

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

World Golf Village Renaissance
St. Augustine, Florida
November 5, 2015

Approved February 3, 2016

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2. **Approval of Proceedings of October, 2014** by Consent (Page 1).
3. **Move to approve the 2016 Delaware Bay Horseshoe Crab harvest recommendations, harvest package 3, as provided by the technical committee** (Page 11). Motion made by Pat Augustine; second by Michael Millard. Motion carried (Page 12).
4. **Move to approve the 2015 FMP Review, and approve de minimis status for SC, GA, PRFC and conditional de minimis status for FL** (Page 15). Motion made by Pat Augustine; second by Bill Adler. Motion carried (Page 16).
5. **Motion to adjourn**, by Consent (Page 17).

ATTENDANCE

Board Members

Bill Adler, MA (GA)	Roy Miller, DE (GA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Ed O'Brien, MD, proxy for Del. Stein (LA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Mike Luisi, MD, proxy for D. Blazer (AA)
David Borden, RI (GA)	Bill Goldsborough, MD (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Robert Boyles, Jr., SC (AA)
Bob Ballou, RI, proxy for J. Coit (AA)	Malcolm Rhodes, SC (GA)
Rep. Craig Miner, CT (LA)	Spud Woodward, GA (AA)
James Gilmore, NY (AA)	Nancy Addison, GA (GA)
Emerson Hasbrouck, NY (GA)	Pat Geer, GA, proxy for Rep. Burns (LA)
Pat Augustine, NY, proxy for Sen. Boyle (LA)	James Estes, FL, proxy for J. McCawley (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Joe Cimino, VA, proxy for J. Bull (AA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Mike Millard, USFWS
John Clark, DE, proxy for D. Saveikis (AA)	Chris Wright, NMFS
Craig Pugh, DE, proxy for Rep. Carson (LA)	Martin Gary, PRFC

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

Ex-Officio Members

Steve Doctor, Technical Committee Chair	Doug Messeck, Law Enforcement Committee Representative
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Staff

Robert Beal	Ashton Harp
Toni Kerns	Kirby Rootes-Murdy

Guests

Doug Grout, NH (AA)	Aaron Kornbluth, PEW
Dave Goshorn, MD DNR	Joseph Gordon, PEW
Maj. Tim Huss, NYS DEC Law Enf.	Benji Swan, Limuli Labs
Jane Brockmann, Univ. of Florida	Arnold Leo, E. Hampton, NY
Krista Shipley, FL FWC	

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the St. Augustine Ballroom of the World Golf Village Renaissance, St. Augustine, Florida, November 5, 2015, and was called to order at 8:00 o'clock a.m. by Chairman James J. Gilmore, Jr.

CALL TO ORDER

CHAIRMAN JAMES J. GILMORE, JR.: Good morning, everyone. Please take your seats so we can get the Horseshoe Crab going. We have a lot to cover today and only an hour to do it. My name is Jim Gilmore. I'm the administrative commissioner for New York. I'll be chairing the meeting today.

APPROVAL OF AGENDA

CHAIRMAN GILMORE: First we need approval of the agenda. Are there any changes to the agenda? Yes.

MR. CHRISTOPHER L. WRIGHT: For the record, my name is Chris Wright from NOAA Fisheries. I would like to add an update for the exempted fishing permit.

CHAIRMAN GILMORE: Okay, Chris, we'll add it to the other business at the end. Any other changes to the agenda? Okay, seeing none, we'll take that as approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN GILMORE: The next agenda item is we have approval of the proceedings from October 30, 2014, meeting. Any changes to the proceedings? Seeing none, we'll accept those.

PUBLIC COMMENT

CHAIRMAN GILMORE: Our next agenda item is public comment. I did not receive any formal requests for public comment; but in the audience is there anyone that would want to make a public comment at this time for issues or items that are not on the agenda? Okay, seeing none, we'll move right along.

HORSESHOE CRAB TECHNICAL COMMITTEE REPORT

CHAIRMAN GILMORE: First up, we have the Horseshoe Crab Technical Committee Report; and Steve Doctor is going to have a presentation on that.

MR. STEVE DOCTOR: My name is Steve Doctor. I'm from Maryland Fisheries Service. This is my first time first addressing this board, so I'd like to introduce myself. I've been with the Fisheries Service since 1993. I work on the coastal bay's trawl Index. We do 16-foot trawl in the Maryland Coastal Bays; and we document juvenile fish, horseshoe crabs, crustaceans and everything like that. I've been on the Summer Flounder and Sea Bass Technical Committee since '93.

I was chairman of that committee in '96. I got involved with horseshoe crabs in 2003. We have a shore survey of spawning horseshoe crabs in Maryland. We do offshore trawling and we sample that catch. We also have three biomedical harvesters in the state of Maryland and I monitor that catch as well. After that, we'll go right into the report.

In this report I'm going to go over the ARM Framework optimal harvest recommendations for 2016. Maryland has an alternative harvest proposal that we were considering for 2016. We're going to review the horseshoe crab surveys; and also we're going to review the shorebird survey. You guys are probably familiar that the Virginia Trawl Survey hasn't gone on for two years.

Last year, in lieu of not having a Virginia Trawl Survey, we went and looked at the NEAMAP Survey to see if we could substitute it as an index of horseshoe crab abundance to inform the ARM Model. It didn't seem like it fit very well; so what we basically did is we just went status quo last year with our harvest recommendation.

This year John Sweka at U.S. Fish and Wildlife Service worked on a composite index, which was Delaware Bay Trawl Survey. Also, there was a New Jersey Trawl Survey in the Delaware Bay; Delaware Trawl Survey in the Delaware Bay and also New Jersey Ocean Survey. He put this composite index together and it looks really nice. It looks like it tracks what we think is going on with the horseshoe crab population.

It also had a strong correlation with the Virginia Trawl Survey for the years that they overlapped. The recommendation for the ARM Model takes into consideration this composite index and also the Red Knot Mark-Resight Population Estimate, which was adopted by the board last year for index of red knot populations.

The technical committee reviewed this information. It was put into the ARM Model and it came up with a recommendation of Option 3, which is the same that we've had for the past couple years for 500,000 horseshoe crabs being harvested from the Delaware Bay population. That recommendation is being put forward to the board to accept the ARM Model with the Option 3 recommendation.

The ARM, when it was adopted in 2013, it was recommended that it be reviewed periodically to see if it is still meeting our needs and is reflecting what is going on in reality. The technical committee also recommended that we do the double-loop process. We'll review the ARM Model, we'll review the inputs, review the outputs and we see if it is still meeting our needs. That was also a recommendation from the technical committee.

MARYLAND HARVEST PROPOSAL

Maryland is in the situation where when the ARM Model was accepted in 2012 for 2013, we were at a harvest level recommendation of 170,000 crabs. Because the ARM recommended no female horseshoe crabs be harvested from the Delaware Bay population, the Maryland harvest recommendation was increased to 255,000 crabs.

That worked the first year in 2013, and Maryland harvested 240,000 male crabs. Well, in 2014 the harvest of male-only crabs fell to 148,000; and then in this year it seems like the market got flooded with like – what happens with horseshoe crabs is they get harvested and they get put into cold storage; but what happened is in May of this year, some other states went ahead and harvested female and male crabs and just completely closed the market.

We are still going under the recommendation of Addendum IV where you're not supposed to harvest before June 6th, but a lot of other states, when that sunsetted, went ahead and started harvesting earlier. The net result is out of a quota of 255,000 crabs, Maryland has harvested 4,000 crabs this year. We just completely lost our market.

Our original idea was to go to this board and see if it might be possible to get a small allocation of females so that we would have a little bit of market. Mike is going to address that a little later. I just wanted to bring this to your attention. The composite index that has been developed by John Sweka takes into consideration three surveys.

It is the New Jersey Ocean Trawl, the Delaware Bay Small Trawl and the Delaware Bay New Jersey Small Trawl. I'm going to go through those indexes. This is the New Jersey Ocean Trawl. You will see that like in 2003 is when we got pretty serious with management. Horseshoe crabs, males take like seven years to mature and females probably ten years to mature; so we expected there to be a lag time in any response to the horseshoe crab population.

Basically, that is what you're seeing here; you're seeing in 2010 it looks like we're in a pretty good trajectory there with this New Jersey Trawl Survey. This is usually the Delaware Bay Trawl Survey. You also see there is a lag time, and then the last couple of years it seems like we're getting a nice little bump in there.

This is the Delaware Bay, the 16 and the 30 foot. You will see pretty much the same trend. We're going along, going along and then the last couple of years we're starting to pick up a little bit. This is the best survey that is done – it is mine, of course – and you'll see that we've got a really nice trajectory from 2003 up to 2015; and it looks like we're on a pretty positive trend there.

SHOREBIRD AND HORSESHOE CRAB SURVEY REPORTS SUMMARY

In summary, the horseshoe crab surveys are looking pretty good. The shorebird stopover and winter population estimates have been stable over the past couple of years; but what happened this year was really remarkable. What happens with the shorebirds is that they don't really start the stopover in Delaware Bay until they're like two or three years old. They don't do it as juveniles.

Well, our estimate using the mark-recapture survey has been stable at like 40,000 birds since we've been doing it; and this year we had a bump to like 60,000 birds. The threshold for female harvest is at 82,000 birds. Well, you know, the red knot people, they're really happy, but they want to raise the threshold now.

Another thing is the red population meeting adequate weight? When they fly into Delaware Bay, they come in at around 100 to 120 grams; and within one to two weeks, they'll increase their weight to 180 grams just foraging on the horseshoe crab eggs. They're really high in fat and protein. The proportion of red knots last year and even more this year reaching weight was really good. A large percentage of them, I think it is like 75 percent, made weight in that time period.

The surface density of horseshoe crabs – well, all these indices have large confidence intervals, a lot of noise around them. What we think we're seeing is that we're in a pretty good place. We have a reason to feel good about it. It seems like

the actions of this board and Fish and Wildlife Service are really starting to take some hold here and we're starting to see some good results. The red knots have gone up; the horseshoe crabs are going up; and we want to look at the ARM Model again and see if we're on track. Basically, that's all I have to say. Are there any questions?

CHAIRMAN GILMORE: Let's just keep the questions to the two technical reports and we'll get into the harvest stuff later on.

MR. JOHN CLARK: Thanks for the report, Steve. I was just curious, given that the composite index seems to be working so well, is there a need to continue Virginia Tech Survey. I know there was funding available to restart that survey.

MR. DOCTOR: Well, the Virginia Tech Survey was funded for this year; and the money didn't come in until it was like – crabs are already burrowing up, so there is really no point in doing it this year. It is funded for next year. It is just another piece of the puzzle. It won't hurt to do it; and we have a long time series with it. To do it periodically, I really think it would probably be a good idea. I do think it is worth it.

REPORT ON THE ADAPTIVE RESOURCE MANAGEMENT (ARM) FRAMEWORK HARVEST OUTPUT FOR 2016

CHAIRMAN GILMORE: Any other questions for Steve? Okay, then we're going to move along next into the report on the ARM Framework. Kirby is going to give us a presentation on that.

MR. KIRBY ROOTES-MURDY: Steve gave an overview of the technical committee report. I'm going to provide a little more context to the ARM Model and how the technical committee and the ARM Subcommittee have recommended the double-loop review process to take place. The other element is kind of the next steps in how staff would like guidance from the management board on how best to proceed.

**DOUBLE-LOOP REVIEW OF THE ARM MODEL
IN 2016**

As Steve started to outline, the ARM Model is a two-species population model. You have the horseshoe crab population, which is a two-sex age-structured matrix model. The other component is the red knot population; and it accounts for three life stages of the red knot, a young of the year, juvenile and adult.

These two population models are linked and evaluated with a regression analysis. One of the key factors is in looking at the harvest of horseshoe crab eggs by red knots, egg consumption is believed to not have an important influence on crab population dynamics. The ability for red knot populations that go up while also not bringing down horseshoe crab populations is a factor that is considered in the model and is set up to evaluate when fluctuations in both of those populations happen over time.

When the ARM Model was first devised, it was evaluated against harvest between the years of 1998 to 2008 and looked specifically at how red knot mark-recapture and horseshoe crab harvest had fluctuated over time and tried to connect those two. In doing so, there were initially eight alternative harvest packages; and right now the ARM looks at five.

This was published in 2011. In February of 2012 Addendum, VII took the published ARM Framework and applied it within the management policy for horseshoe crabs. Annually the process of updating the model through having the Virginia Tech Trawl Survey data and the mark-recapture data that feed in and help determine what the specified harvest package should be based on thresholds that are set up in the model.

When the addendum was developed and approved in 2012, it outlined a timetable for what is called the double-loop learning process. This is understood within a broader adaptive management framework. The double-loop process allows for you to go back and revisit some

of the initial assumptions that were considered and drive parts of the model, such as the dynamic between horseshoe crab and red knots.

When the addendum was first done, it was taken out to public comment and stakeholders provided their input on how the objective of the model should be set forward in terms of providing weights to horseshoe crab harvest relative to conservation of red knots. As the outline in the addendum says, this double-loop process should take place within three to four years after the addendum was approved, which would put us in approximately 2015 and 2016.

In Addendum VII, Page 4, there is an actual breakdown of how that would move forward; and it is different than what you would have in a normal stock assessment timetable. The outline that it provides is that there would be an initial public comment period to provide comments from the public on the ARM on whether it is achieving its purpose and still utilizing the surveys and providing an output that is working relative to changes in the population dynamics of both species.

The next step would be for the public comment to be then presented to the technical committee; and the technical committee would take those comments and evaluate how those changes could be made in the model and provide recommendations to the management board. What could happen then is at the spring meeting the board could then select the preferred changes they would like to see done to the model.

The technical committee and ARM subcommittee would work together to implement them in the model and have those elements accounted for in the next annual specification process in the fall of 2016. To begin the process, the technical committee needed to go back and evaluate whether or not the ARM is in need of change or at least being revisited.

Both the technical committee and the ARM subcommittee were in agreement that given the

timetable and changes in population dynamics of the red knot in recent years; that the ARM should be revisited from the objective function through to determine what facets of the model could be improved.

BIOMEDICAL DATA AND JURISDICTION CONCERNS

The technical committee and ARM subcommittee were both in agreement that the ARM Model should be reviewed and should be considered a higher priority than the benchmark stock assessment due to issues of confidentiality with biomedical data. As it was reported in previous board meetings, the biomedical data is considered confidential because of the number of manufacturers on the Atlantic Coast.

Without the ability to move that data from being considered confidential to publicly viewed and available, it impedes the ability to do a benchmark stock assessment moving forward. To help the board in initially considering how the ARM Model should be updated, they started to develop basically terms of reference that we would use in a normal stock assessment.

The first is to evaluate the model setup, such as are the initial hypotheses that were included regarding horseshoe crab populations and red knot in their interactions; are they still relevant? Do they need to be adjusted; to then possibly update model parameters and incorporate new analysis as needed; and execute any analysis updates to those parameters when possible.

The second item that they identified is the optimization algorithm update. This is basically trying to consider whether they can transition how the model is currently run on one software platform to another software platform. Another facet of it is to incorporate stochasticity into the optimization model, if possible or necessary.

The third item they identified is to evaluate the monitoring program; possibly update and improve the monitoring protocols that are listed

in the framework; and to use the best available data to estimate quality and precision, if possible. The last and maybe most significant item would be to revisit the objective function; and this is outlined in the annual harvest specifications of what the objective of the model is, which is taking the objective statement of maximizing horseshoe crab harvest but also providing consideration to red knot.

There are thresholds that are associated with this that dictate how the harvest packages can be specified depending on the abundance of horseshoe crab and red knot. The technical committee and ARM subcommittee think that these thresholds may need to be revisited, given changes in both of the populations.

The next step is for the board to consider whether to proceed with a review and update of the ARM Model; and if that is the pleasure of the board, to provide staff guidance on how the review and the update of the ARM Model should proceed in the coming year. If you have any questions at this point, I'd be happy to answer them.

CHAIRMAN GILMORE: Questions for Kirby? Bob Ballou.

MR. ROBERT BALLOU: Kirby, my question is would the TC have been recommending that the benchmark assessment go forward either in addition to or in lieu of the ARM review if the biomedical confidentiality issue weren't a factor?

MR. ROOTES-MURDY: The Technical Committee is interested and sees that having a benchmark stock assessment is the best solution for better understanding the population dynamics on the coast. The biomedical data confidentiality, just the fact that that will likely not be addressed unless there is any change in the number of manufacturers shifted it from being the highest priority to likely not being a feasible priority.

Doing an assessment update; which would not be including those biomedical data was perceived as inferior. Addressing harvest in the Delaware Bay

through the ARM model seemed to be the higher priority, given that it could feasibly be done with the concerns on the confidentiality.

MR. BALLOU: A quick follow up question and then a comment. The benchmark would apply throughout the range of the resource and it would not be just the Delaware Bay specific analysis?

MR. ROOTES-MURDY: That's correct. As I said, because of the confidentiality that is applied because the assessment would be looking at these populations on regional levels, and at the regional level you have not enough manufacturers to get around confidentiality. You would be addressing those regional populations up and down the coast for the benchmark; whereas the arm is just for the Delaware Bay.

MR. BALLOU: My final comment is that I am very concerned that we're being impeded in our ability to move forward with a benchmark assessment looking at the resource throughout its range. Granted the ARM work is awesome and needs to continue; and I would certainly support it. But in addition I think we need to find a way to break through this confidentiality barrier.

It just seems completely unreasonable that we're being stymied in our efforts to really assess this resource throughout its range; due to this confidentiality issue. I find it to be the biggest issue of concern as a member of this board, and I would like to prioritize it as something that we need to find a way to break through. It just seems again, unreasonable, unacceptable that we can't move forward with an assessment for that reason.

CHAIRMAN GILMORE: Thanks, Bob, I couldn't agree more. I think we really need to let not only what is happening in the Delaware but in the region, in terms of the population, which is definitely an issue.

MR. PATRICK AUGUSTINE: Great report, Kirby and Steve. I'm referring to the 2/15 review of

Atlantic Coastal Crab Fisheries Commission and so on. I am on page, I don't know, no number, but it looks here on Table Number 2, number of horseshoe crabs harvested led an estimated mortality for the biomedical industry. Where do those numbers come from? I mean, we show like in 2008, 511,000 and then 2014, 524 and then we have a breakout of blood crabs estimated dead crabs and so on. Could you give us some clarification on that Kirby, please?

MR. ROOTES-MURDY: Sure. That information that is included in the compliance report is the aggregate horseshoe crabs that are bled across the coast. That accounts for horseshoe crabs that are bled up and down the coast. If we were to break that data out into individual states, that is where it runs into confidentiality.

Because there are many times, less than three dealers; which is what the biomedical companies are considered essentially with this data. The compliance reports, we receive this information but in presenting it to the public it has to be presented on the aggregate level and not broken out by individual facilities.

MR. AUGUSTINE: A follow on. Could you combine maybe any two states as opposed to breaking out an individual dealer? For instance, if we took a regional area would that give us any more clarification? I know this subject about reporting for biomedical has come up year after year; and I blasted the group I don't know how many times.

It just seems to me we're making money on a natural resource, and yet we don't have the ability to find out what the values is. Thank you very much for your service for this, because it saved my crazy butt a couple of three months ago when I had a heart attack; because they used that equipment.

But to get back to the issue, it just seems to me somehow, with our hands tied behind our back, we should be able to close the gap a little bit. Is there any way to regionalize anything; two states,

whatever? I know that will give us something more than, until we make this move to break this lock that they've got us in.

MR. ROOTES-MURDY: Again, the issue currently is that at the regional level there are not enough specific facilities that are bleeding that could then be looked at on an aggregate to allow for that data to not be considered confidential.

MR. AUGUSTINE: Thank you, Kirby; we're in a dead loop.

MR. MICHAEL LUISI: My question kind of relates to what Steve presented as part of the Technical Committee report. The concern that we have a handful of permit holders in Maryland that have harvested horseshoe crabs for years. They've been on the cutting edge of the conservation effort during the time period when the issue of the red knot was becoming more and more the focus.

Our fishermen had voluntarily taken it upon themselves to implement measures such as male to female harvest ratios to aid in the conservation effort, and this ecological importance of horseshoe crabs on the coast in the Delaware Bay region. You guys all heard what Steve had presented over the year.

When the ARM model came into play in 2013 the board, with the moratorium that was announced as a part of that recommendation, the moratorium for Delaware Bay female horseshoe crab harvest which impacted Maryland, the board granted Maryland additional male crabs as a way to offset that economic impact of losing the females.

We had made a request to the Technical Committee to look at whether or not through this ARM process we could achieve some minimal level of female crab harvest, because over time the market for female harvest that our supply, our fishermen, were unable to continue supplying their buyers with the product that they wanted.

With Virginia and New York and other states, they may be the only two states, but with female harvest in other states there was no more demand for the product that we had in Maryland. That kind of gives you a little background as to where we were requesting the Technical Committee review of whether or not it would be feasible to look at a small female harvest.

What I understand from the Technical Committee is that there was some support for it, but it was met ultimately with an unfavorable report by the TC. With that I think it's in the best interest of our state to continue down the road of science; to continue working with what this board and commission has supported, which is this ARM model – you know the ARM.

My question to you is, and I was happy to hear that the ARM was being reviewed in 2016, because I understood that as a possible mechanism for working throughout the process to see if we can get some resolution as to whether or not a limited female harvest of crabs in Maryland would be a possibility; based on the science and based on the information that we know.

That was a long lead in to the question that I want to ask. But my question to you is do you foresee that the work of this ARM review is that mechanism for our state to work with the reviewers, and with the folks who are doing this review to incorporate those ideas into the goals and objectives; so that not only is the horseshoe crab and the shorebird ecology part of the objective, but the people who rely on it, because the impact to our fishermen has been great over this time.

MR. ROOTES-MURDY: The short answer is yes. That is something that was identified by the Technical Committee and the ARM Subcommittee as something that would be evaluated in the review process. Again, in going through this double loop, the idea is to revisit these thresholds that are set up, and if the thresholds remain

appropriate given the changes in the population dynamics.

Currently the thresholds, as I'll explain are for the specifications for the Delaware Bay. Basically you have to get above it for you to move into the next harvest package, which would allow for the female harvest. The Technical Committee, as Steve had pointed out, did not take issue with the number of crabs that would be harvested per se from this Delaware Bay population.

The problem was that it was not technically consistent with the output of the ARM, and the other element is that it might be precedent setting in allowing for other proposals for harvest that would then undermine the ability to do the actual specifications that are put forward through the ARM.

CHAIRMAN GILMORE: It sounds like we've got at least a good recommendation for adding that into the review that we can look at a female harvest. I see the Delaware guys smiling over here too, so I think they would probably like to see that also.

MR. DAVID V. D. BORDEN: I also support that but I've just got a question. I can't recall the background relative to getting on the confidentiality issue on whether or not all the companies refused to allow the release of the data. There was a discussion about going to them and getting them to waive their rights. Could you just refresh my memory on that? Toni is nodding her head.

MS. TONI KERNS: I think it was a year and a half ago maybe, we sent letters to all of the companies to bring up the discussion. We invited them to a board meeting and then we had a couple of conference calls to try to work through this issue. We did not have any success in getting them to allow us to publish any of the information for use in the assessment. Depending on the region that we're looking at, we'll run into that confidentiality issues; not for all of them but for the majority.

MR. BORDEN: I would just like to suggest we kind of reenergize that effort. I wouldn't give up on it. There has got to be a way to mask the information in some manner that protects the companies but gets us the information we need to move forward.

CHAIRMAN GILMORE: Yes, I think everyone agrees on that. If you've got an idea, Dave, I think you could make a lot of money, actually. Go ahead, Mike.

MR. MICHAEL MILLARD: I want to follow up on Mike Luisi's comments about the Maryland harvest proposal. I've managed to work in the Fish and Wildlife Service for 23 years without getting tangled up in the Endangered Species Act, but it seems like it is catching up with me now. I just want to gently remind the board that the situation has changed a little bit in that now the red knot is listed under the Act. When I put together these two statements, and Kirby just quoted one, the TC noted that the proposal is not technically consistent with the ARM process; and I read from the red knot listing document that the Service continues to conclude that as long as the ARM is in place and functioning as intended, ongoing horseshoe crab bait harvest should not be a threat to the red knot.

I'll let everybody do the math on those two statements. I was comforted somewhat to hear Mike's desire to let the science play out, let the double loop process work and stick within the intention of the ARM. I think that is in our best interest at this point.

REPRESENTATIVE CRAIG A. MINER: In terms of this protection of information, I wonder if we could reach out to somebody at the federal level FOY, or there must be some mechanism to encrypt the identity and still permit us to take a look at the information. It doesn't seem possible that that would be the intention of this federal rule, statute, whatever it is. I don't know if there is some legal advice we can get somewhere. I'm not trying to do an end around, but I do think that

this has come up for a number of years and we ought to try and figure it out.

CHARIMAN GILMORE: Any input from the federal agencies on that? Got any ideas on if that is a possibility? All right, sorry to put you on the spot. Well, think about it as we move forward. Any other questions?

MR. LUISI: Does you need a motion to make a recommendation to move forward with the ARM review in 2016, because if so I can make that?

CHAIRMAN GILMORE: I don't think so, but let me just ask Kirby if they've got enough information. My summary right now is we've got essentially what the presentation was that they've got some specific details that we would focus on the ARM as a priority over the stock assessment; and then the female harvest when they review the consideration for the ARM. Then other than the biomedical issue, I think those are the things I've gotten so far. Let me see if Kirby needs anything else.

MR. ROOTES-MURDY: Yes, to what Mike Millard was mentioning before. Given changes in the population dynamics of red knots, there is the ability to go back and revisit the objective functions that kind of guide how some of the thresholds are set up. Over the last few years it would be helpful from the board to provide any guidance on how they see changes to the ARM that should be done.

If they are specific to allowing female harvests in the Delaware Bay, if there are efforts that need to be addressing the amount of the horseshoe crabs that are allowed to be harvested. Those kinds of things would provide the Technical Committee and the ARM Subcommittee guidance on how to actually evaluate the current setup of the model.

MR. ROY MILLER: Kirby, if you could refresh my memory. Does the ARM model consider red knot populations elsewhere other than Delaware Bay; in other words, other potential overwintering

areas of the red knot and how their populations are looking?

MR. ROOTES-MURDY: Thanks, Roy. That's a good question. My understanding is that one of the critical pieces of information that the ARM considers is the stopover population in the Delmarva area, but outside of that it does not specify a population estimate for other stopover areas along the Atlantic Coast.

CHAIRMAN GILMORE: That is a good question, Roy, because I know there has been some speculation about the adjacent states and how many birds are actually there. I think my understanding is very few, but I don't know that that is based on any data.

MR. MILLER: Yes, and the reason I asked that question, I just finished reading that book by Deborah Cramer, *The Narrow Edge*, and she spends a great deal of time talking about other overwintering populations of the red knot. That is why I was curious about that.

MR. ROBERT BALLOU: I want to go back to the biomedical confidentiality if that's okay. I know we're kind of going in circles here. To follow up on Representative Miner's point about federal opportunities to deal with confidentiality and other things, I think the reality is we're dealing with state collected data and it is the state confidentiality rules that are prevailing.

If I remember correctly, the bleeding facilities are in South Carolina, Maryland, New Jersey, and Massachusetts. Maybe there is a chance, an opportunity to work with those states and look at their confidentiality rules; and are there any ways to access that data and provide it? It is unfortunate that we're in this spot.

We've tried a couple times with the biomedical industry and they haven't given us any hope of making any progress. But maybe we need to work sort of from the state to the biomedical, set up some interactions between the state agency and the biomedical facility, because that is where

the data is collected directly. We'll work with those four states and try to chase that down and see if we make any progress there.

CHAIRMAN GILMORE: Great. That sounds like a good idea, Bob.

MR. LUISI: A question for Kirby or maybe Steve. You had that timeline up there for the revisiting of the ARM model and the double loop framework. That struck me, was that just to give us an idea of the elapsed time that would occur or was that an actual schedule? It struck me as a little ambitious, I think, given where we are now.

MR. ROOTES-MURDY: It is important to understand, this is the timeline that was laid out in Addendum 7, and that was crafted approximately three and a half, four years ago. This is one possible way that the review could take place in 2016. There are other venues that would possibly allow for this review to happen.

The Subcommittee has talked about having basically a postdoc come on to help guide some of the changes to the model, specifically with input from the ARM Subcommittee. That would be probably a longer process, because that would be having them work specifically with some of the ARM Subcommittee members at their offices.

This is one way to go forward. It is the pleasure of the board in terms of what they view as the best way they want to inform the review of the ARM, and how to have it either impact specifications for 2017 or if they want it to be delayed and applied for later years.

CHAIRMAN GILMORE: Okay, any other questions for Kirby or recommendations on how we should proceed or issues in the review? I think Kirby has got what he needs so far. I think we're going to move along unless we've got -- okay, Bill Adler.

MR. WILLIAM A. ADLER: Let me go back to I think what Bob was going on -- this confidentiality thing. In other words, the companies are releasing their information to a state, and it's the

state that has the law that won't permit it to release it. Is that what you basically were saying?

MR. BALLOU: Sort of. ASFMC and the Tech Committee have the data. It is not a problem with getting the data; it is a problem of rolling that data into an assessment and being able to publish that assessment, because the biomedical data is confidential. The way it would work is hypothetically, the northern region for example. If there is one bleeding facility there, when you do the assessment you'll have mortality associated with bait landings and you'll have mortality associated with the bleeding facility. That mortality associated with the bleeding facility will only be that data, or only crab. You can back calculate exactly how many crabs were bled by that facility.

Each of the facilities are saying that they don't want the other folks to know how many crabs they bled, because it gives an indication of how much of the LAL compound that they can produce, and they say it's a competitive issue. It is not getting the data. The data is being reported. We have access to it. It is just the ability to do the math through an assessment, present it. It sheds a lot of light on the practices of that one company is the problem. We're trying to figure out how to get around that.

CHAIRMAN GILMORE: Okay Bill, thanks a lot. Okay I think we're going to move along now. Just let me get a clarification point now. The next thing we're going to go into is the Maryland Harvest Proposal. I think we covered that a little bit. Do you need to add anything else to that, Mike? If we're going to consider that under the ARM I don't know if we need to discuss the proposal anymore.

MR. LUISI: No, Mr. Chairman, I think I covered the issue. I didn't realize it was a specific item on the agenda. I missed that so I'm sorry. I apologize for not waiting for that. I think the point was made that through this review we certainly want to have the female harvest in the Delaware Region as part of that review process. I'll leave it at that

unless anyone has any specific questions at this time. I certainly can handle that as well.

SET DELAWARE BAY 2016 HORSESHOE CRAB SPECIFICATIONS

CHAIRMAN GILMORE: Well, hopefully, it will make this next agenda item a little simpler, because we're going to get into the Delaware Bay 2016 Horseshoe Crab Specifications. Kirby is going to do a presentation on that and then we will need an action, a motion on this one; so pay attention.

MR. ROOTES-MURDY: As it was indicated before, the ARM harvest recommendations coming out this year take into account a composite index that John Sweka put together that looks at a couple of the surveys that are currently in place in the Delaware Bay region. The ARM also accounts for shorebird abundance using a mark/recapture survey. Based on those data updates the ARM model output this year is for the Harvest Package 3, which is the same harvest package that has been in place the last two years. Basically for Harvest Package Number 3, it is a male-only harvest of 500,000 crabs and it is broken down on a state-by-state basis based on the proportion of the population. It is attributed to each of those states. Thank you for your patience on that. As I said before, the state-by-state quotas based on the ARM is dictated by the percent of the population that is allocated to each of those states.

For 2016 it would be the same quotas that were in place in 2014 and 2015; 1,162,136 male crabs in Delaware/New Jersey; 141,112 male crabs in Maryland and 34,615 male crabs in Virginia. Again this is for just east of the COLREGS line for Virginia. Also note that New Jersey does not currently allow for the harvest of horseshoe crabs. I'll take any questions that folks have on the harvest recommendation put forward by the Technical Committee and ARM Subcommittee.

CHAIRMAN GILMORE: Questions? Okay would anybody like to offer up a motion on how to proceed? Go ahead, Pat.

MR. AUGUSTINE: I'll try not to fumble. **Motion to approve the quotas as set forth in this presentation.** Any clearer than that?

CHAIRMAN GILMORE: Let's get it up on the board. I think we'll maybe add a couple of words to it.

MR. AUGUSTINE: **Horseshoe crab specifications.** That's good.

CHAIRMAN GILMORE: Is that your motion, Pat?

MR. AUGUSTINE: That's correct, thank you.

CHAIRMAN GILMORE: Do we have a second to that motion? Mike Millard. Any discussion on the motion?

MR. MILLER: Mr. Chairman, earlier Mike Luisi talked about the most recent year harvest of horseshoe crabs. I think if I remember you correctly, Mike, you said it was in the neighborhood of only 4,000 crabs. I'm wondering, out of curiosity, if there are market constraints in play this previous year, will these same constraints likely be in play next year? Is there anything this board can do to help Maryland in that regard, short of harvesting female crabs?

MR. LUISI: Well, the female crab there is two issues. One is the importation of female crabs from other states that are allowed to harvest female crabs. What happens is that the buyers in our state that had typically bought from our harvesters found products in other places. Once they did that, once they established a new connection with a new harvester, there was no more need for our fishermen to just sell male crabs.

The product isn't --- as everyone knows, the female is the preferred bait. The second piece to

it, which I don't know all the details about it, but Steve mentioned it as part of his Technical Committee report, it is my understanding that it was a sunset of a provision in one of the more recent addenda that allows for the directed harvest of horseshoe crabs prior to. Maybe it was a June 6th date that was the time period for which it was the earliest time. It was the beginning of the directed fishery, and that time period has sunset. What happened last year was that we stuck to the original plan to wait until June to begin harvesting, but in May those other states had understood this to be a sunset provision and filled the freezers prior to the point in time when our guys could get out. I don't know. There is nothing we can do about that right now. I don't know if there would even be time to make any corrections or evaluate what that provision was. I'm not familiar enough with it to speak to the details, but those were the two things that really crippled our industry last year.

CHAIRMAN GILMORE: Any other questions on the motion? Okay, I'm going to read it. **Motion to approve the 2016 Delaware Bay Horseshoe Crab Harvest Recommendations, Harvest Package 3, as provided by the Technical Committee; a motion by Mr. Augustine and seconded by Mr. Millard. Is there any objection to the motion? All right seeing none; we'll take that as a consensus that the motion is approved.**

UPDATE ON THE VIRGINIA TECH HORSESHOE CRAB TRAWL SURVEY

CHAIRMAN GILMORE: Our next item is an update on the Virginia Tech Horseshoe Crab Trawl Survey, and Kirby is going to do a brief presentation on that.

MR. ROOTES-MURDY: I actually don't have a presentation on it. I was just going to provide an oral update. As was mentioned by Steve earlier, there was money that became available; funding that became available for the Horseshoe Crab Virginia Tech Trawl Survey in 2015 this year. The timing of when that funding became available though became problematic in trying to execute a

contract and carry out the survey, during the period in which the survey is normally taking place in October.

Due to the timing of the funding availability, the survey was not able to be conducted this year in 2015. The hope is for the funds to be applied and used next year in 2016, and for that contract to be set up and executed in the fall of 2016. If you have any questions on that, I'm happy to answer them at this point.

DR. MALCOLM RHODES: Just one question. I believe you said earlier the Virginia Tech survey is one of the five parameters used in the ARM. How does that affect the data going forward, not having it this year?

MR. ROOTES-MURDY: As Steve outlined, last year in the absence of the Virginia Tech Trawl Survey not being used, the Technical Committee evaluated NEPAP data and decided that it wasn't appropriate. They put forward the recommendation to keep status quo.

This year the group looked at a composite index that was looking at the Delaware Bay Trawl Survey, the New Jersey Ocean Trawl Survey, and the New Jersey/Delaware Trawl Survey and those surveys combined as a composite when compared against the Virginia Tech Trawl Survey historically, actually mirrored a similar trend.

For this year the Technical Committee recommended using that composite index. In the absence of it in the future, the Virginia Tech Trawl Survey Data that is, the Technical Committee would likely recommend using that composite index moving forward, if needed, but the Virginia Tech Trawl Survey is specifically designed to go after horseshoe crab abundance on a long stretch of the coast, or as these surveys do not have quite the same spatial extent.

CHARIMAN GILMORE: Thanks, any other questions?

GULF OF MEXICO BIOMEDICAL FISHERY ISSUE

Okay let's move off to the next agenda item, and back to biomedical issues. Kirby is going to just briefly describe the Gulf of Mexico biomedical fishery issue.

MR. ROOTES-MURDY: Basically, there was a letter sent from the IUCN Subgroup outlining concerns on a recent permit that was issued on the Gulf Coast of Florida for a biomedical harvester. That permit allows for the individual to harvest up to 100 crabs a day in any part of the Florida Coast.

That is not specific to the Gulf Coast, it actually allows for the harvest on both the Atlantic and the Gulf. The recommendation of that letter was for the Horseshoe Crab Technical Committee to provide any guidance to the Gulf States Marine Fisheries Commission in the development or potential development of a horseshoe crab FMP to provide more of a framework for biomedical harvest in the Gulf.

Again, this harvester is primarily seeking to harvest horseshoe crab in export for foreign markets, Asian markets. The Technical Committee reviewed the letter and shared the concerns of the IUCN and put forth that they would be willing to open up a line of communication with the Gulf States Marine Fisheries Commission, as well as provide information on the biomedical best management practices for the facilities, while they are not required by the plan, have been implemented in the facilities along the Atlantic Coast.

But that was the extent of the discussion by the Technical Committee on the IUCN letter. Jim Estes may be able to provide some more context on the permit, and considerations from Florida regarding the permit holder. Do you have any other questions? I can answer them, but Jim might be able to provide some more insight.

MR. JAMES ESTES: For the past several years we've had probably maybe a half a dozen

individuals contact us with interest in us providing them with a permit for a biomedical collection. Until this one, when we've talked to the individuals and explained to them, and they've looked, but they need to look into this a little bit further, how close the processing facilities are for example.

They would have to get their product all the way to South Carolina, and the technical difficulties they've had. Nobody has followed through and actually applied for a permit until this one. This fellow here has a mobile unit that he plans on doing this process with. He hasn't started as far as I know.

We issued the permit the first of August. I think it would be a good idea for this group that has a lot of experience to maybe consult with the folks and our friends in the Gulf to maybe look at this issue. If I can answer any questions specifically about the permit I would be happy to.

CHAIRMAN GILMORE: Any questions of either Jim or this issue or any recommendations?

MR. LUISI: I wonder if the reporting of this harvest is it specific to Atlantic and Gulf Coast or is it not specific.

MR. ESTES: Do you mean does the individual need to report where he collects them? It does not.

CHAIRMAN GILMORE: Other questions?

MR. ADAM S. NOWALSKY: Do we have an established set of criteria for what would constitute a processing facility that we could verify what this mobile platform is? It would seem to me that that would potentially open the door for processing for biomedical anywhere if that was to be a viable mechanism for processing crabs that way.

MR. ESTES: I believe that there are FDA regulations, and I think this individual was in contact with the FDA, if I'm not mistaken.

CHAIRMAN GILMORE: Other questions? I'm not sure, I know we've got a commitment already to work with the Gulf and try to, I guess maybe Jim we can work and get a little help from you since you've been sitting on both commissions and we can work forward to address this issue a little more, and we're going to look at our own biomedical data.

Maybe we can wrap that into this and we'll just keep those lines open and hopefully get at this. Any other comments on this issue?

CONSIDER APPROVAL OF THE 2015 FMP REVIEW AND STATE COMPLIANCE

Next item is Item 8. We have to consider approval of the 2015 FMP review and state compliance. I think Kirby is going to do a quick presentation on this.

MR. ROOTES-MURDY: I'll be very quick. Harvest has been stable over the last couple years. The tables up above demonstrate what the harvest has been for the biomedical and bait fisheries over the last 16 years, with when specific addenda were put into place. For the 2015 FMP review of the 2014 fishery.

The 2014 bait fishery coast wide harvest was about 753,000 crabs; which represented about an 18 percent decrease from 2013 and is well below the coast wide quota of 1.58. I'm sorry it says million pounds, it is million crabs. On the biomedical harvest end the reported number of crabs brought to biomedical facilities was 524,000 in crabs, which is about an 8 percent decrease in the previous five year average.

Crabs used as both bait and bled was about 72,000 crabs, which is about a 7 percent decrease from the previous five year average; and the coast wide mortality, which is applying 15 percent estimated mortality approximately, to those release crabs was approximately 78,798 crabs. In looking at the state compliance reports the PRT found all the states had management measures that were consistent with the FMP.

D.C., while still listed as a jurisdiction with declared interest in crab, did not submit a report. The 1PRT recommends that D.C. takes steps to be removed from the board. The PRT and the TC recommends that the Virginia Tech Trawl Survey be conducted in 2016 to help provide data in the annual specification process from the ARM.

In terms of request for de minimis status, Potomac River Fisheries Commission, South Carolina, Georgia, Florida all qualify and request the de minimis status for 2015. New Jersey qualified but did not request de minimis, and the PRT recommends all requests for de minimis status be granted with the one caveat of Florida.

Conditional approval was recommended by the Plan Review Team given the prevalence of marine harvest of horseshoe crabs that are not currently counted against either their bait or biomedical fishery landings. If there are any specific questions on the marine harvest, Jim Estes can provide some more context to that and I'll take any questions if folks have them.

CHAIRMAN GILMORE: Okay, any questions for Kirby. Just keep in mind we're going to need a motion on this and we're already over time, so make sure those questions are really burning. Go ahead, Malcolm.

DR. RHODES: I'm just ready for a motion if there are not questions.

CHAIRMAN GILMORE: Hang on one second, let me just get a couple.

MR. AUGUSTINE: Will you want one complete motion to include the recommendations about the Potomac River, I'm sorry about D.C. being taken off and all de minimis status being as recommended. Would you want one complete motion to accept not only the approval of the FMP report state compliances, but all other recommendations; or do you want two motions?

CHAIRMAN GILMORE: One motion, but Malcolm beat you to the punch, so let me just take a question. Craig, did you have a question? Anybody have a question? Okay, back to you, Malcolm.

MR. AUGUSTINE: Okay, thank you, Mr. Chairman. Move to improve.

DR. RHODES: It's all right, Jim. Don't worry about it.

CHAIRMAN GILMORE: He's still trying to improve on his record on the greatest number of motions in history.

MR. AUGUSTINE: Malcolm, I had my hearing aid turned off so I didn't hear you. Go ahead Malcolm, you need to do this. It's your last meeting.

CHAIRMAN GILMORE: Go ahead, Pat.

MR. AUGUSTINE: **Move to approve the 2015 FMP review and state compliance and additional recommendations for de minimis status for those states of – go ahead, which ones are they?**

CHAIRMAN GILMORE: South Carolina, Georgia, Florida and the Potomac River Fisheries Commission.

MR. AUGUSTINE: How do you want to handle the D.C. removal? It sounds like it might be a separate action.

CHAIRMAN GILMORE: Well, they're not here, so I'm not sure if we should be putting them in turn to remove them or not.

MR. AUGUSTINE: Can we delay that until the next meeting?

MS. KERNS: Well, the Policy Board would approve changes to a state or district's membership of a board, and we'll be sending out information on that to each of the states to remind folks about their membership to boards this winter.

CHAIRMAN GILMORE: Okay Pat, so we'll leave that out of here.

MR. AUGUSTINE: I think we've got it all. Oh, the PRFC, thank you, Joe. I knew you would come to my rescue.

CHAIRMAN GILMORE: Okay, so we have a motion by Mr. Augustine. Do we have a second? Bill Adler. Absolutely Bill, go ahead.

MR. ADLER: The Technical Committee mentioned a condition for Florida. Is it necessary to put that in there, or should we just leave it like that?

CHAIRMAN GILMORE: Jim, do you have a preference on that?

MR. ESTES: That's fine with us.

CHAIRMAN GILMORE: Do you want to do a friendly amendment to that then?

MR. ADLER: Yes okay, just so we're keeping with the Technical Committee. They said conditional on Florida. However, you want to just add that into this motion. How would you word that?

CHAIRMAN GILMORE: How about de minimis status for South Carolina, Georgia, the Potomac River Fisheries Commission and conditional de minimis for Florida.

MR. ADLER: Right. Is that all right?

CHAIRMAN GILMORE: Toni looks pained, is that okay? Okay. The motion is up on the board, any discussion on the motion? Seeing none; is there any objection to the motion? **Okay, move to approve the 2015 FMP review and approve de minimis status for South Carolina, Georgia, the Potomac River Fisheries Commission and conditional de minimis for Florida.**

Motion by Mr. Augustine and seconded by Mr. Adler. Now is there any objection to the motion?

All right seeing none; we will take this as approved by consensus.

OTHER BUSINESS

I think that gets to our last agenda item, which is other business and Chris from NOAA Fisheries had wanted a couple of minutes to do an update or request, so go ahead.

MR. CHRIS WRIGHT: We'll have Derek Orner read the update.

CHAIRMAN GILMORE: Okay Derek, go ahead.

MR. DEREK ORNER: Derek Orner, NOAA Fisheries. I just wanted to provide a quick update. NOAA Fisheries has provided an EFP, and exempted fishing permit for Limuli Labs for a number of years, since 2001 to fish for up to about 10,000 horseshoe crabs in the Shuster Reserve every year. We annually issue the EFP after a number of public comment periods. There are a number of criteria with the EFP as far as limited tow times for protection for turtles, time of year, time of day; you know limitations. Obviously the issue this year with regard to the ESA listing of red knot, so we need to initiate a Section 7 consultation with Fish and Wildlife. We've already conducted a Section 7 consultation within NMFS for NMFS-related species, but we need to add in Fish and Wildlife this year.

The question or the reason I'm really bringing this to the board is for potential future discussion; maybe at the February board meeting, as far as a need for data collection. The issuance of the EFP falls under two categories. One is for either health and safety surveys or for data collection. Now my understanding, before I came onto the board was that the issuance of the EFP was for data collection in the early years to get an estimate of abundance in the reserve, and it's pretty much been the only source of data collection for a number of years.

There has been a lot more discussion with data collection, biomedical reasons for a number of

years now. Like I said, I bring it to the board now with a couple questions, as far as how we want to handle data collection in the reserve and future issuance of the EFP. Are there additional data requirements, data needs that we should include in the EFP?

Like I said, it is the only source of data for collection in the reserve. I don't know if it is a discussion here for the board in February. Is it something that we maybe have a conversation with the Technical Committee? A number of things have changed over the number of years since we've been issuing the EFP, and I would just like to bring that to the board's attention and have a little bit of discussion on that.

CHAIRMAN GILMORE: Okay Derek, considering the time, I think it is something we can probably add to the February meeting. We'll put it on the agenda, and if we can get a little more background from you guys into the briefing documents I think that would be the best way to handle this at this point.

ADJOURNMENT

CHAIRMAN GILMORE: Any other business to come before the Horseshoe Crab Board? Seeing none; I'll take a motion to adjourn. Everybody, thanks.

(Whereupon, the meeting was adjourned at 9:15 o'clock a.m., November 5, 2015.)