRFC, Fish and Wildlife Service. I think that's everyone.

MR. LUISI: Hey Toni, this is Mike Luisi. I had my hand up, but I didn't hear Maryland.

MS. KERNS: Put Maryland in there, sorry, thanks, Mike.

MR. LUISI: Okay, no problem.

MS. KERNS: When hands go up late, the order changes and sometimes I miss folks, it's why I call you all out. I put the hands down, Joe, I'm ready for the noes.

CHAIR CIMINO: Very good. All those opposed to this motion, please raise your hand.

MS. KERNS: I have Virginia, and that is all.

CHAIR CIMINO: Thank you, any null votes?

MS. KERNS: N-U-L-L, is that what you asked?

MR. McKIERNAN: Toni, how did you have Massachusetts?

MS. KERNS: I don't have a vote for you yet.

MR. McKIERNAN: We're voting against.

MS. KERNS: Against, okay, in the record, Massachusetts with a no, as well as Virginia, so that is two noes. I had no null, N-U-L-L.

CHAIR CIMINO: Thank you, Toni, and I don't think we have any, but any abstentions to the motion?

MS. KERNS: I have zero abstentions.

**MS. STARKS: That's 13 in favor and 2 against, Mr. Chair.**

CHAIR CIMINO: Very good, we'll put that up. Okay, so Toni, I guess we'll be expecting some e-mails from you on putting together a new or two new plan development teams.

MS. KERNS: Caitlin will be sending them out.

CHAIR CIMINO: Great, thank you both.

#### **ELECTION OF VICE-CHAIR**

CHAIR CIMINO: We have another agenda item that we need a motion on, and that is election of a Vice-Chair. Do we have any hands for a nomination?

MS. KERNS: I have Mike Luisi.

CHAIR CIMINO: Great, go ahead, Mike.

**MR. LUISI: I would like to take this opportunity to move to nominate my friend and colleague from the state of Delaware, Mr. John Clark as Vice-Chair to the Horseshoe Crab Management Board.**

CHAIR CIMINO: Very good, could I get a second?

MS. KERNS: Marty Gary.

CHAIR CIMINO: Excellent, thanks, Marty, and somewhere Stew is chuckling. Are there any objections to this motion?

(Whereupon the meeting adjourned at 10:00 a.m. on October 21, 2020.)

MS. KERNS: No hands.

**CHAIR CIMINO: Great, thanks, John, I appreciate you serving. This is an excellent crowd to work with, I promise you.**

MR. CLARK: Thanks, Joe.

CHAIR CIMINO: Yes.

MS. KERNS: Just really quick, can you just say that both of the last two motions passed?

CHAIR CIMINO: Yes, of course, sorry, Toni.

MS. KERNS: Technicalities.

**CHAIR CIMINO: Very good, so this motion passes by consent and our last motion passed. I believe it was a count of 13 to 2. We did not have any other additions to the agenda, but is there any other business?**

MS. KERNS: I have no hands.

#### **ADJOURNMENT**

CHAIR CIMINO: Great. Well, Chris, I apologize. I thought I was going to give folks time to get some coffee before spiny dogfish started, but it looks like we came right up to it, so can I have a motion to adjourn, please?

MS. KERNS: Motion by Mel Bell.

CHAIR CIMINO: Thank you, Mel, and a second?

MS. KERNS: John Clark.

CHAIR CIMINO: Wonderful, I'm not allowing objections, we'll move to adjourn, thank you so much, everybody.