

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

The King & Prince Beach and Golf Resort
St. Simons Island, Georgia
October 31, 2013

Approved February 6, 2014

TABLE OF CONTENTS

Call to Order, Chairman James J. Gilmore, Jr 1

Approval of Agenda..... 1

Approval of Proceedings, May 2013 1

Public Comment..... 1

2013 Stock Assessment Update 1

Horseshoe Crab Technical Committee Report..... 10

Delaware Bay Ecosystem Technical Committee Reports:

 ARM Framework Harvest Output for 2014 14

 Shorebird and Horseshoe Crab Survey Report Summary 15

 Delaware Bay Egg Survey Review Report 16

Other Business 17

Adjournment 17

INDEX OF MOTIONS

1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of May, 2013** by Consent (Page 1).
3. **Move that the board accept the stock assessment update for management use with any changes or corrections that were made today** (Page 10). Motion by Pat Augustine; second by Jack Travelstead. Motion carried (Page 10)
4. **Motion to accept the 2014 ARM recommendations as presented today** (Page 15). **Motion by Pat Augustine; second by Roy Miller. Motion carried** (Page 15).
5. **Motion that the egg survey monitoring requirement for the states of Delaware and New Jersey be excluded as a compliance requirement beginning with 2014 spawning season** (Page 17). Motion by Stewart Michels; second by Pat Augustine. Motion carried (Page 18).
6. **Motion to adjourn, by Consent** (Page 18).

ATTENDANCE

Board Members

Dennis Abbott, NH, proxy for Sen. Watters (LA)	Bernie Pankowski, DE, proxy for Sen. Venables (LA)
Doug Grout, NH (AA)	Roy Miller, DE (GA)
G. Ritchie White, NH (GA)	Tom O'Connell, MD (AA)
Dan McKiernan, MA, proxy for P. Diodati (AA)	Bill Goldsborough, MD (GA)
Bill Adler, MA (GA)	Russell Dize, MD, proxy for Sen. Colburn (LA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Jack Travelstead, VA (AA)
Robert Ballou, RI (AA)	Robert Boyles, Jr., SC (AA)
Rep. Craig Miner, CT (LA)	Spud Woodward, GA (AA)
Sen. Phil Boyle, NY (LA)	Pat Geer, GA, proxy for Rep. Burns (LA)
James Gilmore, NY (AA)	James Estes, FL, proxy for J. McCawley (AA)
Pat Augustine, NY (GA)	Mike Millard, USFWS
Peter Himchak, NJ, proxy for D. Chanda (AA)	Steve Meyers, NMFS
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)	Martin Gary, PRFC
Stewart Michels, DE, proxy for D. Saveikis (AA)	

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

Ex-Officio Members

Staff

Robert Beal
Toni Kerns

Marin Hawk

Guests

Horseshoe Crab Management Board Meeting Proceedings October 2013

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Lanier Ballroom of The King and Prince Beach & Golf Resort, St. Simons Island, Georgia, October 31, 2013, and was called to order at 10:00 o'clock a.m. by Chairman James J. Gilmore, Jr.

CALL TO ORDER

CHAIRMAN JAMES J. GILMORE, JR.: My name is Jim Gilmore. I'm the administrative commissioner from New York. I'm actually vice-chair of the board but Dave Simpson had some conflict, so I'll be chairing the meeting today.

APPROVAL OF AGENDA

CHAIRMAN GILMORE: Let's go to the first agenda item. We have approval of the agenda. Are there any changes to the agenda? Seeing none; we'll take that as approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN GILMORE: The next item is the approval of proceedings from the May 2013 meeting. Are there any changes to the proceedings? Seeing none; we will consider those accepted.

PUBLIC COMMENT

CHAIRMAN GILMORE: Before each meeting we take public comment. From the huge crowd in the back of the room, I see there is no public comment so we'll move on from that.

2013 STOCK ASSESSMENT UPDATE

CHAIRMAN GILMORE: Item Number 4 is 2013 stock assessment update, which is an action item. We're going to have a presentation on the stock assessment report from Penny Howell.

MS. PENNY HOWELL: I'm actually presenting the work that was done by John Sweka and his team of people. I'm going to run through an update of the landings first and then the assessment follows that, and I'll try to be fairly brief. As you can see, the fishery has a long history of being a very small fishery of less than a million pounds and \$100,000 and a shorter history of being a much larger fishery, peaking at 7 million pounds and \$2 million.

You notice that since 2005 the dollars have increased faster than the pounds with the price per pound nearly doubling from 2005 to 2012, and that's something just to keep in mind as we proceed. The fishery also has a fairly brief regulatory history. Before 1998 when the

FMP was approved, the harvest in most states was unregulated.

Addendum I reduced the harvest from the reference period landings by 25 percent; followed by Addendum II and III which also reduced harvest quota, implemented season bay closures; followed by Addendum IV which further limited bait harvest in New Jersey and Delaware and delayed harvest in Maryland and Virginia; V and VI merely extended those provisions; followed by Addendum VII last spring that implemented the adaptive resource management, otherwise known as ARM, framework for fisheries in Delaware Bay.

The point of this is just to show that all of these restrictions have kept the landings of the bait fishery to a modest and fairly steady level. Based on tagging studies and harvest patterns for regional – well, they're not stocks, per se, but the four regional populations have been recognized. Historically and currently the largest is from Delaware Bay, which includes New Jersey through Virginia. This graph just shows 2000 through 2012 because that is the years when all of the states had reporting programs in place.

The next largest one is called New York, which actually is New York plus Connecticut; followed by New England, which is Rhode Island and the states further north; and the smallest, of course, is in the southeast; but collectively you can see that all of them have fallen well below the Addendum IV quota maximum.

Just briefly, this is kind of a messy slide, but the size trends from the fishery-dependent data sources, such as they are, show basically a steady size range being taken by the commercial bait fishery with the exception of Georgia and Maryland, which the sizes have dropped over a few years. We think that's probably because of an influx of younger, smaller animals rather than a loss of the larger ones.

Now to move on from the bait fishery to the biomedical use harvest, you can see that from 1998 – this is the exact same graph that I just showed you without the addenda added – but as the bait fishery has come down off a peak and stabilized, the biomedical fishery has substantially increased over the last few years. We only have data that go back to – well, reliable data that goes back to 2004.

Prior to that the thought is that the fishery – if you want to call it a fishery – the harvest biomedical use was much lower, so you can see that this is an upward trajectory. The biomedical use has doubled since 2004

Horseshoe Crab Management Board Meeting Proceedings October 2013

and now nearly equaling in terms of the number of crabs that they use to the bait harvest.

The concern here is that as the biomedical has increased from 10 or 15 percent to 35 percent of the total in 2004 all the way to 50, 52 and 49 percent in the last few years, that this fishery is not really addressed in the FMP for many very good reasons, but it is something that I think that all of you in this room need to be aware of, that the only thing in the FMP – the only reference to the biomedical harvest is, quote, if the horseshoe crab mortality associated with collecting, shipping, handling or using the biomedical industry exceeds 57,500 horseshoe crabs per year, the commission would re-evaluate potential restrictions on horseshoe crab harvest by the biomedical industry.

Now, I'm sure that nobody in this room is comfortable with that statement, but you should be aware that we've exceeded their 57,000 cap starting in 2007 and exceeding up to 2012 where it is 39 percent over its supposed mortality cap.

Just to digress for a minute, the mortality is determined by what the biomedical industry reports as dead horseshoe crabs when they arrive at their facilities plus those that are bled are assigned a 15 percent mortality based on a very nice study that Steve Doctor from Maryland did where they tagged bled animals and saw what their at least short-term mortality was. It is across the board 15 percent plus what they actually see as dead on arrival, and that's how those numbers are generated.

Moving on to the assessment, surplus production and catch survey models were not conducted as was done in 2009. This time the update needed to use – we felt we need to use the same data sets as the 2009 benchmark because this is just an update. In 2009 the biomedical harvest was not included because it was a bit problematic and it was felt that it was small enough at the time, but we feel now that this mortality source is increasing and an update would be inaccurate without it.

We also were running into confidentiality issues that prevent presentation of the biomedical harvest regionally, and we feel that we need to do a regional assessment in order to really get at what the status of this population is. That's what we didn't do. What we did do was analysis of fishery-independent survey trends using the autoregressive integrated moving average, abbreviated to the ARIMA Model.

Model fits were made to abundance estimates for each survey – and I'll show you the surveys in a minute – over their entire time series so it is essentially a

smoothing. A smooth is the large variance that are within many of the surveys due to changes in seasonal catchability methodology, because most of these surveys are not designed to target horseshoe crabs.

Briefly, we looked at 42 surveys. Ten of them were in the New England area from New Hampshire to Rhode Island. Note that the range in years of those surveys is relatively long; the longest being Rhode Island GSO/URI study that started in 1959. The New York Region, which includes Connecticut and New York, had six surveys. The Delaware Bay Area from New Jersey to Virginia plus the NEAMAP and offshore areas had 21. The southeast came in with five, from North Carolina to Florida plus the SEAMAP.

Those were relatively short duration; the longest one starting in 1993. There was a two-tiered assessment approach for comparison to two different reference points. The first step was to estimate the probability that the terminal index for a given survey was less than the reference point. The second step was to estimate the statistical level of confidence of that probability, that the probability was less than the reference point so that we could account for the uncertainty both in the index value and the reference points, because the reference points are somewhat arbitrary.

The procedure was to estimate the probability that either the 2011 or 2012 index was less than the reference point at 80 percent confidence level. Those surveys with probabilities greater than 50 percent – in other words, likely – and with normally distributed residuals were used to compare the reference points.

Those two steps knocked out some of those 42 surveys and some of those didn't make the cut. The two reference points that were used for comparison was a q25. In other words, figure out what the lowest quartile was for the given time series of fitted index values, and the question is was the 2011 or 2012 index in the lowest quartile.

The reference point was the 1998 fitted index value for that particular survey; because 1998 was the first year that harvest restrictions were implemented. The results were that you can see the left column shows the probability that an index is less than its own 1998 index. The right-hand column shows that the terminal index was less than its own – was in its own lowest quartile.

You can see that five out of six up in New England surveys that made the statistical cut were below their own 1998 index, and six out of seven were in their lowest quartile. In the New York Region, three out of

five were below '98 and one out of five were in the lowest quartile, so they're doing a little better.

Then in Delaware Bay four out of eleven were below '98 and two out of six were in their own lowest quartile. To the southeast, none were below the '98 or in the lowest quartile. For coastwide the total is about half of the surveys were considered statistically valid, were below their 1998 level; and nine out of 33 or a little less than a third were in their lowest quartile, but the large majority of those showing declines are all in the New England area.

Now, just for comparison the current update – I am just going to bring down those exact numbers, and now I'm comparing it to the same surveys as they were done in 2009 just to see how we've progressed or not since 2009. You can see that New England has deteriorated a bit. Two out of three and we're now down to five out of six; and two out of five, we're now down to six out of seven. New York is mostly stabilized. It hasn't changed a lot.

Delaware has you could say a bit increased; well, increased in the sense that fewer are below their '98 index and in the lowest quartile, and the southeast is still doing very well. In summary, the stock status is no overfished or overfishing definitions have been adopted, so we don't have that decision to make.

The population indices show unique trends among the regional and local populations, which is why we feel it is very important to also segment out the biomedical on a regional basis, because we're seeing positive trends observed in the southeast, relatively stable trends in Delaware Bay and continued declines evident in the New York and New England Regions, especially in New England, Rhode Island and north.

We feel that the conclusions from the 2009 assessment are still valid; that management regulations and population assessment should be implemented on a regional or localized scale; and monitoring and research should reflect those local differences. We're again asking for continued precautionary management recommended coastwide to anticipate the effects of redirected harvest from Delaware Bay to outlying populations, especially in New England.

The assessment status; the catch survey model will be continued to be developed for Delaware Bay. It was not included in this update because of the need to include biomedical harvest that wasn't in the original version. We need to better assess the biomedical harvest regionally, and we need to resolve data confidentiality issues.

In a word, the problem is that each biomedical facility is treated as if it were a single fisherman, so you have to follow the rule of three. That prohibits us from publicizing individual biomedical facilities' catch and use data. We're discussing with them to see whether they would voluntarily allow us to show their numbers, but we do not want to do an assessment where we cannot show our work and the mathematics. That would not be a step forward.

The ARM Framework for Delaware Bay is now implemented and will continue. A comparable assessment tool has not been developed for New York and New England Regions where trends in abundance indices continue to suggest mortality is increasing, although we're not sure. We just don't have the assessment tools at our fingertips at the moment. Monitoring and management in the New York and New England Region should be given a higher priority to reverse or at least stabilize these abundance trends. That's it. I'm open to questions.

CHAIRMAN GILMORE: Thank you, Penny, a great report. Have we got questions for Penny?

MR. PATRICK AUGUSTINE: Great report, Penny, thank you very much. The technical committee has done a great job. It raises two questions. The first one is again the biomedical industry. In the last slide there, before you came up with questions, you indicated there was concern about the confidentiality issues that you're dealing with to get the data.

And yet we look at what their harvest rate has been, and the mortality rate as you pointed out has continued to creep up and is up there pretty high. It just seems to me somehow we have to get at that information. We, the board, has allowed and agreed with the need for the product. It raises two other questions.

One question is originally it was suggested that most of that product was being used in the U.S. for medical purposes, and I've been led to believe that is not the case. Maybe further investigation would point out the fact that a large amount of that product is being sent overseas. If I'm wrong on that, I'd like to be corrected, but that is the impression I've had. You can tell me on that. But, what is the technical committee could do or suggest – I don't need an answer now. I would like to plant it as a seed – would suggest that we do to help support you in your efforts to get that data so we can have a clearer picture?

MS. HOWELL: Somehow we have to be able to use those numbers individually, and we have to get past this

Horseshoe Crab Management Board Meeting Proceedings October 2013

confidentiality issue. I know it has come up with menhaden and some other things. With any luck at least the institutions and companies that are in New England might be more amenable to letting us talk about their numbers in public, and that would solve the first problem. Somehow if these institutions could not be treated as if they were single fishermen, then it wouldn't be a confidentiality issue. I throw that out as if it was simple and I know it's not.

MR. AUGUSTINE: Just a quick followup, Mr. Chairman, I don't want to belabor the point, but it just seems to me that the board has agreed to allow this process to go forward and to allow a company or companies to make a considerable profit at the expense of fishermen. There is also another sector that can also use the product.

Then there is always the concern about where in New York's case, as has been evidence by Mr. Gilmore, in the New York area we have found a tremendous number of our fishermen are transporting those animals out for other purposes because the other states are closed off. So, it is kind of a compounding problem. We have product for money and yet they don't want to tell us how, where and when and how many.

On the other hand, our biomass or the population of horseshoe crabs seems to be – you just said stabilized, but it is really going down. There is a conflict here and maybe the board will have to look at putting a motion on the table that says that the technical committee should be allowed to collectively get that information and present it as a single unit. I think we have to stay on that subject and let's not let it drop before the meeting is over, Mr. Chairman.

CHAIRMAN GILMORE: Thanks, Pat. The Fish and Wildlife Service.

DR. MICHAEL MILLARD: Mr. Chairman, my comments are along the same lines as Mr. Augustine so I'll be brief. We've allowed the – well, we don't allow them, but the biomedical industry has exceeded the cap for six years running. Because of the benefit of their product, human health and safety, we sort of have not reacted to that, and I understand that.

But the notion of they have this data; I have staff who have asked a member of the biomedical industry directly and they flatly denied to waive the Rule of Three confidentiality issue. I think we're doing them a good thing; they can do a no-cost contribution to our assessment and greatly add to our assessment worth and value, and we're being denied that.

I know the stock assessment committee and the technical committee are sorely frustrated by this. This board I think – and I have been in this horseshoe crab arena for a dozen years now – is to be commended for allowing us to develop this sort of state-of-the-art ARM Framework. It is state of the art and people look up to that. It is a model to be followed. It could be better if we had this regional biomedical harvest data. I don't know what the board can do to apply pressure or if not, but I'd like to be on record as saying that we are frustrated by it.

CHAIRMAN GILMORE: Dan, did you have a comment?

MR. DAN McKIERNAN: I had a question actually on the presentation. Could you go back to the historical bait landings from 2000 through 2012, the bar chart that showed the regions? I guess I had a question about the magnitude of the so-called New York bar in 2000. It seemed really high. I'm just curious if that was just an artifact of the data.

MS. HOWELL: It is New York plus Connecticut.

MR. McKIERNAN: Yes, the green bar for 2000.

MS. HOWELL: I think some of that problem – the 2000 year was that at that point the data are estimates – I know it wasn't Connecticut – a rough estimate because we had no reporting in play. Well, actually that's not true. It started just in the year 2000. You might want to take that bar with a grain of salt.

MR. McKIERNAN: Okay. You know, back home we're getting beaten up by some local shellfish farmers who are insisting that we close a certain embayment to horseshoe crab harvest because they claim the horseshoe crabs have benefits for shellfish growing. We're trying to determine an appropriate response.

The problem is these are such localized populations; we would need an incredible amount of man hours of human resources to dedicate to all these little meta-populations. We have got one in the eastern side of Cape Cod Bay. We have one down in Barnstable Harbor. We've got them on Monavie, another one on Buzzards Bay.

They all may be completely distinct, so this is an incredible challenge. I'm not confident about our enforcement activities. I don't know if the enforcement committee has ever been asked to sort of 'fess up to the amount of enforcement that they do, but I'm concerned that there is inadequate enforcement. I mean a lot of this harvest happens at night in remote places.

Horseshoe Crab Management Board Meeting Proceedings October 2013

Then I think of the fate of the crabs. Once they're landed, they're shipped all across state lines. There is no striped bass like tagging program like we're embarking on now. I could envision ten or twenty years from now our successors creating a tagging program for crabs that are leaving states and coming in and going. I think there is a lot more we'll probably have to do in the future that we haven't begun to address.

MR. ROBERT H. BOYLES, JR.: I just wanted to remind the board or make the board aware that regarding biomedical, notwithstanding the issues of confidentiality and data, I think we all understand that and need to find a way to work through that. A comment was made earlier about these are animals that are taken away from the fishermen.

At least in South Carolina the way fishery is prosecuted is that the biomedical industry contracts with fishermen to go out and harvest. The fact that they're not available for bait doesn't necessarily mean that participants in the fishery – that the commercial fishermen are cut out of that resource. It's a different use of that resource.

Another comment; we had a presentation from a representative of the biomedical industry at our advisory committee several years ago, and I'm woefully unprepared to comment on the various uses of it, but basically what this representative indicated to our advisory committee is if you've got something in your body that was manufactured – and as the population ages, there are a lot of us who fall into that or will fall into that category – then you've benefited from the lysate that is derived from the horseshoe crab blood. It is a different use, but I think we just need to keep in mind that as Mike suggested there is a terrific public trust benefit associated with those resources. Thank you.

MS. HOWELL: Just to quickly address that, we're not asking to shut the fishery down or anything. We're asking for the data. A suggestion that the technical committee made – and some of it might be in our ignorance of the idiosyncrasies of the industry, but once the crabs are bled and released our concern is that they're not really healthy animals, having lost a third of their – and if they could go into the bait fishery after bleeding, this whole problem would go away.

Now, I don't know whether the fishermen could live with it that way, but that is a suggestion that we'd like to throw out to the biomedical industry. I'm sure there are logistic issues; but also if bled crabs could be used

for bait, then all of a sudden you have collapsed the mortality by almost 50 percent.

MR. JACK TRAVELSTEAD: I'm disturbed by this confidentiality issue and this pushback that we're getting from the biomedical industry. First I would suggest that the state directors be made aware of where we're getting the pushback from and maybe there is something we can do to help there.

I'd also suggest that we invite the biomedical companies to our next meeting where we might have some dialogue with them around this table and hopefully explain the importance of their releasing this information for their own benefit. It seems to me we have a little bit of something – you know, some way to convince them given that we have these targets that we haven't met in six or seven years. I think we have ways of getting their attention and we ought to make use of that.

MS. MARIN HAWK: Toni and I have had a conference call with Allen Bergenson, who is at Lonza Walkersville Chemicals, and we discussed releasing their data. Because they're businesses, their position is if they release the data – and I'm certainly not a business-minded person; but if any of the other companies knew how much they harvested, then it could impact their business model and put them at a disadvantage. Maybe Toni wants to elaborate on their position, but that's just what they mentioned to us on the conference call. I just wanted to make you aware.

MS. TONI KERNS: And Allen has reached out to the other companies to see if there is anything that we can do to get around this issue. Again, it is not that they won't give us the data for the technical committee to review. They can have it if they have confidential access. It's just the way we want to use it and publish it and then it becomes public. We are engaging in a conversation, but we could take it a step further to bring them forward to the board to have them have that conversation with you folks.

SENATOR PHILIP M. BOYLE: I just have a question. If the biomedical industry says no way, no how, we're not going to give this information up; what would be a way of fixing that? Would it be congressional legislation on a federal level? Would the commission itself take it up? How do you resolve that issue?

MS. HAWK: It is the state and federal confidentiality rules that apply to fisheries in general. Since they're considered a dealer, they fall under that law.

Horseshoe Crab Management Board Meeting Proceedings October 2013

SENATOR BOYLE: So to fix it, you'd have to amend – when you say state and federal – a congressional act or a state-by-state law change?

MS. HAWK: Both.

MR. PETER HIMCHAK: Mr. Chairman, I'm a little confused here. The biomedical companies under I believe it was Addendum III when we developed the questionnaire, they provide completed I guess trip tickets for sampling events and they account for all the crabs that are collected and transported, rejected at the facility, bled at the facility and then released.

We know all the records of all the companies, how many crabs they bleed, how many they look at, how many they reject because of size or injury; and then all those data are compiled to come up with the estimate that you put on your graph mortality related to biomedical utilization; so why – I'm having trouble understanding why for stock assessment purposes you have to release like South Carolina's numbers for – there are only like four companies basically. Why do you have to release the actual numbers if you're going to do something on a regional basis?

MS. HOWELL: Because the companies divide by region and we're seeing regional differences in the recovery; so if we're going to run a model that says what is going on the southeast versus what is going on in New England, we can't have the biomedical as one big glom. We have to divide it up. There are only four companies but they fall into less than three by region.

MR. HIMCHAK: So could you not maintain the confidentiality of the data within the stock assessment subcommittee instead of going – you do confidential data on other stock assessments; and your report on the stock assessment for a region; could that not be camouflaged somehow in mortality and not give their actual records out?

MS. HOWELL: Yes, we give you an assessment that says here are the numbers, believe us because we can't tell you how we got them.

MS. HAWK: Part of the problem is even if you did smooch all of the data by region; because the bait records are public, any individual can go and obtain the bait records and figure out the biomedical records by region.

MR. G. RITCHIE WHITE: Mr. Chairman, I'm still trying to visualize the "smooch" on a horseshoe crab. Following the senator's lead, in the FMP we have a

certain volume that biomedical is allowed to harvest at this point. No, that is not correct; what is the number?

MS. HAWK: There is no quota; it is a mortality threshold. It doesn't have to do with harvest.

MR. WHITE: Okay, a mortality threshold that is set for them to live within. They're going over that and would we not have the ability in the FMP – if we allow overages of that, then we require release of information. Would we have some leverage in that piece?

MS. HAWK: In the FMP it just says if the threshold is exceeded, then the board should consider developing best management practices. If you'll recall back in May we discussed this and the board was satisfied with those best management practices.

MR. WHITE: So if we revisited that and our best management practices we decided that we needed that information to – in other words, you can see where I'm going; is there a way that we have some leverage here to get them at the table and say let's have the information and we'll facilitate what you need.

CHAIRMAN GILMORE: Yes, Ritchie, I was thinking the same thing. We need a hook and we seem to have one in the FMP, so we can now start defining what we want from them based upon that threshold. As I remember the data, they're tenfold increase over what that number was, so I think we really have some leverage. Steve Meyers.

MR. STEPHEN MEYERS: Mr. Chairman, having signed confidentiality documents for horseshoe crab both at the federal and the commission level, I think following up with Mr. Travelstead, Pete, and Ritchie, we need to get guys in the room for a sit-down and discuss this. They're going over limits.

Yes, indeed, as Mr. Boyles pointed out, this is a very important element for human health. Let's get everyone together to try and figure out what we're going to do on this. They're going over their quota, it's understood, it's not good; but again let's get everyone together in trying to resolve this. Thank you.

MS. HAWK: Just to clarify; they do not have a quota. It is just a threshold that was put in the FMP and the FMP only indicates that the board should consider it. There is not really any definitive language in the FMP to address this.

MR. MEYERS: Follow up, Mr. Chairman; perhaps we need to have an addendum that quantifies this a bit more.

Horseshoe Crab Management Board Meeting Proceedings October 2013

CHAIRMAN GILMORE: Good point. Dan, was it to that point? Okay, let me go to Tom O'Connell first.

MR. THOMAS O'CONNELL: I agree with the direction I think the board is going, but one comment is we know that the total amount of crabs bled is like 600,000. There are only four companies. In my previous history these companies know what the other companies are bleeding. We know within a pretty tight margin.

I think it's a little bit of a stretch to use the business argument. I really think that we should put a letter together and send it to the biomedical companies with the points that we have raised that you're exceeding your threshold, it is leading to increased uncertainty, we are going to have evaluate it and give them a list of questions and have them come back and present them to us and then determine if we have to take further action or not.

The other point is that my understanding is that they have historically and probably still are targeting the larger female crabs. If that's the case particularly for the Delaware Bay Region, female harvest is prohibited. If there was the opportunity to allow these female-bled crabs go into the bait market, which I believe they currently can't, that might help also reduce some of the mortality associated with the female crabs being bled, and that may be something that we'd want to consider for the Delaware Bay Region where one of the bigger companies is involved.

MS. HAWK: The bled crabs can go into the bait market. In Massachusetts the majority of them already do.

CHAIRMAN GILMORE: The letter sounded like a good idea, but, Bob, would we have to essentially bring that to the Policy Board again?

EXECUTIVE DIRECTOR BEAL: The timing is going to be tough for that, but this is a coast-wide board other than Pennsylvania and Maine. I think the will of this group is probably reflective of the whole. While I'm speaking, I think to Senator Boyle's point earlier about changing laws and doing those sorts of things, philosophically for me – not the position of the commission, but just me – I think a dialogue on data confidentiality at some point makes a lot of sense.

Folks are harvesting public resources; why is that information so privileged and kept in confidence? That is a bigger picture, but I think all the states have confidentiality laws and Magnuson-Stevens obviously has provisions for confidentiality in there; so getting

those changed is probably a pretty heavy lift that is going to take some time.

MR. McKIERNAN: Just to clarify; Marin mentioned in Massachusetts there are many bait crabs that are bled. I understand if the business model of a biomedical company is to have a crab be harvested on their behalf, bleed it and then return it, then, yes, it is a one for one. In Massachusetts there are many – there is no relationship in Massachusetts between the biomedical harvest and the number of bled crabs because so many of the bait crabs are passing through. I need to talk to Penny maybe to understand a little more of the nuance to missing data, but I don't quite understand why the biomedical firm's business model gets exposed in this scenario, because there is no relationship.

MS. HAWK: And just to clarify; if the bled crabs go into the bait market, then they're counted against the bait quota.

MR. ROBERT BALLOU: Penny, my sense from your presentation is that irrespective of this biomedical confidentiality issue, which is a significant one – and I concur with the sentiments expressed by the board – there are stock concerns in New York and New England based on the fishery-independent survey results.

What I'm very interested in is the technical committee's recommendation as to how to proceed. Do we need to proceed with regard to more monitoring, perhaps the development of an ARM Model approach for assessing the stock in that region first before we consider a potential management response or should we be looking very soon, if not immediately, at a management response based on the survey results which appear to be very concerning.

MS. HOWELL: From a technical standpoint, I would like to see the data and a model developed first. I'd have to defer maybe to Mike, who actually worked on this, how fast that could be done or what the holes are in order to do a model in the New York/New England Region. I don't see this as so urgent that we can't do it in a little more organized way and get an assessment that is on stronger feet; because right now all we have is the indices.

MR. BALLOU: I would certainly support moving forward in that direction in the appropriate way, whatever that means. The message seems to be pretty loud and clear regarding the concerns in New York and New England; and as a New England representative, I

Horseshoe Crab Management Board Meeting Proceedings October 2013

would like to make sure we proceed as we should. Thank you.

MR. WILLIAM A. ADLER: Mr. Chairman, I'm a little confused. We're trying to get some information and trying to get over confidentiality rule. We're trying to get some information from them and is it on how many crabs they're using; because on the other hand you just put up some figures that show that they're over the target. It looks like you've got some information, so I'm trying to figuring out what do we need that we don't have in this scenario?

MS. HAWK: As Penny mentioned, 57,500 is the mortality threshold and the technical committee calculates that threshold by taking what the biomedical companies report to staff and then assuming a 15 percent mortality on their total harvest. As the staff person, I do those calculations and then I put it all together, and you get 79,000 is the mortality estimate for the number of crabs that died.

What the technical committee and the stock assessment subcommittee would like to see is the individual harvest for each biomedical company or by region; but since there is only one company in each region, it would be a company.

MR. ADLER: So you're trying to tease out how much from each but you do have the total and you just don't know which one is coming from where; is that correct?

MS. HAWK: That's correct; the technical committee and the stock assessment subcommittee don't have confidential data access. Even if they could use it, they couldn't release it to the public.

DR. MALCOLM RHODES: I just had two questions and one is I just do not remember how we came up with the initial 57,000 crabs when we came up with this originally. I know it came from probably the plan development team or SASC.

MS. HOWELL: It was 1 percent of the total coast-wide stock. In 1998 it was the de minimis status.

DR. RHODES: Okay, and currently the biomedical, if I'm remembering right, is about 10 percent of the total coast-wide mortality, so it's about 10 percent biomedical and 90 percent bait?

MS. HOWELL: For 2012, yes.

DR. RHODES: Okay, and then one last point, listening to keeping all the bled crabs to use for bait harvest, to me that would be like taking milk cattle and turning them into beef cattle. At one point you're getting 85

percent of those crabs back and it would be hopefully a renewable resource.

MS. HOWELL: Yes, that's another research need. We know that the animals are released alive, but we don't know really whether they reproduce – and I'm sure they don't reproduce that year. We don't know whether they reproduce the next year. So just the fact they're alive, it doesn't really tell you the whole story.

CHAIRMAN GILMORE: Okay, I have Pat Augustine and then Pete Himchak and then maybe we'll go for a motion.

MR. AUGUSTINE: Following the conversation, it looks like we do have some action we can do. Ritchie White pointed out the fact that the document does have a mechanism about best management practices; and, Marin, you pointed out that they're over the threshold, they're over their number.

Whether you have collectively put together what the discard mortality is or the mortality is, why could we not put a letter together – as we bring these four companies together – put a letter together that says we are bringing you together primarily to inform you that you've exceeded the threshold in X-number of years and therefore the board is considering management action to reduce whatever it is you're doing to bring you more in line with where we should be, and along that line, and let the plan development team, staff and yourself, Mr. Chairman, develop the letter along those lines.

I think we need a hammer, a big hammer like a sledge hammer. Really, they're in business like our gentleman from the eel industry yesterday who tried to slam-dunk a business plan that was different than what was originally presented. The biomedical industry presented here is what we're trying to do for the betterment of humanity and et cetera, et cetera, et cetera.

Mr. Boyles, I happen to be one of those recipients of that product many times over, by the way, so I'm not dunning them. What I'm saying is we can't take an action that should be positive and go forward. I think the sooner we can bring them together, Mr. Chairman, with the understanding that they kind of have gone over that line and we've got to bring them back in line.

At that point in time, Penny, maybe, just maybe they'll collectively say, whoa, whoa, three of us in one area and one is in the other area, and they're doing all the problem, and we may get that information then. Mr.

Horseshoe Crab Management Board Meeting Proceedings October 2013

Chairman, I think that's the way we have to go and we have to use a sledge hammer.

MR. HIMCHAK: I think the letter approach that Mr. O'Connell suggested is the appropriate vehicle. In this case we have a relevant precedent because under an Open Public Records Act request in New Jersey by environment groups for the records of Limuli Laboratories on how many crabs they collected and how many they bled, they sued to obtain that information.

The department supported Limuli Laboratories under a current statute that is considered then as business records as they would be for a commercial fisherman. We refused to release those records. It went up to the State Supreme Court and we lost; so the records were turned over. It is a small subsidiary of the bigger company that is in South Carolina.

The environmentalists pushed for the records and they had to be turned over. I think a letter with all the facts, with the FMP reference, with the need for the regional data, and the fact that, you know, who is fooling who here? I mean, I think we know who the players are and what they're harvesting. I think it would twist the arm and get the results.

MS. HAWK: That's a good point and the New Jersey case went in favor of the plaintiff, I guess, but there was also another case in a different state. I can't think which state it is off the top of my head where the records were kept confidential and the plaintiff did not win. I just wanted to let the board know.

CHAIRMAN GILMORE: We've had good discussion on this. This is an action item so we're going to need a motion to move this forward. We need a motion to accept the stock assessment update for management use. Mr. O'Connell.

MR. O'CONNELL: I actually have one more question. In regards to the allowance of bled crabs into the bait market, I just want to get some clarification from the board today, if possible. I just checked with our staff, and it has been our understanding that because females are not allowed to be used in the Delaware Bay Region, that female-bled crabs could not go back into the bait market; and as such, we have not been allowing that.

Obviously, if is allowed, there are some enforcement issues. If this board agrees, from what we heard from staff, that is allowed, that would allow for a pretty significant amount of females from the bleeding companies in the Delaware Bay Region to go into the bait market. That would likely put the biomedical

companies back below the threshold and help with some of bait demands from eelers; so just some clarification; if we can today or a follow up after the meeting.

MS. HAWK: I will look into that and let the board know.

MR. ROY MILLER: Mr. Chairman, one question before we discuss a motion; and that is how confident are we that this threshold, which was based on the 1998 stock status, is still valid and doesn't need to be updated; are we okay, Penny, with that threshold?

MS. HOWELL: Well, that's an allocation issue, so I would put that ball back in your court. We're looking at total mortality. How you want to allocate that mortality, it was decided that so much would go one way and so much would go to the fishery. If the board decides that the biomedical should have a higher threshold, then we would have run the model that way with the mortality allocated differently. We only cared about total mortality except for the fact that it might be demographically different.

MR. MILLER: If I may follow up, that was my fear that the threshold was derived somewhat arbitrarily. It may not be indicative is where I'm going that we're having a problem with stock status because of this somewhat arbitrary threshold in which case I wouldn't be confident in holding the biomedical industry to this threshold when perhaps some other number may be more appropriate now. Thank you.

MS. HOWELL: Marin just pointed out that if they don't want to be regulated – I mean I'm saying this much more black and white than it actually is. As long as they're in de minimis status, which is the level we gave them, then like any other state they would have de minimis status and they wouldn't have to comply with the FMP.

But as soon as they're over that de minimis status, like every other fishery, they should be complying with the FMP and they should be regulated. To some extent that's their decision whether they want to stay in a de minimis status, which I don't think they do. Collectively the other thing is that the trajectory – I mean now there at 79,000, but there is every reason to believe there is a worldwide demand for this product, so they're going nowhere but up; so they're not in de minimis status and they're not regulated and that's the problem.

MR. AUGUSTINE: Mr. Chairman, are you ready for a motion; and if you'd wordsmith it for me, I'd like to say after this comment from Mr. McKiernan.

MR. McKIERNAN: To the point that I made earlier about the early years; is it possible before we accept this document that we do it conditionally that those numbers could be asterisked or some note could be put in the table that some of those early numbers are – because it says reported – “State-by-state Atlantic Coast horseshoe crab landings reported”; and if some of those numbers weren't reported and they were just estimates in order to create a quota, is it possible to just put a caveat in the table for the public's benefit?

MS. HOWELL: Yes, in the original stock assessment document there are asterisks that say which numbers were actually numbers and which ones were estimates. I didn't put it on the graph.

MR. McKIERNAN: If I could follow up, I'm looking at the table in the report; and so could it be changed there?

MS. HOWELL: Yes.

MR. AUGUSTINE: **Mr. Chairman, I move that the board accept the stock assessment update for management use with any changes or corrections that were made today.**

CHAIRMAN GILMORE: Second by Mr. Travelstead. Is there any discussion on the motion? Is there any objection to the motion? **Okay, I see no objection so we will take that as approved.** Go ahead.

MR. BALLOU: Well, I'm just interested in the issue that I brought up. I mean now that we have accepted the stock assessment for management use, I'm very interested in moving forward as appropriate in the New York and New England Region. I'm wondering – and I look to you for guidance on this – would this be an appropriate time to recommend that the technical committee report back to the board along the lines of characterizing data collection, monitoring and assessment work needed to address the population declines in the New York and New England Regions. Would this be an appropriate time to make that request to the technical committee?

CHAIRMAN GILMORE: Yes, and I think the technical committee can do that. Bob, we'll take care of that. The other suggestion was that we craft a letter; so, Toni, since you're the ranking commission staff now; is that something we can just do? Is everybody

okay with that idea? I don't see any objection to that so let's add that to the list of things to keep you busy.

MS. HAWK: Just to clarify, is the board thinking that we would like to invite the biomedical industry representatives to the next board meeting in February, after we have sent that letter, to continue these discussions? I'm seeing nodding. Okay, thank you.

CHAIRMAN GILMORE: That sounds like a great idea. Okay, moving on, our next agenda item is the horseshoe crab technical committee report and Penny is going to do that also.

HORSESHOE CRAB TECHNICAL COMMITTEE REPORT

MS. HOWELL: This will be very brief. There are just three topics that the technical committee dealt with. The first one was an update on the request to ban Asian horseshoe crab imports. Our reasoning behind that is we are concerned about imports that come with the frozen horseshoe crabs that aren't really frozen very well of viruses, plants, animals and other imports.

These Asian species are not assessed or regulated in any way, so it is a real short-term and unsustainable answer to meet the demands here. Delaware, Maryland and South Carolina have taken action to ban the importation and use of Asian horseshoe crabs. Massachusetts is moving forward, but they're still in the process. The other states have not taken action for various reasons; small fishery, lack of authority; and at least in the state where I am, they feel that it should be done on a federal level and so banning this state by state is just not the way to go.

The second topic that we dealt with was the U.S. Fish and Wildlife red knot listing proposal. That is done now; it has been listed as threatened or a proposed rule to have it listed as threatened. We had a conference call to discuss the concerns and impacts to the states. We recommended writing a comment letter clarifying certain aspects of the management.

That letter dealt with some of the issues that we discussed; that the proposed rule expressed concern over the uncertainty of the future availability of horseshoe crabs. We felt that there really wasn't an uncertainty, that there is a management plan in place and that eggs would be available in the future; that the ARM Working Group anticipates continued use of the ARM Framework; and that should not be listed as a concern; and that future use would not jeopardize the model utility.

Horseshoe Crab Management Board Meeting Proceedings October 2013

The decline in horseshoe crab abundance is outlined as a factor which contributed to the red knots decline; however, that was based on historic parallel correlation between the rise in harvesting in the fall of the birds. The technical committee recognizes the horseshoe crab harvest has contributed to the overall lower abundance, but the magnitude of this contribution is hard to define given the uncertainty of the limitations of the historic data.

There were other concerns that there was some data in there that weren't substantiated or published and that the actual people who performed the Delaware Bay Egg Survey were not consulted and therefore their expertise was not included. Having said all of that, we came to the conclusion the new rule should not impact the horseshoe crab bait fishery or biomedical use in any way.

We don't have any concerns in that aspect and we agree that listing the red knot is a positive action which will contribute to the recovery of that bird population and allow for increased funding to study interactions between horseshoe crabs and the red knot; so it should be considered a positive thing.

The last comment is kind of a little bit of good news. Studies at the University of Delaware have isolated a chemical cue which attracts eels and conch to horseshoe crab that was done several years ago. Recently researchers successfully manufactured a workable alternative bait product. It still uses female crab tissues, but very little of it, and they demonstrated at least for eels the product that they manufacture is effective and the catch-per-unit for eels was comparable.

The Delaware Sea Grant published the recipe for this product for fishermen to try. In the fall of 2012 the Lamonica Fine Foods in Millville, New Jersey, scaled up its production and is field testing with fishermen for horseshoe crabs. At least we've got a glimmer of hope that there may be an artificial bait product. The question is the cost-effectiveness and commercial availability of this alternate bait is still a question. That's it.

CHAIRMAN GILMORE: Thanks, Penny. Are there questions for Penny? Pat Augustine.

MR. AUGUSTINE: Good report, Penny. A question, though, on the increased funding to study the interaction between horseshoe crabs and red knots; it seems as though the bird population, meaning heron and black-backed seagulls, never comes up anymore. In the videos we saw several years ago and those that have visited that area during the horseshoe crab event;

and when the red knots arrive, it showed pictures of the red knot being beat up pretty badly and food being fought over by these black-backed heron and so on.

As I said then and I'll say it again in defense of not shutting down the horseshoe crab fishery commercially, several years ago when it was a big to-do, and we had the debate about whether we should do it or not, the issue still remained. If you've read the three reports from the scientists that talked about what happened up in the Great North when they had a collapse of the hatchery where eggs were frozen for several years and that population was diminished.

In South America they're being used for target practice and food, I guess, and somewhere else along the line they get beat up before they get up here. It just seems there is a disconnect when you come to the fact that the Staten Island Landfills have been closed for several years now and those birds, generally speaking, have been displaced; and from what I understand, a great number of them are now native to that area down there, very much like Canadian Geese. They're American Canadian Geese; they're crossovers. But the herons and black backs never seem to be mentioned in terms of the detrimental effect they have upon red knots and other shorebirds. How do we get that back on the table?

It seems the pressure is always put on the fact that there are not enough horseshoe crab eggs when in fact when the birds fly away there are an awful lot of horseshoe crab eggs left there. How do we deal with that and how do we keep it on the table and illuminate it as one of the key parts as opposed to letting the bird people say don't hurt my birds? Do you want to address it or not what can we do about it other than take some shotguns and go there and have target practice?

DR. GREGORY BREESE: I'll take a stab at it, perhaps. If you look at the listing, you will see an exhaustive treatment of what is known about gulls and their impacts on red knots, what is known about climate change and its impacts, as well as the bait needs in Delaware Bay and hunting in South America.

That is not to say that we have a lot of information about all of those things; but what is known is pretty well detailed in that listing report. Gulls do not seem to be a big impact at least in the Delaware Bay Area. We're not saying that they're not an impact but they're not a big impact. Also, if you look at that listing report or recommended listing package, you will find that the food supply in Delaware Bay is not being considered a threat under the current management of the Adaptive Resource Management Framework.

What is really driving the listing at this point are factors that are occurring outside Delaware Bay; primarily I would argue climate change, anticipated climate change impacts that are happening in several locations and having various levels of effect with a huge level of uncertainty.

In the foreseeable future, considering how well the global community has done at reducing climate change, it is pretty reasonable I think to assume that it's going to get worse and not better. I don't know if that really addresses your concern, but gulls are certainly on the table. They haven't been forgotten. We're just not finding data that says that is a really good smoking gun to point at.

MR. AUGUSTINE: Just to follow up; my dad had a favorite expression. He said you're either pregnant or – you can't be a little bit pregnant. You're either a whole lot pregnant or you're not pregnant. In the case of the birds, they're there. They could have been substantial earlier that had a detrimental effect earlier on. The question is I hate like heck to see it dropped into a crevasse. I saw that report; and you're right, it is being considered, but how much? That is the question.

MR. BALLOU: Mr. Chairman, I just need to correct the record with the regard to the states that have enacted bans on the importation of Asian crabs. Rhode Island has in fact enacted a ban. We enacted it as an emergency regulation early in the summer and just finalized it two weeks ago. Thank you.

MR. STEWART MICHELS: Penny or even Greg feel free to comment; in regard to the listing, I noticed that there is a reference to stagnation in the indices in the Delaware Bay Area. There are some what I consider speculative statements about poaching possibly being one of the mechanisms that is keep those indices stagnant, if you will.

Did the technical committee discuss that at all or is there any reason to believe that could be the case? I mean we have published estimates that estimate the Delaware Bay population at somewhere around 20 million animals; and it seems like poaching on the level that would cause that population to stagnate would have to be tremendous.

MS. HOWELL: I would suggest as at least one member mentioned earlier poaching is one of those underlying things that have been there all along. This sounds very evasive; we have no reason to believe that it has gotten any worse. We haven't seen it; and the technical committee didn't really discuss it as an

increasing problem, but I think it has been a problem from Day One

DR. BREESE: I'll just add to that a little bit because those questions have come in the Delaware Bay Ecosystem Technical Committee fairly often and have had fairly long discussions. The word "stagnant" I might not use in that regard. It is certainly level and stable. There has been a lot concern why the populations have been stable.

I was going to get to that a little later, but just quickly the committee has pondered what factors could be driving the population and how long is it reasonable to wait before you would expect to see change. There are a number of different factors that have been brought up such as the length of time it takes the horseshoe crabs to mature coupled with the very stochastic first-year survival that seems to drive the population in the models we have.

The question of is there poaching going on that is not detected and not known about; are there federal waters ship-to-ship transfers that nobody knows about that could be having an effect; is the harm caused by biomedical bleeding greater than we think, pointing to various pieces of research that some generate a higher estimate than others; and all of those things have been discussed without really getting to any conclusions other than the fact that the population seems to be stable, and that's a good thing; and perhaps it's too long before to – it has been too short of a time to expect. It may be more like a 20-year period before you would see it.

Some of the modeling that tries to look at the horseshoe crabs does seem to indicate very stochastic population trends probably due mostly to that first-year survival issue; and it may be too optimistic that in ten to fifteen years you would see much of change, especially with the monitoring programs we have, which are very coarse and don't detect trend very well.

MR. ADLER: Mr. Chairman, I find it a little bit ironic that we've talked about landing places for the red knots, that they don't come where they used to come, but they are somewhere else. I don't know how much that has been followed when you look at listing the red knot as going downhill.

The fact that we've cut the production or the catching of horseshoe crabs to facilitate more eggs for the red knots and they still haven't come back, giving me the impression we've done what we can do. We've done the best can with providing them with eggs, so it could be something else. Also in this epic adventure we also

have people that say, well, the horseshoe crab population is going down, and, of course, I find that a little bit ironic because, of course, we don't know.

We don't have a definite idea where they are; and yet the horseshoe crab population increases with eggs, but the birds are eating the eggs. That could stop more horseshoe crabs from being born, whatever. My last note – and those were just notes and they were ironic to me – what would you say the advantage of listing the red knot is other than somebody gets some money? What is the advantage of listing them at all?

DR. BREESE: I'll take a stab at that one, too. The first thing will be to clarify that the eggs that the birds are eating; the birds are only feeding on the surface eggs. The surface eggs are either eaten by a bird or a fish or something else or else they're drying out and becoming in unviable. I don't think it's reasonable to say that the birds are eating eggs that would become horseshoe crab; so just an important but minor point perhaps in what you're bringing up.

I think the listing package did a really good job of highlighting all the complexity of red knot biology. By going through that process, there were many areas of stopover found out that people didn't know about before. It did a really good job of carefully laying what all the factors are; so I think really the listing follows your concerns in a large part of making sure that it's a balanced approach in looking at the whole package as it relates to factors that could be affecting red knot populations.

The value of the listing from my agency's standpoint, and maybe our assistant regional director will want to jump in, but the value is because that's our mission. Our mission is to conserve wildlife; and as an agency if a species is going down, is become rare, we are required to list it, but that also brings better ability to conserve the species as well because then you have some regulatory abilities that you didn't have if it wasn't listed.

DR. MILLARD: Just an observation on the issue of the Asian imports, I think, Penny, I heard you say that a state-by-state solution is probably not the best, and I probably would agree with that, that an all-encompassing federal solution might be better. In fact, there is a bill in both houses of congress from the New York delegation in committee.

I don't think I need to make any comment on the functionality of the U.S. Congress these days, so that solution is probably not going to be forthcoming anytime soon. I don't need to tell anybody around this

table the potential time bomb that these Asian imports could represent in terms of a pathogen or parasites and what that could do to this whole domestic horseshoe crab issue. We need to take that very seriously.

It also has a secondary effect that the Asian populations, most of them are in really bad shape, but those economies over there see a potential – some money to be made by shipping their animals over here. Their laws over there for protecting their populations aren't quite so hotly prosecuted so animals are coming in. All that said, I would urge each state that has not already taken action to consider your options and strongly move in that action. Don't wait for a federal solution anytime soon. Thank you.

CHAIRMAN GILMORE: I'm going to take two more comments; Roy Miller and Bob Beal and then we're going to move on because I've blown through my fifteen extra minutes, and we have a final action to come up.

MR. MILLER: I was just going to briefly point out the technical committee has informed us that the proposed listing is likely not to have a deleterious impact on the present harvest scenarios of horseshoe crabs, but a proposed listing could have both potentially beneficial and potentially negative consequences for other projects that we are all interested in that impact horseshoe crab habitat, spawning habitat, such as beach nourishment projects and sand bypasses and augmentation and that kind of thing. I'm just pointing that out that there is a variety of potential impacts from a listing other than just impacts directly to harvest of horseshoe crabs. Thanks.

CHAIRMAN GILMORE: Good point, Roy, and we're living those right now in New York and New Jersey with all the beaches we're restoring. Bob.

EXECUTIVE DIRECTOR BEAL: Just following up on Mike Millard's comments on the Asian horseshoe crab importation, I guess the question is are these events still going on? I know historically there were two importations and both went into New York, and those were kind of the ones that got this whole issue – brought it to everyone's mind. Are folks aware if there still importation events going on with these animals?

MS. HAWK: The technical committee discussed it and they're speculating that yes, and they just don't know about it, into states surrounding New York but there aren't any identified.

EXECUTIVE DIRECTOR BEAL: Again, following up on Mike's comments, there was some initiative

about a year ago, I guess, to include Lacey Act provisions and those sorts of things for horseshoe crabs, but they're technically not fish or finfish so they didn't fall under the Lacey Act. If you could get spiders included, then you could get horseshoe crabs. There was this big convoluted thing and it never got anywhere; but if there is some initiative and some movement on Capitol Hill we might be able to chime in on that and suggest those bills be de-mothballed and actually come to the forefront and maybe get some consideration.

DR. MILLARD: That is the bill in Congress that expands the text included the Lacey Act; but again it is stalled and has been for a bit.

CHAIRMAN GILMORE: Okay, before we move on there was a suggestion in the report that we write a letter; so is that the pleasure of the board to do a letter. I see heads nodding so, Marin, if you can add that to your list of activities. Okay, moving on, the Delaware Bay Ecosystem Technical Committee Report; and we have the Chair, Greg Breese, who is going to do a presentation on that.

DELAWARE BAY ECOSYSTEM TECHNICAL COMMITTEE REPORT

DR. BREESE: I'm going to cover three broad topics. One will be the ARM-based harvest recommendations. The other will be what we've learned from updating the various surveys that we look at on horseshoe crabs and shorebirds. The final will be a report out from the working group that looked at the egg survey, a question that had been raised by Delaware, and I'll get to that in a moment.

There will be time for questions; but if you do have a clarifying question about a point I'm making, feel free to interrupt. The harvest recommendations, if you'll recall, are based on population models and thresholds are constraints in them so that harvest is valued; but if the bird population is not high, then it is not valued as highly and can potentially go down to zero value.

Those population models are run out to essentially infinity and looked at to make sure that the populations are doing what we want them to do. Then a big look-up table essentially is created so that each year you can look at the horseshoe crab population and the red knot population and come up with the recommended harvest allocations.

ARM FRAMEWORK HARVEST OUTPUT FOR 2014

For this year it is the same as it was last year, and I'll go over that in a little more detail. The horseshoe crab abundance data is from the Virginia Tech 2012 survey. Now, that survey was not fully funded, which is a problem that I'll get to in another minute. Since it had only partial funding, the ARM Work Group had to extrapolate based on the ratio of what the reduced survey showed compared to previous years where the full survey was shown.

When they did that, they came up with a mature male estimate of a little over 18.5 million, a mature female estimate of a little over 7 million. If you added those two numbers together quickly in your head, you came up with about 25.9 million. The red knot abundance is from a new technique or a new methodology that we started using three years ago.

The idea was to move from the peak count, which nobody had a great deal of faith in, and go to a marked/unmarked methodology which accounts for the turnover, which is a big deal when you're talking about migratory birds where some are coming and some are staying and some are leaving over the season.

The new estimate of the population is 48,955 based on that new methodology; and down below in the grade-out you can see what the peak count would have been; so you can see it's a lot higher than what the peak count would be. If you'll recall, in the ARM Model there is a threshold that the birds have to meet, so the ARM Working Group also had to change that threshold to be consistent with the new understanding of what the total population and the stopover would be.

The new number is 81,900, which is based on the old threshold and looking at how the marked/unmarked counts compare to the peak counts, if that makes sense. The old threshold you can see in the grade-out words below. Let me go back to the monitoring issue and just say that the technical committee and the ARM Working Group really appreciates the fact that this group did an awful lot to try to keep that Virginia Tech Trawl Survey going.

That was really important and you guys really busted your humps trying to do that. Unfortunately, the funding did dry up and so it will not be conducted this fall and it will not be conducted in future years as far as we know, which potentially would make it impossible to use the Adaptive Resource Management Framework.

However, NEAMAP appears to be a really good alternative and the ARM Working Group is working to make that happen. If you'll recall, there were five harvest packages that the framework could recommend, that the ARM could recommend, and it's recommending, as it did last year, Package Number 3, which is a male-only harvest for the Delaware Bay Region at 500,000 crabs.

As worked through the spreadsheet that takes into account how to allocate between the different states, that comes out to 162,000 plus change for Delaware and New Jersey. All of Delaware and New Jersey's harvest is believed to Delaware Bay origin crabs.

Then for Maryland and Virginia, which have a portion of their harvest Delaware Bay origin and a portion that is not, you can see both their Delaware Bay origin allocation plus their total quota after that. With that, do you have any questions or discussion on the harvest recommendations?

CHAIRMAN GILMORE: Are there questions for Greg? Okay, this is a final action so I'm going to need a motion and we're going to need possibly a roll call vote. Does someone have a motion they would like to offer? Mr. Augustine.

MR. AUGUSTINE: Is someone going to type one up for me or do I have to wing it? Just one point; Greg, could you give us an idea of how much that Virginia Tech Survey costs?

DR. BREESE: I have been informed that it is about \$200,000.

CHAIRMAN GILMORE: Well, I'll throw two cents in there. If essentially we're going to be transferring over to relying on NEAMAP, that is just another reason why we really have to focus in on NEAMAP funding and make sure we're all helping that cause along since it's getting more and more important.

MR. AUGUSTINE: **Mr. Chairman, move to accept the 2014 ARM recommendations as presented today.**

CHAIRMAN GILMORE: Seconded by Roy Miller. Is there any discussion on the motion? Is there any objection to the motion or any abstentions? **Seeing none; we will dispense with the roll call vote and we will accept this as unanimously approved.** All right, the next topic is the Shorebird and Horseshoe Crab Survey Report Summary; and Greg is going to do this.

SHOREBIRD AND HORSESHOE CRAB SURVEY REPORT SUMMARY

DR. BREESE: So now we move over to what we know about updates to the surveys. The surveys were continued year to year so we have a little bit of information. I'm not going to spend a lot of time. Penny already went over a lot of what the horseshoe crab surveys were showing, but we'll talk about the trawl surveys, the spawning surveys and the egg survey actually I'll discuss more later.

The trawl surveys, as Penny said, in the Delaware Bay Region don't seem to be showing any trend. Some surveys show a little increase, some show a little decrease. We seem to have some confidence that the population has been stable for a number of years. There is a lot of high variability among the surveys; a lot of zero points, so they're difficult to discern trends from.

The spawning surveys; there are actually two now. Maryland's coastal base has been doing the spawning survey, but it hasn't stayed with a consistent methodology for long enough to evaluate any trends. With Delaware Bay Spawning Survey, which you're all pretty familiar with, it is continuing to show no trend in male or female spawning density.

They added at the request of the committee sex ratios to track that and see if male-only harvest is having any effect, and you can look and see at that second bullet that there doesn't seem to be any effect as far as we can tell on the male-only harvest. We were disappointed that we didn't have shorebird information in a timely fashion; and so as the Chair I'm going to take the initiative to write a letter requesting that we get information for the latest surveys and we get information in a timely fashion in future years.

But we did have some anecdotal information and the anecdotal information did suggest that the bird population was about the same as it had been last year during the stopover; with the interesting note that the birds stayed primarily on the Jersey side, which suggests they didn't need to move across the bay to get food, which suggests that the food supply was not a limiting factor for the birds; so that is a positive in my mind.

As Stew brought up, it has been a while that the birds and the crabs have been stable so what is going on. Although we haven't seen any change, it has been

stable, we recognize that the surveys are not very good at detecting change, especially the type of small change we'd like to see to know that we're having success, so a number of factors were looked at.

These were the three that in my mind rose to the top. First-year survivorship of young horseshoe crabs seems to be a real issue or factor driving what the population is going to do. The question has also been raised; we're starting to see some effects from climate change in the Delaware Bay Region.

We've had researchers reporting that, for instance, blue mussels range has retracted up to the north; and where it used be down to the tip of Virginia, now it's ending around Delaware. We're seeing effects and you can't help but wonder we're not doing a lot of work on how well the ecosystem is serving horseshoe crabs, how well is their food supply maintaining and what is the water temperature changes and acidification changes could be having an effect on them.

And then what keeps being brought up is are we absolutely positive that there is no other losses, there is no poaching. Although nobody seems to be able to find anything that we're missing, the question still comes up each time in the committee. But, as I said before when I answered Stew's question, modeling does suggest this is going to a while, and it may take more like 20 years rather 10 years, which I think everybody was hoping for at one point in time. Are there any questions on the survey updates that I presented.

CHAIRMAN GILMORE: Okay, seeing none, we'll move on to the Delaware Bay Egg Survey Review Report.

DELAWARE BAY EGG SURVEY REVIEW REPORT

DR. BREESE: So now we'll move to the egg survey. The question was posed by Delaware this winter, I believe, saying we're being mandated to have this survey and it's a pretty expensive survey; could you tell us if it's really something that's useful to you; and a very reasonable question in my mind.

If you'll recall in Addendum III was when it was made mandatory for Delaware and New Jersey. We appointed a working group with a goal to determine if the survey has utility and should be mandated. Just as a little bit of background, it has been going on for quite a few years. During that time New Jersey results have always been lower than Delaware results, which has raised a lot of questions and uncertainty about how much to trust the survey.

There were two attempts, one in 2008 and one 2011 and '12 to see if we could figure out why the results seemed to be different with not any real strong success; just raising a number of questions and issues to be considered. The data has been useful to look at, but it hasn't really been used in decision-making in any direct way.

The working group was set up; and they had two, I believe, lengthy conference calls to address this issue and figure what recommendations to provide. The conclusion was that it is not being used directly for management decisions. The ARM doesn't need it and in fact relies on more direct measures of what we value, which is how many birds and how many crabs are out there. There are methodological issues that are causing a problem reducing confidence in the survey.

The recognition that surface eggs are a very ephemeral resource – one gentleman pointed out today that birds are eating the eggs – so are you really measuring something that is telling you what you think it's telling and how well can you detect a trend? We did do some actual estimations of what the power of the survey would be and got something on the order of 75 percent probability of a 50 percent change in density of eggs over a five-year period; so a pretty low ability to detect any trends, especially the amount of difference that we would like to see.

The working group recommended and the technical committee concurs that it should not be continued as a compliance element, that we can discontinue it as a compliance element of the fishery management plan. However, the working group also wanted to point out that they're willing to help improve the survey if the states would like to do that, and that they can see reasons why individual states may well want to continue the survey. A good example is New Jersey which has it as a state-mandated survey. They're not trying to say that it should be stopped but it shouldn't be a compliance element. Are there any questions?

MR. MICHELS: Greg, I just wanted to thank you and the committee and Marin for taking on this issue. I was on at least one of those calls and know it was difficult. I really appreciate your work, but I think if it is appropriate I would like to ask that the board formerly approve that this compliance measure be removed from the requirements of Addendum III to the plan.

CHAIRMAN GILMORE: You're putting that up as a motion?

MR. MICHELS: Yes, I'd like to.

CHAIRMAN GILMORE: I have a second from Pat Augustine.

MR. MICHELS: I've got some wording; do you want it? Okay, **move that the Egg Survey monitoring requirement applicable to the states of Delaware and New Jersey be excluded as a monitoring requirement.**

CHAIRMAN GILMORE: Okay, before we take some discussion, I checked with the executive director and I believe since this is a technical recommendation, we could vote on this and remove it as a requirement; but then to formalize it, the next time an addendum is done is that we would add this in to formally amend the FMP. With that understanding, let's go with some discussion. Are there any other questions on this?

MR. AUGUSTINE: Just the fact of a date, Mr. Chairman; immediately.

MS. HAWK: Yes, the board should clarify for Delaware when this will be removed as a compliance element since it won't be in its own addendum.

CHAIRMAN GILMORE: Stew, do you want an action date?

MR. MICHELS: Yes, how about for the **2014 spawning season and beyond.**

CHAIRMAN GILMORE: Is everybody comfortable with the 2014 spawning season? Okay, is there any discussion on the motion? Mr. O'Connell.

MR. O'CONNELL: I think what I heard from my counterpart in Delaware is that perhaps it would be beginning with the 2014 spawning season. He didn't want it just for '14, correct.

MR. MICHELS: That's correct.

CHAIRMAN GILMORE: That's a good clarification. Are there any other questions or discussion on the motion? Let me read the motion: move that the egg survey monitoring requirement for the states of Delaware of New Jersey be excluded as a compliance requirement beginning with 2014 spawning season. Motion by Mr. Michels and seconded by Mr. Augustine.

Is there any objection to the motion? **Seeing none; we will accept this as unanimously approved.** We're down to our final agenda item, which is other business.

I didn't get anything before but has anything come up? Adam Nowalsky.

OTHER BUSINESS

MR. ADAM NOWALSKY: Mr. Chairman, I just wanted to take this opportunity to thank Pete Himchak. This is his last board meeting. He is moving on to a non-fisheries related life. I have reserved the domain name peterhimchakconsulting.com for him should he change his mind. I want to thank him both as a fisherman for his years of service to New Jersey as well as on a personal note as a mentor to me here. I think him very much for his service. (Applause)

CHAIRMAN GILMORE: Pete, do you have any parting words; and just to correct Adam's thing, he is going to the Caribbean to go explore tropical fish in a couple of weeks.

MR. HIMCHAK: Yes, I'm going on to diving in the Caribbean and then the sky is the limit. Yes, I appreciate the round of applause. My philosophy is you come in quiet and you go out quiet, and it's how you treat people while you're here that matters, and that's what you remember. I'm not going into cave hibernation or anything, but I'll be around.

ADJOURNMENT

CHAIRMAN GILMORE: Well, congratulations, Pete, and you're welcome back anytime for your wisdom and your long-term service; so thanks again. With that, I see no additional business so I just need a motion to adjourn. Okay, so moved and we are adjourned.

(Whereupon, the meeting was adjourned at 11:45 o'clock a.m., October 31, 2013.)