

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

**March 10, 2004
Alexandria, Virginia**

ATTENDANCE

Board Members

Lew Flagg, Maine DMR	Tom Fote, New Jersey Gov. Apte.
Dennis Abbott, proxy for Rep. Blanchard (NH)	Dick Snyder, Pennsylvania FBC
John Nelson, New Hampshire F&G	Rep. Curt Schroder, Pennsylvania Legis.
G. Ritchie White, New Hampshire Gov. Apte.	Roy Miller, Delaware DFW
Bill Alder, Massachusetts Gov. Apte.	Pete Jensen, Maryland DNR
Paul Diodati, Massachusetts DMF	Russel Dize, proxy for Sen. Colburn (MD)
Jerry Carvalho, proxy for Rep. Naughton (RI)	Bill Goldsborough, Maryland Gov. Apte.
David Borden, Rhode Island DEM	Cathy Davenport, Virginia Gov. Apte.
Eric Smith, Connecticut DMR	Kelly Place, proxy for Sen. Chichester (VA)
Lance Stewart, Connecticut Gov. Apte.	Jack Travelstead, Virginia MRC
Fred Frillici, proxy for Sen. Gunther (CT)	David Cupka, South Carolina Gov. Apte.
Gordon Colvin, New York DEC	Robert Boyles, South Carolina DNR
Pat Augustine, New York Gov. Apte.	Spud Woodward, Georgia DNR
Brian Culhane, proxy for Senator Johnson (NY)	John Duren, proxy for Rep. Lane (GA)
Bruce Freeman, Chair, New Jersey DFG&W	Tom Meyer, NMFS
Ed Goldman, proxy for Asm. Smith (NJ)	Bill Cole, US F&WS

Ex-Officio Members

Gregory Breese, US F&WS, TC Chair	Jim Berkson, SAS Chair (via phone)
Stewart Michels, SAS Representative	Rick Robbins, AP Representative

ASMFC Staff

Bob Beal	Brad Spear
Megan Gamble	Vince O'Shea

Guests

Mike Litchko, New Jersey Fisherman	Larry Underwood, Audubon
Benjie Swan, Limuli Labs	Anne Lange, NMFS
Perry Plumart, National Audubon Society	Steve Doctor, MD DNR
Wilson Laney, USFWS	Sean Mahar, Audubon
Jed Brown, USFWS	Lisa Callahan, Atl. States Fish. Journal
Glenn Gauvry, ERDG, Inc.	John Frampton, SC DNR
Gerald Winegrad, American Bird Conservancy	Albert Adams III, DE Waterman
Aimee Delach, Defenders of Wildlife	Carl Shuster, VIMS
Fred Layton Jr., NJ Waterman	Tim Dillingham, American Littoral Society
Eric Stiles, NJ Audubon	William Cooke, Citizens Campaign for the Env.
Catherine Grant, Audubon	Charlie Givens, NJ Waterman
Desiree Groves, Audubon	

There may have been others in attendance who did not sign the attendance sheet.

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- 1) **Move to adopt options 2 for the harvest level threshold, closed seasons and the biomedical exceptions.** Motion made by Mr. Miller, Second by Mr. Augustine. Motion divided. (page 28)
- 2) **States that have bait and biomedical fisheries should consider allowing biomedical companies to use horseshoe crabs harvested under a bait permit for biomedical purposes and allowing the subsequent return of the horseshoe crabs to the bait market. Crabs used in this way count against the state's bait quota.** Friendly amendment agreeable to the maker of the motion and the seconder. (page 37)
- 3) **Move to divide the motion to include Issue 1 (Harvest Level Threshold) Option 2 and Issue 2 (Closed Season) Option 2 in one motion and Issue 3 in a second motion.** Motion made by Mr. Jensen, Second by Mr. Nelson. Motion passes. (page 38)
- 4) **Move to amend Issue 2 Option 2 to allow the biomedical harvest from May 1 to June 7th.** Motion made by Mr. Adler, second by Mr. Carvalho. Motion withdrawn. (page 39)
- 5) **Move to amend Option 2 of Issue 2 "New Jersey, Delaware and Maryland shall prohibit the harvest and landings of horseshoe crabs for bait from May 1 through June 7.** Motion made by Mr. Miller, second by Mr. Colvin. Motion carries. (page 40)
- 6) **Move to support Option 2 of Issue 1 (Harvest Level Threshold) and Option 2 of Issue 2 with the language passed in the previous motion.** Motion made by Mr. Miller, Second by Mr. Augustine. Motion carries. (page 41)
- 7) **Move to adopt Option 2 of Issue 3 (Exceptions) with modifications from the friendly amendment.** Motion made by Mr. Miller, second by Mr. Augustine. Motion carries. (page 41)
- 8) **Move that any state with landings less than 5% of the annual total will only be required to report total crabs landed by month. In any year in which landings exceed 5% of the total, full reporting will be required in the subsequent year.** Motion made by Mr. Smith, second by Mr. Flagg. Motion passes unanimously. (page 42)
- 9) **Move that the Board vote on Addendum III as corrected today.** Motion made by Mr. Augustine, second by Mr. Freeman. Motion carries. (page 42)

**ATLANTIC STATES MARINE FISHERIES
COMMISSION
HORSESHOE CRAB MANAGEMENT BOARD**

**Radisson Hotel
Alexandria, Virginia**

March 10, 2004

The meeting of the Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Suite of the Radisson Hotel, Alexandria, Virginia, on Wednesday, March 10, 2004, and was called to order at 7:44 o'clock a.m. by Chairman Bruce Freeman.

BOARD CONSENT

CHAIRMAN BRUCE FREEMAN: If board members would please take their seats, we'd like to start this session. All right, if we could begin, I think we have a quorum. I know it's early in the morning.

I want to thank everyone for getting up early this morning. Some of you, I know, have commuted, starting probably at 2:00 a.m. this morning. I do appreciate the fact that you've taken the time to attend this meeting.

There is an agenda I think everyone has a copy of. We'll follow that agenda. Are there any changes to the agenda by any of the board members? All right, seeing none, we'll proceed with the agenda.

At this time we have proceedings of the December 16, 2003, meeting. Is there a motion to accept those?

MR. PATRICK AUGUSTINE: So moved.

CHAIRMAN FREEMAN: Motion to accept; is there a second?

CHAIRMAN FREEMAN: Second by Mr. Adler. Are there any changes, additions to those minutes? Seeing none, the minutes are accepted.

We have a public comment. I recall at our last meeting, the public comment took up most of the

meeting. I don't want that to occur. We do want to hear the public, but we need discussion by the board. What I would like to do is ask those of you who want to comment, I'll ask a show of hands. All right, I see at least six hands.

We'll limit those comments at this point to no more than three minutes. What we'll do is open for public comment items that we may vote upon later. You will be given an opportunity to make those comments at that time.

All right, let's start the process. Charlie Givens, I see your hand. Why don't you come up to the front desk right up here, identify yourself for the record, and, again, restrict your comments to no more than three minutes at this point.

PUBLIC COMMENT

MR. CHARLES GIVENS: Chairman Freeman, ladies and gentlemen of the board, my name is Charles Givens. I'm from Cape May, New Jersey. While I am a commercial fisherman, I am not a horseshoe crab fisherman.

Three minutes doesn't give me much time, but I'll try to summarize what I have for you today. I'm here representing the majority of the horseshoe crab fishermen in this state. I'm an advocate for them. I'm not paid to do that; I do that voluntarily.

I represent some pretty good men. One of the men I represent couldn't be here today. He's a fine young man. He's 19 years old. He's in class today at Purdue University. He's a sophomore in Aquatic Sciences. He asked me to give you some specific information here today.

Another fisherman I represent is closer to my age. He's a fine man, as well. He has a master of science degree. He has asked me to give you some specific information.

The first thing I would like to ask you to do, in your consideration of this amendment, is not to tie the necessity to have the biomedical harvest recorded to this addendum. That's simply not necessary.

I know that because I attended the bait workshop in Baltimore, and I asked Ron Berzofsky, and I asked Melissa Rossi, an associate to Cape Cod, and, of course, Ron is with Cambrex. They told me what they harvest. I believe they would rather that number

be confidential, and I respect that.

Another producer of LAL is Charles River Androtonics. They post their information on the Internet. I know that figure, as well. There's a company in New Jersey that does that, and their information is available as well.

There is one other company from St. Louis that you may not have that information, I'm not sure. That could be accomplished by a simple telephone call, so don't tie the necessity to have this information to Addendum III. Remember in New Jersey, the first information that you had about the harvest of horseshoe crabs was voluntary. Please don't tie that to Addendum III.

Bob Munson, who is a fine man and also a PhD, who is a representative of horseshoe crabbers in New Jersey, he was sick and asked me to call or participate in a conference call. He called me personally.

I couldn't get authority from New Jersey in time, but through the grace of Brad Spears, I was able to listen in on that conference. That was one of the issues that they talked about. Of course, the fishermen feel that we should know that number, but I do not believe it should be tied to Addendum III.

The next item I'd like to tell you about is a serious matter. I have some of these pamphlets that are available in New Jersey, printed by the DEP. On the second page, it tells you that the numbers of red knots have decreased from 95,000 in 1989 to less than 32,000 in 2002.

That information is not true. I'd like to enter this report into the record, and I would like to ask that one of the commissioners make a motion that this be copied to every member of the board.

The name of the study is the "Abundance and Distribution of Migrant Shorebirds in the Delaware Bay". It's a study from 1993. In 1992 Delaware Bay was declared a wetlands of international significance by Wetlands International.

At that time, the criteria for selecting this included the cumulative numbers of birds over the spring period that were there. In other words, you didn't have to count a one-day count. You could count a number of days.

If that population was a percentage of the population of that species, your wetlands could be designated that way. This study helped designate Delaware Bay

as a wetlands of international significance.

In this study, on Pages 699 and 700 there are two graphs. The text of the study bears it out. The number of 95,000 birds in 1989 is a cumulative number over six weeks. The number from 2002 is a one-day count for May 27th.

When you hear someone tell you that there is a decline in red knots from 95,000 to less than 32,000, that is simply not true. Now, I'd like to characterize that as a "mistake", but it would be hard for me to do that when I consider that two of the authors of this report are on the Shorebird Technical Committee. I'd like to enter that into the record.

Worse than that is the fact that the technical committee analyzed this data. Dr. Andres, the chairman of the committee, analyzed it and there's a table. If you have it with you today, it's Table 5.5. Table 5.4 has the 95,000 figure. If that was in a graph, that would be considered "noise". It's a high figure.

If you look at Table 5.5, which is Dr. Andres' analysis, he analyzed the red knots from '86 to '96 and '97 to 2002, and what we see is some decline in red knots. Basically, it's about 42,000 in the later years and 43,000 in the earlier years. That's the basis for this necessity of Addendum III.

When you take that 95,000 figure out -- and it is not true -- I believe you have an increase in the populations of red knots in the Delaware Bay.

CHAIRMAN FREEMAN: Charlie, you're going to have to wrap this up.

MR. GIVENS: Well, it's unfortunate, because I have other information to share with you. One of them is a report to the United States Congress from the Office of Technology and Assessment. Among the members that this was copied to was Ted Stevens from Alaska and Warren Magnuson.

It's a 69-page report called the "Harm Report". It's a report to the United States Coast Guard. It's a report about the Straits of Magellan and an incident that happened in 1974. I'd like to ask that this be made part of the record as well.

I'm not sure if any of you have ever heard of the Matulla, but I'm sure you've heard of the Exxon Valdez. The Matulla was a thousand-foot oil carrier. It ran aground in the Straits of Magellan in 1974. She spilled 53,000 tons of oil in that area.

The Valdez spill was about 42,000 tons of oil. Because of the conditions in that area, that spill has never been cleaned up. David Page, a chemist at Bowdoin University in Maine, said that today that beach looks like an asphalt driveway, to this day.

CHAIRMAN FREEMAN: You're going to have 30 seconds to wrap it up.

MR. GIVENS: I have a presentation that was given by New Jersey scientists, "The Uncertain Future of Red Knots in the Delaware Bay". As you can see, this is Bilomas, the main wintering grounds of the red knots.

This is a map from the Harm Report from 1974 that was presented to Congress. You can see the oil on the beach clearly on the Harm Report. You can see the black stains on the beach to this day.

We've been told that in the time frame of these studies, that the environment and the wintering grounds of the red knot has not changed and that is true. However, I urge you all to read this report, see how the numbers were accumulated, see how they're compared to six weeks to one week to base the decline, see how the Shorebird Technical Committee analyzed this data, and that is the basis of the decline of the red knot.

I urge you to vote for status quo. New Jersey has these regulations in place already. Your vote won't change a thing there. This will just add a layer of bureaucracy onto something that's already messed up. I'd like to thank you for this opportunity, and I guess I'll quit there, Bruce.

CHAIRMAN FREEMAN: All right, thank you, Charlie. Mike Litchko. Again, Mike, you're going to have to keep your comments to three minutes.

MR. MIKE LITCHKO: Good morning, everybody, how're we doing? I'd just like to let this council and everybody here know that I requested to do a PowerPoint presentation for everybody, so everybody could be fully aware of the status of the stock assessment or the assessment of the red knots and how these red knots have increased since 1989.

Mr. Spears here denied me that process to be able to produce this, to show this to you, so I'm going to speak very briefly just about the South American population of red knots, because Mr. Andrews also omitted and shielded the data from this Canadian 1/04 report which was peer reviewed and published.

I'd like this part of the record, also, to be put in place, because what they omitted in Brad Andrews and the Shorebird Technical Committee's stuff was that they omitted the 2001 population of red knots.

Now, the reason that it was omitted was because it showed an increase in population of red knots in South America. In 1982, when this study was originally done, there were only 53,000 red knots down there. In 2001 and 2002 that population is now 79.9.

I'm sorry to inform you people that the Shorebird Technical Committee and these members that are on there are of not credibility. Their credibility is lacking in here, and it needs to be addressed.

I wish that every one of these council members would ask to do a full investigation of the science that New Jersey has provided to us and to the world and some of the crimes, the omitting or shielding of the information to everyone of you people here.

Now, I was not allowed to participate in any horseshoe crab meetings except for here. We're not allowed to speak, no New Jersey residents. Mr. Givens over here was allowed to sit in on the horseshoe crab panel a couple weeks ago on a conference call, but he wasn't allowed to participate.

The horseshoe crab fishermen have no participation in here. The principal voice of the Lumi Labs, of the five Lumi Labs, is the Horseshoe Crab Advisory Panel. The environmentalists are the voice of the Shorebird Technical Committee.

There is no voice for the horseshoe crab fishermen. Now, I've tried. I've done my darndest. I just told you a little while ago, a couple minutes ago that Mr. Spears denied me again to be able to show you what really is going on here.

I'm concerned because this is federal U.S. money that's being used for conducting this stuff. We're all here. I mean, I spent my own time. This is my volunteer time to come up here and do this, and I'm being denied this.

Now, some of these people are being paid to come here, and they're being paid to do these studies and show these eminent declines. We're not. My credibility of the science that I have provided, I also have done some trawl data studies with the Department of Interior in New Jersey.

Quite frankly, most of the horseshoe crab stock assessment that you're going to hear today from these people is that they did trawl data surveys for 20 years, and in 20 years they didn't catch no more than 300 horseshoe crabs in 20 years.

Now David Smith did a trawl survey -- I did a trawl survey with the Department of Interior, and we caught an average of 100 horseshoe crabs a tow. Their average was one, maybe two horseshoe crabs per tow.

These declines that they're using in trawl data information is information that's just by chance, they catch a crab to show these declines. They're not designed to catch horseshoe crabs.

CHAIRMAN FREEMAN: Mike, you have thirty seconds to wrap up.

MR. LITCHKO: Yes, okay. I would like to know where the -- if you have here today to be able to cite the 2003 Berkson Study on the horseshoe crabs; I would like to see the written permission letter from these authors today so that this could be used; otherwise, if you're not provided this letter from the authors of this 2003 Berkson Study, it's not to be used here today. So can you show us here the copy of the permission letter that authorizes you to cite, quote, this information to this meeting here?

CHAIRMAN FREEMAN: Mike, let me just indicate the information provided to this committee or board as well as the public has been distributed with the process that normally occurs within the commission.

Dr. Berkson is actually on a telephone conference listening to what we say. He will also participate in this conversation, so the information we provide is what we have and it's the process that we normally follow.

MR. LITCHKO: So I'd like to make a recommendation that somebody here on this committee here please submit this Canadian 1-04 report as evidence, that was shielded from everybody, that shows the South American population of red knots has increased, along with the abundance survey in New Jersey which shows the red knots have increased, and that we all know that there is an increase and not a decline in red knots.

There is certainly not a decline in the horseshoe crab egg abundance, because the population has been increasing and has been since 1998, so there is no

decline since '98. There is a factual increase in the red knots, and there is an increase or a slight decrease, as David Smith clearly states, in the egg densities along the beaches.

CHAIRMAN FREEMAN: All right, Mike, I'm going to have to cut you off. We thank you for your comments. You'll be given opportunity to speak on these various issues in the amendment. Next speaker, raise your hand, please.

MR. ALBERT ADAMS, III: I'm Albert Adams. I've never been to an Atlantic States Marine Fisheries Council meeting before. This is my first time, so please bear with me. I feel Addendum III is not productive to the commercial fishermen.

It just allows some kind of, I guess, credentials to the individual states to allow them to go ahead and regulate what they've already regulated. We've already got enough regulations in place in Delaware, I know, more than enough. They just got passed last year under a regulatory process.

In the state of Delaware alone, 90 percent of all the beaches are closed since 1998 to any pick up of horseshoe crabs. There are only two days a week allowed on state grounds and three days a week on private property. It's only from sunrise to sunset.

There has been an increase last year, only because of an increased effort put on because more people are into the fisheries. But that has been stopped as far as Delaware is concerned by their regulations, which we deem not to be based on science but based on political policy.

The horseshoe crabs themselves, if you use the Berkson study from the way I've talked to other commercial fishermen that actually did the trawl surveys out in the ocean with the Virginia Institute of Technology, I believe it is -- or is it Virginia Tech or one of them -- the one survey in 2002 was done in September, and the one in 2003 was done in October; therefore, you cannot compare the science that was used.

There were two different time line periods, sort of like the bird population that Charlie Givens was talking about where they take what science they want to show you; therefore, the horseshoe crab surveys are totally different time lines, so they can't be compared. That's all I have to say.

CHAIRMAN FREEMAN: All right, thank you very much. Anyone else? Benji Swan.

MS. BENJI SWAN: I'm Benji Swan. I'm a manufacturer of lysate derived from the horseshoe crab, and, if possible, I would like the opportunity to make a brief comment when the board specifically talks about the proposed May closure.

CHAIRMAN FREEMAN: You'll be given that opportunity, Benji. Anyone else? All right, seeing no other hands, we'll proceed with the agenda, and that will be the Stock Assessment Subcommittee report, and I'll turn this over to Brad.

As I indicated earlier, Jim Berkson is not able to be here; however, we do have him connected on the phone, and I think we can have a two-way conversation between the board and Dr. Berkson.

MR. BRADDOCK J. SPEAR: As Bruce said, Dr. Berkson couldn't be with us today. He's down in Florida. He did put together presentations for the board and did want the opportunity to speak in front of the board, so he is on speaker phone.

He'll go through the presentation. If you have questions for him, we may have to relay the questions through me to Jim just because the speaker -- we're trying out some new technology here. Also, if you could, when you ask your questions, identify yourself, and we'll try and get that to Jim. We'll hold questions until the end of the presentation and then give you a chance to talk to Jim. Okay, go ahead, Jim.

STOCK ASSESSMENT SUBCOMMITTEE REPORT

DR. JAMES BERKSON: Okay, good morning, everyone. First, I would like to apologize for not being able to be there in person. I'm at a workshop down here in Florida that was planned many months ago, and I was not able to get out of this commitment, but I did want to be able to participate in this meeting today, so this is the best we could come up with. Hopefully, it will work.

I'd like to start with the presentation, if that's okay. Brad, could you put up Slide Number 1. It should be a red box on the top right corner with the Number 1 in it.

Okay, I'd also like to point out that my employment has changed since I spoke with the board last time. I'm now an employee of the National Marine Fisheries Service stationed at Virginia Tech. Let go to Slide Number 2. I'm going to tell you

about the stock assessment report that the Stock Assessment Subcommittee has completed, and this report has been reviewed by the Technical Committee. I want to start with the terms of reference.

We were given three main tasks: first of all, to review the datasets through 2002, including egg, juvenile and adult data used in the horseshoe crab stock assessment and evaluate the relevance and effectiveness of each in assessing the status of the horseshoe crab stock; second, to assess the relative status of the horseshoe crab stocks throughout the Atlantic Coast of the United States based upon analysis of state and federal trawl surveys, spawning counts and egg count survey data; and, third, review and develop research and other recommendations that would be beneficial to manage the horseshoe crab stock at the single-species and multi-species levels.

Let's go to Slide 3, please. Just a very, very brief review of the last assessment, which was 1999. Basically, the results showed a relatively stable population, although the data were largely uninformative.

Really, only the Delaware 30-foot trawl survey showed a decreasing trend in abundance based on the datasets we looked at at the time and the information we had available to us at the time. That led to the annual harvest quota, which was established in 2000, and we all know that was based on landings during the reference period of '95 to '97.

Let's go to Slide 4, please. Just some additional background for you, which most of you know. This is a graph of the recent commercial harvest. Year is down on the X axis along with the quota and the reference period. On the Y axis is the number of horseshoe crabs in millions.

We've got this broken out by unspecified, which is the white; females, which is the maroon; and males, which is the blue. Hopefully, you all have the same colors I do. But, you can see how the landings have changed over time because of the regulations and abundance changes.

Let's go to Slide 5, please. 2004 assessment methods, what we used, we did two different kinds of analyses. First, we did a trend analysis. We still have very limited data available to us.

We have more data than we had, and some of this data is very good quality, but it still is limited so we were able to look at trends in indices. So we were

analyzing fishery-independent surveys to detect trends in population abundance over time.

We did this by regional groupings. Then one thing we did differently than we did in '99, we used a meta analysis. That means if we had multiple indices from one region, we looked to see if we could combine them and if they showed the same trend, and if it was significant or not. We did this a couple of ways, which I'll talk about as we go.

I should point out that we had more datasets available to us now than we did in '99. We also had longer time series, obviously, available to us with these additional years.

Next we did a power analysis. We talked a lot in '99 about how the data was uninformative. We really couldn't tell what was going on even though we had data points. Well, one way of looking at how informative your data is, is by doing a power analysis.

This lets you see what kind of trends you could actually detect. In other words, there is variation happening, there is noise happening in your data. What kind of trends could you see and be confident about, and what kinds of trends could you see and basically say we don't know whether that's real or whether that's noise?

So that's really the purpose of a power analysis. It's useful for determining the relative merit of each survey for identifying trends in abundance. So, we wanted to actually be able to talk about how informative each one of these datasets were and how useful they would be in telling us what is happening to the horseshoe crab population. So these were the two main analyses that we used in this year's assessment.

Let's go to Slide 6, please. Now, I'm going to look at this by region, and this is how it's presented in the report, as well. I'm going to start with the Southeast. All of these graphs will be similar.

They're going to be standardized indices with the index value being on the Y axis, the year being on the X axis and then the various indices we used for each region. For the southeast we used three indices. One was the SEAMAP Index. One was the South Carolina Trawl Index. One was the Georgia Trawl Index.

I think one of the best things we did for this 2004 assessment was document all of the surveys

available, all of these indices we used, where they came from, what years were available, how they changed over time.

We have a very good database now, knowing what's available, so we won't have to start from scratch again the next time we do this. This was due to the work of an awful lot of state biologists and an awful lot of agencies that contributed to this.

We're very grateful for the cooperation we got. We really feel like we have incorporated all the relevant datasets we possibly could into this assessment. So in the Southeast, if you look at these indices, you basically see them bouncing all over the place, and you don't really see any clear trends, whatsoever.

If you go to Slide 7, this is the power analysis from the Southeast, and I'm going to take a minute or two to go over this so that we all understand it. We're looking at the datasets in the left column, so we've got SEAMAP, Georgia Trawl, South Carolina Trawl.

At the very top, we've got the minimum detectable decline. This is what kind of decline would you actually be able to detect in 5 years of data or 10 years of data or 15 years of data. Actually, if you go to the next slide, which is Slide 8, it will give you some interpretations.

It says we would need five years of South Carolina Trawl data to be able to detect a 74 percent decline in abundance. That's with 80 percent confidence. So, in other words, if you had five years of data from the South Carolina Trawl, you wouldn't really be able to detect any decline that was less than 74 percent. You could have a population declining by 60 or 70 percent, and you wouldn't be able to confidently say we can identify that decline.

Obviously, the more data you have, the better off you are and the better able you are to actually detect declines. That's why with 15 years of data, you can spot a 49 percent decline. You'll see the different datasets have different powers associated with them.

What I mean by that is the SEAMAP is a much more informative dataset. We could actually detect a 22 percent decline in 5 years with SEAMAP, where with the South Carolina Trawl, we would really need to see something drastic like a 74 percent decline.

So this shows you sort of the relative value of each one of these datasets, as well, and it gives you some idea of what you'd be able to see and what you wouldn't. In five years, if the population was

declining by 10 or 15 percent, we really wouldn't be able to pick that up with these three datasets.

I'm hoping I went through that okay. I'm hoping you got the gist of what I'm going for here. We'll be taking questions at the end of this, and we'll go through this a few more times. Let's go to Slide 9, please.

This is the trend analysis on the Delaware Bay. These are the various surveys that were used everywhere from Maryland Coastal Bays -- once again, this is by region, so this is really the Mid-Atlantic Region around Delaware Bay -- two Delaware Trawls, 150 milimetering young of year, also the 30-foot trawls, New Jersey Ocean and then two NMFS trawls.

If you look at this, when we did these analyses, we basically -- when you do a trend analysis, you're looking for two things. First of all, you're looking for is there an obvious trend you get by looking at this data, do you see something?

A trend analysis really should be -- the statistics should be backing up what you can see. If you look from about roughly '92 on, in the majority of these surveys you see a decline. So the second thing we look for is the statistics, do the statistics back this up?

Do the statistics say, yes, this is significant, these declines are likely not due to chance? If you can see it, and you also have the statistics to back it, if you have both going with you, then you can be pretty confident that's what's going on.

So we appear to see a decline over the time period and then the meta analysis when we combine the datasets. First of all, six of the eight datasets showed a decline statistically. It was statistically significant. There was a statistical consensus for the decline when we did this meta analysis, when we combined them.

When we weighted all the datasets equally, we had a significant result showing that there was a decline. Secondly, another way to do this is to weight -- there are a lot of different ways you can do the meta analysis.

One way to do it is to weight the datasets inversely to the standard deviations, so basically the better datasets, the one with less variation get weighted higher. The datasets with a lot of variation get weighted lower. This is a good way of doing it, a typical way of doing it.

Once again, when you do that, you also get a significant result. So there is definitely a consensus for decline. We did this over a long time period -- the longer time period as well as the shorter time period. Both showed a decline.

Let's go to Slide 11, please. Here is our power analysis. Datasets on the left side and then this minimum detectable decline; what could you hope to see given the time series? A lot of things to point out on this, so let's sort of take them one by one.

First of all, with the bottom four datasets, the spawning surveys looking just at the peaks, the coastal bays, the spring trawl from NMFS and the young of year, in five years you'd have to see more than a 100 percent decline, meaning below zero, for you to actually be able to detect a decline.

That is saying to me that these are very uninformative datasets. Even with 15 years of data, you're still not going to spot anything with the young of year, the Delaware 16-foot. With the other three, you'd only be able to spot a 77 percent decline in a 15-year time period, so those datasets really aren't going to tell us a lot about horseshoe crabs.

Now, if you look at the other extreme, the trawl survey, which is the Virginia Tech Trawl Survey, we set this up specifically so that it would target mature females, so this is a targeted horseshoe crab survey where we did pilot studies, and we stratified the survey based on our pilot studies to make this as informative as possible.

You'll see in terms of mature females, we do have a very informative survey compared to the others. In five years with our trawl survey, you could see a 12 percent decline and identify it; in 10 years, 9 percent decline, so this is giving us much better information.

But keep in mind now you still need five years of data to spot that 12 percent decline. You're not going to get an awful lot in two or three years of data. Then you'll see the other datasets all somewhere in between. The NMFS Fall Trawl, you need a 72 percent decline over five years.

Our trawl survey, Virginia Tech, if you look at all horseshoe crabs put together, not just the mature females, which was the target of the survey for the stock assessment, but all horseshoe crabs, 88 percent decline.

So these power analyses are very, very helpful in telling us which datasets are going to be most helpful

in the long term, and basically they help us interpret our current data. All right, hopefully, we're okay with that.

Let's go to Slide 12. This is the trend analysis for West New York. You'll see the datasets in the legend. You'll see, once again -- can you see it with your eye? I think you can, and I think you can see an increase with this dataset.

The indices are increasing, suggesting that the population is increasing. We're specifically looking for a decline and the statistics don't support any decline, whatsoever.

Let's go to Slide 13 which is Eastern Long Island. Now, I hope you're noticing the different patterns we're getting by region. The Southeast really didn't show much of a pattern at all. Delaware Bay showed a decline. Western New York showed an increase, and now Eastern Long Island is showing something entirely different, which is sort of a bell-shaped thing -- I mean, it's going up and going down over time.

So one of the main conclusions we're getting already is there are important regional differences with the horseshoe crab population coastwide. You really can't treat it as one large population because different parts of it are doing different things.

So this Eastern Long Island population is unique in that you had an increase up to, say, '90-'92, something like that, and then it has decreased since. So when we're thinking about management, we're going to have to begin to start thinking regionally about management, if we haven't been already.

Let's go to Slide 14, the power analyses for New York. See, once again, you'd have to have a 58 percent decline in five years -- a 58 percent decline in over five years to really be able to detect it.

That's a large decline in five years, so that's telling you that small year-to-year differences, you're just not going to be able to pick up and say they're significant. You're really not going to be able to spot those doing this kind of analyses.

With this kind of analyses, the longer the time series, the better off you are; and the more informative the time series, the better off you are.

All right, let's go to Slide 15, please, which is the trend analysis for New England. In this one, you can see you've got different surveys telling you different things. Overall, you may see a decline there. You

also may see a decline from about '94 on. Other than that, you've got some interesting things going on.

The Massachusetts Spring, all regions, sort of gives you some sort of spike around '93 to '94. The Rhode Island MRI gives you a spike around '92, which neither of those are really supported by the others, so there is always going to be sort of anomalies.

Once again, let's go to the power analysis and see which of these surveys give us the most information. You can see when it comes to New England, we do not have very many, if any, informative surveys taking place up there based on the power analyses.

There is so much noise, there is so much variation in this data that trying to spot a trend is going to be virtually impossible is what this is telling you. So as we're looking through this, this also should be giving some indication of what kind of surveys probably should be continued, what kind of areas where we may need different kinds of surveys or additional surveys, surveys that may be helpful for other species but aren't going to be helpful for horseshoe crabs.

Let's go to Slide 17, which is the Stock Assessment Subcommittee's bottom line findings, basically. Number 1, the coast-wide horseshoe crab population is subdivided into regional or local populations. There is clearly some regional/local dynamics taking place.

I don't know that at this point we know exactly how to divide up those regions. We need more information on that, more data on that. We have some ideas, but, clearly, we've got different dynamics happening at different places.

In terms of the trends, these trends varied regionally. It showed stability in the Southeast, increasing in Western New York, decreasing in Eastern Long Island, recently in New England and in the Delaware Bay.

The Delaware Bay was longer time frame and shorter time frame. We suggest that continued precautionary management is recommended coastwide, particularly, in the Delaware Bay because of these results.

Let's continue with Slide 18, please. Some other findings we had -- to give you some background on this, we've developed a stock assessment framework for doing a full stock assessment on horseshoe crabs. We've developed surveys that will provide information into that.

The Virginia Tech Trawl Survey is one of those datasets that will be used for the stock assessment survey or stock assessment framework. We said from the beginning, as with any stock assessment, you can't do a stock assessment with two or three data points.

You need to have a significant time series to be able to see the kinds of things you need to see and to be able to fit the kind of parameters you need to fit with a stock assessment. So as we said all along, you're needing at least five to ten years of data, good data from all the important datasets before you can do the full stock assessment framework.

So right now we're doing something that's telling us a little but not a lot with these trends. Alternately, we want to go to the stock assessment framework, which is going to tell us a lot, but that's still five to ten years off.

So, what we discovered is there may be some intermediate assessment approaches that could potentially provide estimates of harvest level and sustainability. Gibson and Olszewski from Rhode Island have taken a stab at this.

The Stock Assessment Subcommittee would like some time to take a stab at this, also, and look at this and see whether these techniques -- we don't know for sure that these methods will be useful, but they're promising, and we'd like to take some time to look at this.

We think we may be able to give some results that would be more informative and more helpful to the board without having to wait the five to ten years for the full stock assessment framework, so that's one thing we want to be working on.

Next, the Shorebird Technical Committee and the Horseshoe Crab Technical Committee really have not been working together much at all. They've had their own tasks. They've had their own datasets. They've had their own charges, and to some great extent they've had their own separate members.

We feel there is a need for the two groups to be working together. Ultimately, we're going to have to understand the relationship between shorebirds and horseshoe crabs in Delaware Bay to be able to manage this resource.

We're moving there very, very slowly at this point, and we're doing it separately by the shorebird folks working one way and the horseshoe crab folks

working another way. There is a methodology called "adaptive resource management" that could potentially provide a framework for the two groups to work together that would allow us basically, if it works well, to identify the kinds of data we need to collect and how the data can be put together to provide us insight about how the system is working.

We would like to move forward with an adaptive resource management working group, have that established, to explore the potential for this process. We can't say that this is going to work. We can't say that this is going to work in two years or three years.

What we can say is we think it has potential, and we'd really like to try it and see where it leads us. So that's the next finding there. Finally, just a really important bottom line, horseshoe crab life histories, just given that horseshoe crabs have a very unique life history, they take ten years to mature; we have inherent variability in the data.

There is a lot of the variability in the data, particularly in these datasets that weren't designed for horseshoe crabs. Then the results of the power analyses showing us that in many cases you'd have to have a complete collapse before you could even detect that there is a decline going on.

All of this is telling us that we are best able to identify trends and significant changes in the population on a multi-year scale. We do not have the ability with these datasets, and given the live history of horseshoe crabs, to see year-to-year differences. If a management regulation goes in, say now, we're not going to be able to see its effect next year or the year after. Our data just does not give us that ability. Now with five years of data, with ten years of data, it's a lot more likely, but with two or three years, it isn't.

I don't think that's that much different than most other fisheries' datasets. I think it's very rare, if it happens at all, where you put a regulation into effect, and, bam, the next year you immediately know what the effect is.

I think usually it takes multiple years of data to see what the effect is, so all of our work, to date, supports this and basically says that we need to have some patience, and our expectations need to be changed in terms of what we expect to get out of this data and what we hope to be able to see.

I should also tell you I think we're making excellent progress with our research and our monitoring.

Years ago we didn't have useful data. We didn't know what we needed. We didn't know how we were going to get there.

We were able to identify our research needs, and we did a good job of that. We've been able to do pilot studies. The new Delaware Bay Spawning Survey is an excellent example of that, as is the trawl survey. We did pilot studies to see what works, what doesn't.

Now we've put many of these surveys into place on an annual basis. We are now getting the exact kind of data we need to move us beyond trend analysis, to move us to something more informative and something more powerful, so we're in that direction.

The problem is many of these datasets have two or three points right now, and that just isn't enough to be able to do anything more than a trend analysis. But now that these monitoring programs are in place, now that they are expanding, we're moving in the direction where we will be able to tell the management board more in the future and be more helpful and useful to them in terms of the effects of various management approaches.

Finally, on Slide Number 19, our research recommendations, coast-wide, we call for the continued expansion of the offshore trawl survey, increased tagging. If we're trying to figure out whether we've got regional/local populations and where they are, tagging data is really helpful for that. It lets us know where the crabs are going and how much mixing is taking place. So increased tagging, particularly in New York and Connecticut, is needed.

Then we still are working on developing this methodology to identify newly mature females, which is ending up being a little bit more challenging than we had hoped, but I think we're moving well in that direction.

Then in Delaware Bay we're calling for a continuation of the redesigned spawning survey. I believe that's the end of this presentation on the stock assessment report, and I'll be more than happy to take any questions that you have.

CHAIRMAN FREEMAN: Okay, for the board, are there questions on Dr. Berkson's presentation? Seeing none, are there any questions from the audience? Mike.

MR. LITCHKO: You got me now? On your trend analysis -- that's on, I guess, that's Page 6, might have been -- your decline of all this trend

analysis, that's based on persoma width population?

DR. BERKSON: I apologize, but because of the phone hookup, the only person I really can hear well is the chair, so I'm going to have to ask you all to relay the questions to me, and I apologize for that.

MR. SPEAR: What was your question, Mike?

MR. LITCHKO: The trend analysis, the decline that he shows, that's based on the persoma width and population of horseshoe crabs?

MR. SPEAR: Jim, Mike is asking if the trend analysis was based on persoma width and population --

MR. LITCHKO: Yes.

MR. SPEAR: Population abundance.

DR. BERKSON: The trend analysis was based on the individual datasets. Each dataset was different in how it was collected, where it was collected and what it looked at. All of that is documented in the stock assessment report. In all cases, these were indices of population abundance or assumed to be indices of population abundance.

MR. LITCHKO: If the ASMFC stated that the Delaware trawl data surveys were not useful for assessing populations or trends, why is it being used by you today?

MR. SPEAR: Jim, Mike asked if the surveys that were used were generally uninformative, why were they used in the analysis presented today?

MR. LITCHKO: No, Brad, that was the ASMFC deemed that New Jersey trawl data surveys were not useful for detecting trends. Why are they being used?

MR. SPEAR: Sorry, he was referring specifically to the New Jersey trawl survey --

MR. LITCHKO: No, the Delaware, I'm sorry, the Delaware trawl data surveys.

MR. SPEAR: Okay, the Delaware trawl surveys were deemed generally uninformative in the last assessment, I believe, and why were they used in the current assessment?

DR. BERKSON: Because in the last assessment we did not do a power analysis. That's why we did the power analysis in this assessment, to look at actually how informative those datasets were.

Over longer time series, they actually end up providing information, which you'll see if you look at Slide 11. We didn't want to exclude any data. The idea was to include as much data as we had.

We wanted to make sure we interpreted it correctly. When we did our meta analysis, we weighted them inversely to their variance so, once again, the ones that were least informative would have been weighted the least.

So, by including all the datasets we could, and handling them correctly -- we had more time this time. We had more datasets. We had more years. We were able to handle them appropriately, rather than excluding them.

MR. LITCHKO: If the Delaware trawl data surveys were done inshore in the early '90s and in the 2000 -- '94 to the present date was done offshore, how did your power analysis calculate the difference between inshore and offshore on that?

CHAIRMAN FREEMAN: Just a minute. David Borden, you had a comment.

MR. DAVID V.D. BORDEN: Thank you, Bruce. May I suggest that if you're going to take questions from the audience, that the person in the audience go up and sit where Brad is so that we don't have to repeat the questions?

CHAIRMAN FREEMAN: Yes. All right, Mike, it's probably a better idea if you come up here and use this microphone.

MR. LITCHKO: Yes, can you hear me?

DR. BERKSON: Yes, I can.

MR. LITCHKO: If the Delaware trawl surveys were done inshore in the early '90s and then were done offshore from '94 to 2002, how did you power analyze that or calculate how that would not interfere with the noise or in the trend of your analysis when the original studies were done inshore along the beaches and then in the later year it was done offshore, where there's no crabs? In the early years you did it where there was some crabs.

DR. BERKSON: Right, I'm not sure how

that was handled. I can tell you that we went -- we got that level of detail for each of these surveys, took those things into account. There is more documentation of that in the report.

Many of these tasks, such as putting together the individual datasets, were given to individual committee members or subcommittee members, so I will have to talk to whoever handled the Delaware Bay Trawl Survey datasets to see exactly how that was handled. I don't want to give you a wrong answer so I'm going to have to get that additional information before I can answer you.

MR. LITCHKO: In the early '90s there were 376 stations used, and then in 1994 to 2002 there were only 94 stations used, so there are two things that need to be looked at on there.

On your Massachusetts inshore trawl data survey, in over 20-some years of trawling they never caught more than 356 horseshoe crabs on the spring survey, so that's not even a crab a tow.

DR. BERKSON: That's incorporated in the variance estimates?

MR. LITCHKO: Pardon me?

DR. BERKSON: That should be incorporated in the variance estimates. That's why we used variance estimates for each of these datasets.

MR. LITCHKO: Your South Carolina, one of your major declines, they had used two trawl nets in the earlier years, and then in 2002, when you had the decline, they only used one on the boat.

DR. BERKSON: Well, South Carolina, I don't know that was really an issue, because we aren't saying there was any decline. We're saying that there really was no trend. And, once again, I'll have to talk to the subcommittee member that dealt with that individual dataset.

For these very specific questions about individual datasets and how they were handled, to get the correct information to you, I'm going to have to talk to the individual subcommittee member who dealt with that dataset.

MR. LITCHKO: Well, you used the persoma width on the Georgia Trawl Surveys to show a decline. Now what I gather out of that is that you used male hermaphrodites to show your decline, and then in the later years, in 2000, you used strictly

a male horseshoe crab, which is a smaller persoma width.

In Georgia and South Carolina, you used a hermaphrodite, which is a larger -- as a matter of fact, you had the female crab -- or the male crabs, excuse me, as larger than the female horseshoe crab, and you used it as a hermaphrodite, and I believe Delaware used some of those, too. Can you explain how you statistically analyzed that into that and calculated the analysis with that?

DR. BERKSON: In each case with each dataset, we worked directly with the state biologists responsible for that dataset. We put together the information in the most appropriate manner possible. We have documented that in the report.

I think what would be most useful is if you could put together a list of those questions about the individual datasets, then I can get together with the subcommittee member who dealt with those datasets and with the state biologists and make sure that we handled them appropriately.

I've got complete confidence that we did because we worked with the right people. We weren't guessing at what the datasets were. We weren't guessing at what the numbers were. We worked with the right people who knew those datasets. I'm more than happy to answer all of your questions, but I cannot do that at this time without checking with the right people.

MR. LITCHKO: Okay, fine, I'm just bringing the questions to your attention. Also, another major decline was the Point Judith Scout Survey, which was a pond. A one-time, one-sample was one of your major declines, one-day count, once a year.

That was a major decline for you, and that's in a pond. That's not even a -- that's a visual count. That's not even a trawl data survey or a study, because it's only a one-day count, and this is one of your major declines?

DR. BERKSON: Once again, I don't know that this is really serving a point at this point other than to put this on the record, because what we need to do is we need to deal with each of these one at a time with the state biologist and the subcommittee member who did this.

We didn't rush to do this. We took our time doing this. We worked with the right people. We asked the

right questions. We've documented it fully. I'm very confident in our report. I'm very happy to answer all of these questions when I'm given the time and the resources to do so.

MR. LITCHKO: Well, when we did have the time and the resource to meet with you and talk with you on the phone, these questions were not allowed to be raised here. These questions were shielded from us being able to ask you what the real science is here.

DR. BERKSON: I have nothing to do with process, as I'm sure you know. Our job is to do the best science we can with the information we have, and I feel we have accomplished that.

MR. LITCHKO: So you feel that --

DR. BERKSON: If you have process questions, those obviously have to go to ASMFC.

MR. LITCHKO: Right. Another major decline was the NMFS Spring and Autumn Trawl Surveys, that they used 16-inch tires on the bottom of the net to roll over all the rocks and the horseshoe crabs, and that was one of your super major declines.

DR. BERKSON: I don't believe we used the term "super major".

MR. LITCHKO: No, I do, because it's unbelievable to me that you know you've got a -- it's like a car riding over something and you're going to try to tell me it's going to catch on the bottom.

I just wonder how that you can actually come up here or present this thing that you did and show a power analysis of a decline in horseshoe crabs based on just this information that I presented right here that is severely inaccurate, flawed. Thank you.

CHAIRMAN FREEMAN: All right, Charlie, we're going to keep this short or we're going to run over time. Yes, come up here. Again, I'd like to remind everyone that some of the questions that Mike Litchko asked, Jim Berkson said he would certainly be able to answer, but he's going to refer back to the specific committee member. If you could keep your questions general.

MR. GIVENS: Good morning, Dr. Berkson, can you hear me?

DR. BERKSON: Yes, I can.

MR. GIVENS: Dr. Berkson, my name is Charles Givens and I'm from Cape May. I was the gentleman that attended the Stock Assessment Committee from New Jersey. At that time you handed out a summary of your report. On Page 7, there is a chart, a map.

DR. BERKSON: Okay, you need to tell me which report, and I need a little bit more information there, please.

MR. GIVENS: Okay, it's the preliminary analysis.

DR. BERKSON: Are we talking about the trawl survey now?

MR. GIVENS: Yes, your trawl survey, sir.

DR. BERKSON: I have a presentation that, I believe, I'm going to be giving on that actual trawl survey that will answer many questions I believe that both you and the board may have. I think right now I'm assuming -- I'm obviously not chairing the meeting, but I'm assuming these are questions directed to the stock assessment report rather than the trawl survey.

MR. GIVENS: Well, I have a specific question as to your survey, sir, if I may.

DR. BERKSON: Well, I would suggest to the chair that be handled after we give the report on the trawl survey.

CHAIRMAN FREEMAN: Charlie, it's a good point. We do have another presentation by Dr. Berkson on the Virginia Tech Trawl Survey, which will take place immediately after these questions, so if it's relative to that survey, let's just hold it.

MR. GIVENS: Okay, so I'll be able to ask it at that time?

CHAIRMAN FREEMAN: Yes.

MR. GIVENS: All right, thank you, Dr. Berkson. I'll have that question for you later, sir.

DR. BERKSON: Great, look forward to it.

CHAIRMAN FREEMAN: Okay, any questions from the board? We have to move along here. We're just going to run out of time. All right, then I would ask, Dr. Berkson, that you move into your trawl survey update.

DR. BERKSON: Okay, thank you. This presentation was put together in response to a memo we received from the board, which asked us some very specific questions about our results, about our methodology.

We prepared that and that report has been distributed to the board. I'd like to point out that each year we discuss the methodology of the trawl survey with the Technical Committee. We also present our results to the Technical Committee.

We consider the Technical Committee an oversight group, and we keep them in the loop, and we incorporate their comments and their ideas. We very much appreciate their help each and every year. So we have a new presentation.

Hopefully, on the screen it says, "Horseshoe Crab Trawl Survey 2003 Preliminary Results." The numbers in this case are on the bottom right, not in a box but a number, nonetheless, so let's move forward and go to Slide Number 2, please.

The first thing I'm going to do is show you some maps of where the trawl survey has taken place. Number 2 shows you the 2001 Pilot Study coverage in the Delaware Bay area. Now, I need to point out that with the survey, our goal is to start in areas and do a pilot study to get a sense of what equipment we're using, everything from how easy it is to charter a boat, work with the boat, et cetera, to learn more about the topography of the bottom and basically, most importantly, to learn how to stratify our future samples, so that we can stratify them most effectively, so that we can have the most informative survey we can.

So in each area we do a pilot study the first year, and then we expand it to do an ongoing regular monitoring. In 2001 we did that pilot study in the Delaware Bay area, in the red area as you see on the map.

Let's go to Slide Number 3. This is the trawl survey coverage in 2002. This expanded the Delaware Bay survey area, so that area was larger, and we also did a pilot study now so we're moving up in the New York apex.

That year we also did a pilot study in South Carolina, I might add, but it just doesn't show on the map here. We expanded our 2002 area, we did a pilot area in the New York apex, and we did a pilot area in South Carolina.

In 2003, Slide Number 4, the trawl survey coverage in Delaware Bay area and the New York apex was expanded. Our goal was to expand it even greater and go from Chesapeake Bay all the way up to Eastern Long Island. We had a problem with our funding.

Our funding didn't come in. It actually came in, I believe, like two weeks after our "drop dead" date, so we were able to do the survey, but we did the survey later than we wanted. When we get our money at the last minute, we need to charter boats. We also need to hire staff.

We can't do any of that until we have money in-hand, so if we don't get money until the last minute, we can't get boats, we can't get staff, so we did the most we possibly could with the funds we had in the time we had in 2003. That's what we were able to accomplish in 2003. It was less than we had hoped, but it was more than 2002.

Let's go to Slide 5. In order to compare abundance among years, we looked at the 2001 pilot study area and the 2002 Delaware Bay survey area. You will see that there is an overlap in the two years. That red area was surveyed in both 2001, 2002 and 2003. All three years surveyed the red area. Now, the first expansion of it that went out in 2002 are those yellow areas. Well, we did those in 2002 and 2003, so the red area we were able to compare over three years. The yellow areas we were able to compare over two years.

Let's go to Slide 6, please. These are graphs of Delaware Bay. You're looking at estimates and error bars. The solid ones, the black diamonds, I guess you'd say, those are for that inner area that was sampled three years.

Let's look at the top left one, this is immature females. This is year on the X axis, the mean density on the Y axis. If you look at the black diamonds, the solid diamonds, that is for that inner area in Delaware Bay.

You'll notice that the mean estimate does change, but if you'll look at how large those error bars are, you really can't talk about significant differences between years. In fact, they aren't significant when you do the actual statistical test. There's too much overlap. This goes back to the power analysis.

With five years of data, ten years of data, you're going to be able to tell a lot more than you are in a

year-to-year comparison. That's just the nature of the data and the beast.

If you look at that same graph, at the white diamonds, those are -- you remember the areas that were in yellow on either end of the red areas, the areas we surveyed in 2002 and 2003, that's what those white dots are.

Once again, by looking at the points, you could say there is a decrease in that mean estimate between 2002 and 2003. But with the confidence intervals the way they are, it's not significant. It is basically saying there is not a significant difference between those years.

Now, you can look at all of these graphs, which show immature males in the top right, multiparous females in the bottom left, multiparous males in the bottom right, and you can see these, and you can see that because of the confidence intervals, we really don't have any significant differences in densities for immature or multiparous crabs during this time frame.

Let's go to Slide 7. These are immature females, immature males, just some additional results. The graphs are the same as they were on the previous slide. The densities of the immature crabs were higher in 2002 than in 2001 or 2003, but it wasn't significantly different.

The densities of the multiparous crabs were constant within the 2001 area, that's that main area that's the area in the middle, but decreased outside of that area, so the densities within that red area were relatively the same but decreased outside of that, but, once again, it's not significantly different.

Okay, let's go to Graph 8. These are primiparous males and females. These are newly mature animals. You'll see the solid diamonds, black and blue, the solid black and blue diamonds are for that inner area, that red area that was surveyed for three years.

If you compare 2002 and 2003, you will notice a large decline. That decline was significant. That decline was significant for both females and males. Given the power analysis, you remember basically what I said was with two or three years of data, you'd only expect to see and be able to really come up with something if there was virtually a large decrease, a large decrease.

Clearly, if you look at these numbers, there was a very, very large decrease in primiparous animals.

Why did that happen? Could it be because the actual numbers of abundance changes? Yes, it could be.

But we also know that water temperatures were very different in 2003 than 2002. I'm going to show you a slide of that next. We very well might have animals, the newly mature, not migrating out or actually not growing as fast, not hitting that stage or not actually reaching maturation so it may not have to do with abundance. It could have to do with growth and maturity due to the water temperatures.

But, anyway, the densities of the immature and primiparous crabs were slightly higher outside the 2001 study area than within it. The densities of the multiparous crabs were higher inside the 2001 study area than outside it, so we may see some differences in where the different stages are, but those aren't significant.

So far we have one significant result, looking at Delaware Bay, out of three years of data, and that is this primiparous animal dropped, the number of primiparous animals between 2002 and 2003.

Let's go to Slide 9. That's that map of the areas we surveyed again. We got water temperature data from three locations. The three locations are the black dots on that map: Cape May, Atlantic City and offshore.

If you will look at the graph of temperatures, which is in the top left, for August-September, the Y axis is the mean water temperature. The X axis is the year. What you will see is 2003 is a much lower value for all three of those datasets so the water was cooler, and that could have affected the distribution of all stage of crabs, could have delayed maturation.

There are a lot of things it could do that could lead to the low abundance estimates for primiparous crabs, so I don't think at this point we can say to the abundance, you know, there is a major problem with abundance of primiparous animals. I think we need to keep watching this and see what happens, but this could very likely be due to these water temperatures.

Let's go to Slide 10. We did do this one area in New York for both 2002 and 2003, the area in yellow. If you look at the results in Slide 11, you will see once again differences but large confidence intervals.

With five or ten years of data, this is going to be pretty interesting. Right now it's not telling us a lot. There were too few primiparous crabs to make comparisons. Now we got asked about how we make our data night catch conversions.

I've included that in the report we gave to the board and that we presented to the Stock Assessment Subcommittee. I've got slides going over it. I can briefly go over it now, or I can go over it in lots of detail.

Why don't I briefly cover it, and if there are more questions, I'll be happy to go over that in more detail. The Technical Committee approved our methodology and said it was the best way to handle it.

Basically, what we did was we used regression equations, used for the day-night catch conversions, basically used the simplest method that makes the most sense, and you don't make things more complicated than you have to, so we used regressions.

Time of day significantly influenced catches of mature, both multiparous and primiparous male and female crabs in the non-trough areas. However, they did not influence catches in the troughs, so if we didn't see significant differences, we didn't use a conversion.

Time of day was significant for immature males and females in troughs. It was assumed to affect the immature males and females in the non-trough areas. We did linear regressions using untransformed catches adjusted to standardized 15-minute tows.

We used the untransformed catches because they provided better regression equations than log transform catches in terms of R-squared value and F statistics. The conversions were applied only to those daytime tows in which at least one individual of sex maturity group occurred.

If you go to the next slide, which is Slide 13, these are scatter plots of observed catch per tow from night and day collections, where we did both day and night catches at the same locations.

These are how the scatter graphs look, and that's what we did the linear regressions based on, this data. We haven't done any conversions where we didn't have the data to produce the relationship.

We were also asked about power, the power to detect population declines. On Slide 14 there are a number of different ways you can illustrate the results of power analyses. I showed you the earlier tables, which included our trawl survey.

Here is another way of looking at it. This is the annual rate of decline, which is R, detectible to power

of 0.8, 1 minus 8 of 0.8, alpha 0.2 for varying coefficients of variation. It's the percentage of the -- also showing is the percentage of the population remaining at the time.

So the way to interpret this is at a coefficient, a variation of about 0.25, which is what we think our data is, the average rate of decline would have to be at least 26 percent per year for three years to be significant to be able to plot that.

And at that time the population would be 49 percent of what it was in Year 0. So, in other words, your population would have to decline down to 49 percent of what it was in three years to be able to spot that decline and say that's significant.

Is there any shock, then, that the trawl survey results on a year-to-year basis were not significant? I hope not. Once again, as the number of years goes up, suddenly now you've got a much more powerful survey.

It can actually spot 2 percent declines per year at 20 years or 15 years rather than needing a 26 percent decline. So that's the power analysis.

I'm going to show you on Slide 15 a summary of the 2003 survey. The abundance of multiparous crabs appears higher nearest Delaware Bay. The abundance of immature and primiparous crabs appears higher farther from Delaware Bay, although they aren't significant.

Abundance of immature and multiparous crabs near Delaware Bay appears consistent over time for those three years, but keep in mind the power analysis. Abundance of primiparous crabs near Delaware Bay appears to have decreased in 2003; however, low water temperatures may have influenced this.

Abundance of crabs farther away from Delaware Bay may have decreased from 2002 to 2003, but this decrease was not evident in the New York area. Changes in abundance may not become evident near Delaware Bay until large changes have occurred farther away, potentially, and populations in different regions may not display the same abundance changes. That's what we have so far.

If you go to Slide Number 19, this shows you our game plan for 2004, assuming we are actually able to have our money in time to get the boats and the people together. We're going to continue our Mid-Atlantic survey and expand it, which is the central red area.

We're going to add now a South Atlantic survey. We're using the pilot data we got from 2002 in South Carolina, and we're going to turn that into an actual survey over that area. Then we're going to conduct a pilot now on Rhode Island, that Rhode Island stretch, the yellow stretch, so we can begin moving north into New England.

These were the areas recommended by the Technical Committee to us, and we have found a way to do it and budget it and, well, this is what we plan on doing. Once again, I'm happy to take any questions.

CHAIRMAN FREEMAN: All right, are there any questions from the board relative to the surveys? All right, seeing none, Charlie, you had a -- oh, I'm sorry, Lance.

DR. LANCE STEWART: Yes, I was interested in the type of trawl gear and whether it's consistent and the same dimensions for all surveys. Could you describe the type of sweep of the trawl that was used?

CHAIRMAN FREEMAN: Jim, did you hear that?

DR. BERKSON: No, I didn't, I'm sorry.

CHAIRMAN FREEMAN: All right, let me just quickly paraphrase it. The question was relative to could you describe the trawl gear that was used and could you describe the sweep, the length of the sweep or the width of the sweep.

DR. BERKSON: I still didn't get it.

MR. SPEAR: Can you describe the trawl gear that was used, including the width of the sweep.

DR. STEWART: And characteristics.

DR. BERKSON: We have all that documented. I will try to dig that up while I'm talking to you here, because I don't remember the measure off the top of my head. It's the standard Texas sweep.

One thing I want to point out to you is before we started any of the surveys, the first thing we did was we met with horseshoe crab fishermen in two or three different spots, and these were fishermen recommended by ASMFC and by the states.

We basically asked them where are you finding the crabs, and what kind of gear should we use, where

should we be looking, where should we stratify? In our opinion, you always start with the fishermen, because they know the most about the critter.

They know the most about the animal so we started with them, and that's how we got the gear we were going to use, and that's how we got the whole idea to stratify between troughs and non-troughs. We feel you're always better off starting with the fishermen and using their inherent knowledge of the resource in helping design these surveys.

CHAIRMAN FREEMAN: Okay, other questions. Gordon.

MR. GORDON C. COLVIN: This may actually be for the chair or the staff. Notwithstanding the problems that Dr. Berkson referenced with respect to the timing by which funding was made available to Virginia Tech, my question is what can you tell us, refresh our recollection on the level of appropriation and the initial availability of the funds for the 2004 survey?

CHAIRMAN FREEMAN: All right, Brad.

MR. SPEAR: Just for clarification, Gordon, for this upcoming year, the money that's available?

MR. COLVIN: Yes.

MR. SPEAR: Jim, can you give us a status update on the level of funding that has been appropriated for 2004 and any sense of time line that you have.

DR. BERKSON: You probably know in 2003 we received a congressional earmark to do horseshoe crab research within the amount of \$650,000. The actual amount that came to us was I believe \$630-some-odd thousand.

We received this late in September, even though it was awarded to us by Congress in, I believe, February or March. That whole process, the grants process took a lot of time and it made it very difficult for us to do the survey we wanted to last year.

We have once again received an earmark for this year in the same amount. We are working right now with National Marine Fisheries Service, or Virginia Tech is working with National Marine Fisheries Service to get that money passed over.

We're hoping it will be a smoother process this year. We're hoping we're going to get it sooner. If we get

it as late as we did last year, we will not be able to do the kind of survey we have designed for 2004. It will be much smaller and probably the same size, if we can even do that.

We did have to go late last year, as I said, because of the funding. There are differences between months going out September versus October. We thought it was better to go out and get data than not go out at all.

We also hope at some point to be able to collect data in September and October so you can make comparisons between months to allow you to do a better comparison between years. But we have our fingers crossed that the pass-through will be quicker between NMFS and the Virginia Tech this year, and that we can have this year's survey in place.

Let me add one other thing. As I'm sure most of you know on the board, earmarks are not permanent. Earmarks are normally temporary. We don't know how many years this earmark is likely to continue, but the Technical Committee and the Stock Assessment Subcommittee would both like to see this offshore trawl survey continue, so there has to be some sort of game plan put into effect to allow this money to continue once the earmark dries up, which typically would be in a year or so.

This could be money added to the National Marine Fisheries Service budget. There are any number of ways this could happen. But I think the board may want to be thinking about what to do when this earmark dries up, which will be relatively soon.

CHAIRMAN FREEMAN: All right, other questions. All right, Charlie.

MR. GIVENS: Thank you, Chairman Freeman. Dr. Berkson, can you hear me?

DR. BERKSON: Yes, I can.

MR. GIVENS: This is Charles Givens, again. I'd like to get back to that specific question that I had on the area of your trawl survey in 2003.

The document that I picked up at the stock assessment, and it may not be the current document, I'm sure, but it shows the survey that started at the Delaware Bay and increased over the years 2001, 2002 and 2003, it shows a western boundary at approximately 72 degrees and 30 minutes. Is that accurate or do I have the wrong information here? It would be the eastern boundary of the -- did you understand the question, sir?

DR. BERKSON: Yes, I do. I don't have all the previous reports in front of me. What I'm looking at is Slide Number 4. I believe this to be accurate, so I don't believe we're getting anywhere near 72 degrees.

MR. GIVENS: So the blue area is the eastern boundary of your survey?

DR. BERKSON: We go out to 12 miles. We have an inshore and an offshore strata. Inshore is 0 to 3; offshore is 3 to 12.

MR. GREGORY BREESE: Jim, this is Greg Breese.

DR. BERKSON: Yes, Greg.

MR. BREESE: I'm looking at the map that he's looking at, and I believe what he's referring to are label lines that you had drawn on one of your versions of the printed maps that make it look like big rectangular areas, but I believe they're just designed to identify the north-south cutoff; is that correct?

DR. BERKSON: Correct, yes.

MR. GIVENS: So those eastern boundaries are -- okay.

DR. BERKSON: Yes, that was just to show the north and south. When you are trying to produce these kinds of graphs, it's a little tricky as to what's the best way to show the area. I think we're getting better at it with time, I hope.

MR. GIVENS: Okay, and generally, sir, the further off shore that you go, the less horseshoe crabs that you see?

DR. BERKSON: Correct.

MR. GIVENS: Well, if the survey expands -- well, I guess you're saying that it hasn't expanded offshore; it has been consistent?

DR. BERKSON: At this point in time, we don't plan on expanding beyond 12 miles unless some of our pilot studies for a particular area show that there is a reason to. Up to this point, our pilot studies for the different areas we've looked at has not shown a reason to.

MR. GIVENS: And in 2003 the survey was

done about a month or three weeks later than it was in the previous years?

DR. BERKSON: Correct.

MR. GIVENS: On top of that, the water was colder in that year, correct?

DR. BERKSON: Correct.

MR. GIVENS: That was due to the slowness that the funds came through?

DR. BERKSON: Correct. We're doing our best to point that out in our documents and our talks. I mean, there's no secret with that.

MR. GIVENS: But, certainly, it could have affected the survey?

DR. BERKSON: Oh, absolutely, and that's why I said we would like to be able to do a September and October survey to be able to do some comparisons over some years so we could see if there is some sort of trend you'd see between September and October.

MR. GIVENS: Okay, sir, I think that answer the questions that I had for you, sir. Thank you very much.

CHAIRMAN FREEMAN: Okay, we'll move on with the agenda. The Technical Committee report, Greg Breese.

TECHNICAL COMMITTEE REPORT

MR. BREESE: Thank you. After the report by Jim, I don't feel like there's a lot that the Technical Committee can really add. It was an excellent report. There were a few points that were in the report. You should all have that report in front of you.

I believe there are some maps of some of the surveys that were used in the stock assessment report that will be distributed to the board more as reference material, so you can see spatially how well those areas were covered, so I'll just mention that real quickly.

The Technical Committee reviewed and considered the report that had been identified related to the Shuster Reserve and take from the Shuster Reserve. We couldn't put our fingers on a report that referenced a number as people had suggested there

was; however, the Technical Committee supports the board's recommendation to NMFS to allow collection of up to 10,000 horseshoe crabs for biomedical purposes in the Shuster Reserve.

As far as the stock assessment report, the Technical Committee was very pleased with it; thought that the Stock Assessment Subcommittee did a very good job; thought it was quite an improvement over the previous report and reflects the increased time spent in analyzing the data, increased years of data and increased understanding that we have of the horseshoe crabs.

However, I'd like to point out that what Jim said the Technical Committee has also said, and that is that we're still not where we want to be with the stock assessment.

We're still using just simplistic trend analyses, and we still have a lot of distance to go before we're where we want to be with stock assessment; and even further behind with respect to integrating stock assessments for horseshoe crabs and the stock assessment, if you will, for shorebirds.

We'd like to reemphasize a couple points that Jim made. One is that it probably would be beneficial and certainly helpful down the road if there was a more concerted effort or a strategic effort in trying to secure funding, so that we could implement these critical monitoring programs that need to be in place so that somewhere down the road we will be able to do that.

The longer we wait and the longer that the funding is uncertain, the longer we will have to wait before that occurs. Also, make a plug, again, for getting something together, a working group together that would look at integrating those two population assessment models that are being developed independently right now, one for the shorebirds and one for the horseshoe crabs.

There's a lot of interest in that, but there hasn't been quite the horsepower to get it moving and to get the funding for that. But that will be really valuable because then we'll be able to start getting at the question, which I think everybody is sort of wishing we could get that but we can't, which is how large a horseshoe crab population do you need to support the shorebird population?

One of the critical issues that should be worked on timely and hopefully will be resolved is getting the funding for the V-tech survey, the offshore trawl

survey. I don't think it serves any of us very well if it gets delayed too long, and we can't do the survey when intended and as far as we've intended to do it.

I would also point out that funding for the spawning survey is also uncertain and is year to year. Funding for the tagging work to discern the regional populations has not been found yet. The work on shorebirds, which is important in understanding this issue, is also year to year and uncertain each time.

The work by Tim King, going to another subject, the genetics work, was quite interesting, and it, along with the tagging data that the Stock Assessment Subcommittee took it upon itself to do a quick analysis of and a few other papers that we've seen since our last meeting, surely do indicate that regional populations are different in their responses and in their trends. It really seems like it's time to start to really get a handle on that.

One of the ways the Stock Assessment and Technical Committee feels would be good to do that is with a coast-wide tagging effort to try to discern those populations.

The last thing that I think I'll comment on right now is the board had asked the Technical Committee to look at the Carmichael paper and what it says about coast-wide trends, and the committee also looked at the Rutecki paper.

While they're both valuable and provide some interesting insights into life history, they weren't very informative for coast-wide trend analysis work and don't seem to provide new information or additional information for that.

I guess I'll just summarize by saying that the board right now has before it since last June the Shorebird Technical Committee report, the Peer Review of the Shorebird Technical Committee report and the stock assessment report, and I think you have quite a wealth of information based on what we have at this point on which to make some decisions. Thank you.

CHAIRMAN FREEMAN: Okay, questions of Greg, the Technical Committee report, any of the board members? Roy.

MR. ROY MILLER: Thank you, Mr. Chairman. Greg, I noted reference twice now to the assessment methodology ascribed to Gibson and Olszewski. Is that particular report available to the board or is it going to be distributed to the board? Are you going to evaluate its utility with regard to

Delaware Bay and then perhaps distribute it? Thank you.

MR. BREESE: That report was referenced when the Technical Committee was reviewing the Stock Assessment Committee's work. I have not seen that report but I believe some members of the Technical Committee and the Stock Assessment Committee have.

The Technical Committee has asked the Stock Assessment Committee to look at that report and try to apply it to the stock assessment, Delaware Bay as well as coastwide, and we're waiting to see how that goes. I don't know if there are plans to provide it to the management board or not, but I'm sure that could be done.

MR. SPEAR: That is the intention, Roy. The Stock Assessment Subcommittee will take a look at their methodology and report back to the board as soon as that's available, and also the board will be provided with the initial Gibson and Olszewski report.

CHAIRMAN FREEMAN: Other questions? All right, Advisory Panel report.

ADVISORY PANEL REPORT

MR. RICK ROBINS: Thank you, Mr. Chairman. On behalf of all the advisors, I'd like to thank Bob Munson for his years of service as the AP chair. We will miss him in these meetings and appreciate his past service.

I'd also like to thank Brad Spear for hosting the Advisory Panel conference call two weeks ago. We had a very productive discussion, and I appreciate his support.

We discussed the 2004 stock assessment. We also discussed the Virginia Tech Trawl Survey results, and specifically we also addressed Addendum III, and I'll run through each of those in our summaries.

The biomedical advisor had favorable comments regarding the stock assessment. He indicated that it was user-friendly and well-written and he commended the stock assessment committee for doing a good job on the stock assessment.

The fisheries advisors, however, were uniformly critical of the stock assessment. The criticism was specific to the following issues. Most of the fisheries-dependent data is uninformative and should

not be relied upon to determine trends in population.

Secondly, one advisor from Massachusetts encouraged this board to take a more holistic approach to the management of this species. Specifically, he pointed out that there is no mention in ASMFC fisheries management plan or subsequent addenda of the fact that horseshoe crabs are voracious predators of shellfish.

He cited the fact that the Township of Chatham, Massachusetts, required licensed shellfish harvesters to eradicate horseshoe crabs until as recently as 2000 due to their impact on shellfish, which are economically valuable and biologically valuable to shorebirds. In making his case he cited the ASMFC's stated goal of promotion and protection of all fisheries, including shellfish.

Third, and probably our greatest disappointment, is the fact that the stock assessment fails to establish any population modeling parameters. The stock assessment does not bring us any closer in this regard than we were five years ago.

Specifically, we don't have a biomass target. We don't have maximum sustainable yield estimates or any other parameters essential to the proper management of the species. The panel agreed that the Technical Committee should move forward with the development of an interim population model as per Section 9.0C of this report.

Furthermore, the trend analysis that was spoken of earlier was based on the SAC's use of meta analysis. By design meta analysis is undiscerning. It places equal weight on population surveys regardless of their design, statistical integrity or other merits.

The NMFS Trawl Survey, for example, uses rock hopper gear. That includes 16-inch wheels and 4-inch cookies which roll right over the top of horseshoe crabs; yet in the SAC's meta analysis, its weight is considered equal to the USGS Spawner Survey, which was specifically designed to count horseshoe crabs.

The indiscriminate nature of meta analysis could lead to conclusions that are dead wrong. For example, if six of eight surveys show a declining population trend, the meta analysis concludes that the trend is declining.

It fails to point out that the six surveys that showed a decline were not designed to capture horseshoe crabs and already failed the 1998 peer review, while the

two surveys that specifically were designed to capture horseshoe crabs indicate a stable population.

The ASMFC is to formulate policy based on the best available science. We argued that the best available science is not arrived at by adding together all of the available science in such an undiscerning manner.

Fifth, the fisheries advisors disagreed with the finding that the Delaware Bay population continues to decline. Advisors pointed out that the powerful USGS Spawner Survey and Virginia Tech Trawl Survey indicate stable populations.

This finding was also contrary to personal observations of the advisors from the Delaware Bay. Individually, the advisors had up to 27 years of commercial fishing experience harvesting horseshoe crabs in the Bay.

They indicate that they've lost faith in the regulatory actions taken by Delaware and indicated that the new regulations taken by this board should show some compassion for the massive cuts that have already been made in their fishery.

Finally, we pointed out a problem with the time frame of the short-term analysis of the Delaware Bay population relative to Addendum I. Specifically, three of the five years in the analysis were during periods of high landings before the quotas of Addendum I were implemented, so the alleged decline in part may have already been sufficiently corrected by Addendum I.

Additionally, the short-term analysis did not include the more powerful Virginia Tech Trawl Survey. With respect to the adaptive resource management issue, Section 9B of the report, the Advisory Panel was divided on this recommendation.

The biomedical and environmental representatives were in favor of the idea, arguing that the diverse nature of the stakeholder groups affecting horseshoe crab management would be well served by the ARM model.

The fisheries advisors, by contrast, were opposed to the idea on the grounds that it is premature to go in this direction since we don't yet have our fisheries population parameters in order yet. We also pointed out that the bird interests are already represented through the Shorebird Technical Committee.

Furthermore, and this was one of our unanimous findings, the Advisory Panel was unanimous in

agreeing that the stock assessment should be independently peer reviewed. We made three points in support of a peer review:

One, that the board originally required an independently peer-reviewed stock assessment to be conducted every five years; two, that many of the surveys underpinning the findings in this assessment failed peer review in 1998; and, three, that the stock assessment committee is not independent.

We then addressed the Virginia Tech Trawl Survey. Members wanted to make sure that the board was clearly aware that the 2003 survey was conducted approximately four or five weeks later than it was in 2001, and that water temperatures were significantly colder, as has already been mentioned by Dr. Berkson.

The fisheries advisors also addressed the issue of gear efficiency. One of the advisors is a captain of the survey vessel for Virginia Tech in the Delaware Bay region, and he has 27 years of trawling experience. He indicated that the survey's gear efficiency estimate of 100 percent is grossly overstated.

He conferred with other trawl captains and estimated the actual efficiency at 25 to 30 percent and pointed out that the efficiency varies with respect to the crab's availability to the gear, depending on how deeply they are buried. This may have played into the cold water temp results from 2003.

We also found that other researchers had recommended using a gear efficiency of 50 percent in demersal trawl surveys. The panel recommended that Virginia Tech conduct an evaluation of the gear efficiency in the survey. They suggested comparing the trawl efficiency relative to a hydraulic surf clam dredge.

Dr. Berkson has suggested that gear efficiency is not material to his trend analysis, but in the near future we must move beyond trend analysis and into population modeling. When a population model is developed, his gear efficiency estimate will be critically important, and it should be realistic.

We then moved into Addendum III. The panel discussed the harvest of horseshoe crabs for the biomedical industry. The panel felt that the information on magnitude of harvest should be readily available, since it is a requirement under the 1998 FMP and Draft Addendum III.

Advisors indicated that while Massachusetts and South Carolina are known to effectively track the number of crabs harvested for biomedical purposes, other states may not. The panel recommends that the Board, Plan Review Team and Technical Committee work together to investigate and determine reliable harvest numbers of crabs used for biomedical purposes.

The panel was divided on the harvesting restrictions of Addendum III with the environmental advisors supporting it and the fisheries advisors uniformly opposed. The environmental advisors supported Addendum III as a risk-averse management strategy.

The fisheries advisors opposed Addendum III on the following points: One advisor pointed out that the red knot count had not changed from the period 1986 to '96 to the period 1997-2002 based on a report.

That's Page 22 of the Delaware Bay Shorebird/Horseshoe Crab Assessment in 2003. He asked why further restrictions were necessary if knot counts are where they were 15 years ago. Advisors also pointed out that the most relevant surveys, the USGS Spawner Survey and the Virginia Tech Trawl Survey, indicate that the Delaware Bay population is stable.

We also pointed out that the harvest has already been cut by close to 60 percent and that Addendum I is already highly risk averse and highly conservative. We raised issues with the science that determine the quota restrictions in Addendum III.

All we know about the science that determines these quotas is that it was a preliminary analysis conducted by the Shorebird Peer Review and that it was based on the lower control limit of the 2001 Berkson Survey.

The actual analysis has not been made public, has not been vetted through the Technical Committee, and we have a basic problem with that. We now have three years of data from the Virginia Tech Trawl Survey that the Shorebird Peer Review group did not have when they made their analysis and did their calculations for these quotas.

The three years of data show an increasing trend in the population of sexually mature female horseshoe crabs. As you can see, there is a linear trend line fitted to the three years of data.

While it's not statistically significant, it does show an improving trend in the mean estimates of sexually

mature female horseshoe crabs in the Delaware Bay, and that's in the original trawl survey area. That includes primiparous and multiparous individuals.

Consequently, we argue that the quota should not be based on the lower control limit but rather on the mean estimate of the Berkson analysis, and we do not believe any further restrictions are warranted at this time.

We also pointed out that Addendum III is procedurally unnecessary. The individual states, although we would disagree with their decisions to implement additional restrictions, are not required to go through the addendum process in order to achieve those restrictions.

We have four findings that we felt were actionable:

Number 1. We would like to see the board ask for a peer review of the stock assessment.

Number 2. We'd like to see the board ask Dr. Berkson to conduct an evaluation of gear efficiency in his trawl survey, because that will be a critical component as we get into population modeling, and it could be something as simple as evaluating it relative to a surf clam dredge.

Number 3. We'd like to see the board task the Technical Committee with the development of an interim population model for the Delaware Bay and define that as a research objective.

Number 4. We'd like to see an effort made to better define the biomedical harvest. Thank you, Mr. Chairman.

CHAIRMAN FREEMAN: Okay, any questions of the Advisory Panel report? All right, I want to make a -- I should have mentioned this earlier -- a slight change in the agenda. We have discussion on Addendum III as the next item, but there were several items that were raised in the Bait Workshop, and I would ask, relative to influence on Addendum III, that Brad essentially go through those.

We will hear a full detailed report of the Bait Workshop. The idea is keeping all the information in everyone's mind prior to making a determination on Addendum III to essentially get the essence of that report.

Brad indicates there is one issue that was raised relative to the discussion on Addendum III. He'll bring that up when we get to that item rather than speak to it right now.

Let me just indicate that this Addendum III is a very important issue for New Jersey. I will vacate the chair and sit in my normal position representing New Jersey for the discussion of Addendum III. The vice chair normally would take over at this time, which is Roy Miller, who has the same concerns, so we're going to turn the chair over to staff, Bob Beal, for the discussion on Addendum III, and then I'll pick it up once that discussion completes. All right, I'll step down but Brad is simply going to review the public comment.

(Whereupon, Mr. Robert Beal assumed the Chair.)

ADD. III PUBLIC COMMENT SUMMARY

MR. SPEAR: Thank you, Mr. Chairman. I'll quickly run through the public comment that we received on Addendum III. You've heard a presentation from me in December, so I will be brief. Also, I brought again all of the written comments that were received during the public comment period if any member of the board or audience would be interested in seeing that.

Okay, the first hearing was held in Dover, Delaware. It was the largest public attendance. As you can see, there was both support for Option 1 and Option 2 for the harvest threshold reduction proposed in Addendum III.

There was also split support for the closed season options. Up on the screen are a couple alternatives that were proposed during the hearings. There was full support for Option 2 with regard to the biomedical applications in Addendum III.

That, just to remind everyone, is the transfer of crabs harvested for bait to the biomedical industry for bleeding and transferred back to the bait market and thereby counting against that state's quota.

Again, there was an alternative proposed that if Option 1 was allowed, which is the harvest of biomedical crabs be released back to the waters from which they were harvested, that 10 percent of those harvested by the biomedical industry be counted against the state's quota.

One management tool that wasn't in Addendum III that was proposed was to allow harvesters to collect stranded crabs at low tide.

Berlin, Maryland, there was about 20 in public attendance. Again, there was split support for the

harvest level threshold and the closed season. There were other alternatives that were proposed regarding the harvest level reduction.

Similar to Delaware, there was support for the transfer of biomedical crabs to the bait industry. However, a couple comments were that the value of the crab, if it were transferred back to the bait market, would be decreased because of the decreased amount of blood in the crab.

Also, there was a potential problem if all crabs are harvested for the bait market and transferred to the biomedical industry, that crabs harvested specifically for the bait market, there would be less of a chance to harvest crabs that would go straight to the bait market.

A couple management tools suggested were to require the use of bait bags and also to limit the amount of crabs that could be used for bait. The third and final hearing was held in Absecon, New Jersey. There were about 25 people there. Again, there was split support for both the harvest level threshold options and the closed season options.

One alternative proposed was a complete moratorium on horseshoe crab harvest in the three states mentioned. There was split support for the biomedical options, and one recommendation was to require the use of bait-saving devices.

To get to the written comments, there were over 500 written comments submitted. About 540 of those were a form letter that was faxed in to the commission. Most of those were from New Jersey but came from throughout the country.

As a result of receiving those form letters, there was overwhelming support for Option 2, which is the proposed harvest reductions in Maryland, Delaware and New Jersey. There were a number of alternatives to the options that were proposed.

A similar case with the closed season option from May 1st to June 7; overwhelming support for Option 2, which is that closed season. Again, there were a number of different alternatives proposed in the written comments ranging on different area closures and different timing closures.

The written comments, there was, again, overwhelming support for the biomedical option to allow for states to encourage the transfer of crabs between the bait market and the biomedical industry and several suggestions for alternatives.

Comments that were submitted made reference to the monitoring program. They felt that the biomedical industry should be required to report landings. Several suggestions indicated that the board should establish a biomedical landing reference period similar to that of the bait harvest.

Also, in the form letter there was support for continued horseshoe crab/shorebird monitoring beyond the Delaware Bay. That concludes the summary of the written comments.

MR. BEAL: Okay, thank you, Brad. Are there any questions on the public comment? Okay, seeing none, that brings us to the agenda item, which is the discussion and selection of Addendum III management measures. The way I'd like to handle that is go issue by issue.

There are four issues in the draft addendum: the harvest level, closed seasons, the exceptions as well as monitoring requirement changes, so I'd like to go issue by issue through those, get a motion on the board, and then have board discussion.

Any public comment will be accepted that is something new and different that we did not hear at the beginning of the meeting. As noted on the agenda, the approval of Addendum III is a final action by the management board, and this falls under the new process that was approved by ISFMP Policy Board at the December meeting, which is that meeting-specific proxies for governors' appointees and legislative commissioners are not able to participate in the state caucus and provide their vote toward final action taken by the commission. So, as the states are caucusing, just keep that in mind as well. Tom.

SELECTION OF ADDENDUM III MEASURES

MR. FOTE: I think that needs a little clarification. You're allowed to participate and talk when it comes to a caucus vote, but they --

MR. BEAL: Yes, it's kind of unrealistic to think they're not going to be able to talk to the folks next to them, but as the individuals within the state delegation are casting their votes, a meeting-specific proxy is not able to cast a vote within the state caucus. So with that, is there a motion on the harvest level threshold? Roy Miller.

MR. MILLER: Thank you, Mr. Chairman. What I would like to do is perhaps move the process

along and move to adopt Options 2 for the harvest level threshold, the closed seasons and the exceptions.

MR. BEAL: Is there a second to that motion?

MR. AUGUSTINE: Second.

MR. BEAL: Mr. Augustine, thank you. Board discussion of the motion. Bill Adler.

MR. ADLER: Thank you, Mr. Chairman. I'd like to know why. I've listened so far to horseshoe crab stocks stable, what they know of it. I've listened to the stock assessment needs to be peer reviewed. I've listened to red knots are not really declining.

I've read the current rules are precautionary already. I've listened to the states can be more restrictive without this, if they so desire. They don't need the ASMFC to do that. I just don't see why this is necessary. Thank you.

MR. BEAL: Okay, thank you. Any other comments on the motion? Eric Smith.

MR. ERIC SMITH: Thank you. I have to say, with all of the discussions today and in the past and the things that have been submitted to us, that I had doubts in my mind. I was caucusing with my two colleagues here and wondering what the right course of action is, and then I read the New Jersey DEP letter, and I didn't have any doubt in my mind anymore.

I think that's one of the finer letters I've ever seen that sets the stage for what we really ought to do from a state agency's perspective and a state that is right on Ground Zero of the issue.

Now, I know that's distressing to some of the commenters this morning, but I think in my mind if they have a disagreement with how their agency has used data in a stock assessment, they need to take it up with that stage agency.

But when the director of Fish and Wildlife for New Jersey sends off that compelling a letter, that influences me, so that would be my answer to the concern that Bill Adler asked. Thank you.

MR. BEAL: Thank you, Eric. Any additional comments from the board? Bruce Freeman.

MR. FREEMAN: Thank you, Mr. Chairman. I would just simply like to comment briefly on the letter that Martin McHugh, our division director, had offered to the board. I think there is a very important consideration, and that is that although there seems to be differences in some people's mind relative to the red knot -- and I specifically dwell on that species because it's one that has been shown to be directly dependent upon the supply of horseshoe crab eggs to supply the necessary weight gain for those birds to continue their hemispheric migration from South America to the Arctic to breed.

There may be other factors affecting the population, but, certainly, the Delaware Bay issue is one of great importance. If we find that in the future this bird population continues to decline and eventually is listed as endangered from the federal government, we don't really need to have many conversations about horseshoe crab eggs.

There will be severe federal implication as to what will occur, and we won't be part of that process. We look at the issue at hand as being extremely important. The state of New Jersey as well as other jurisdictions in Delaware Bay have been petitioned to essentially end the harvest.

We believe that a reduction is necessary. But we believe, also, that a smaller harvest can continue. We do support that. We would hope that these facts would convince other board members that the actions necessary in Addendum III as the motion made by Delaware be supported. Thank you.

MR. BEAL: Thank you, Bruce. Any additional comments from management board members? Rick.

MR. ROBINS: Thank you, Mr. Chairman. With respect to the letter from New Jersey, one point raised in this letter is that it says here, Item Number 3, "After seven years of field work, we have published a series of peer-reviewed technical papers that indicate with no uncertainty that the hemispheric populations of the red knot and possibly three other species of shorebirds are in jeopardy, because they no longer have access to sufficient numbers of horseshoe crab eggs".

I'd just like the board to be aware for the record that this information has been rebutted effectively in the British Trust for Ornithology Report Number 307, which was conducted during the same time frame and concluded that most red knot were still making their

departure weight, and the ones that weren't were not making departure weight due to their late arrival and not due to the availability of horseshoe crabs.

So, the way the letter is written, it almost sounds like that's unrebutted, but in fact, that has been, I think, rebutted through BTO Report Number 307. I think that's worth mentioning.

I would also mention that the cuts that have already been in place account for 60 percent reductions in harvest from reference period landings so we already have in place a highly restrictive management plan.

Additionally, these measures that you're being asked to pass today were not passed repeatedly when they were voted on by the New Jersey Marine Fisheries Bureau. Additionally, they were unanimously voted down by the Delaware Shellfish Council. I don't think it's fair to say that these measures accurately reflect the will of the constituents in those states. Thank you very much.

MR. BEAL: Thank you, Rick. Just so we're clear on the record, were those more personal comments or was that the view of the Advisory Panel?

MR. ROBINS: Thank you, Mr. Chairman. For the record, those were my personal remarks.

MR. BEAL: All right, thank you. Yes, Ed.

MR. EDWARD GOLDMAN: I would just like to comment on Rick's -- he made the statement that the New Jersey Marine Fisheries Council voted down these requirements. That is not true. It was brought up to a motion to not to support -- I mean, let me get this straight -- there was never a motion from New Jersey to not support the director and the division's policies and plans on the reduced harvest.

We actually could not come to an agreement to veto the division's actions, so that's not quite true. We did not come out and say we supported it, but we also did not come out and say we did not support it.

MR. BEAL: Any other comments from the board? Seeing no other hands around the table, I'll go to the audience. I think I see Gerald's hand up. Again, please keep your comments brief and keep it to new information that was not presented at the onset of the meeting.

MR. GERALD WEINGRAD: Thank you. My name is Gerald Weingrad. I represent the

American Bird Conservancy. First of all, we want to compliment the Atlantic States Marine Fisheries Commission, this Horseshoe Crab Management Board and all the technical committees that have worked so hard.

Only ten years ago the horseshoe crab was either not regulated or poorly regulated by the states. There was very little data, as the commission found out. We've come a long way in understanding the species and still trying to get a grip on its population.

But in support of Addendum III and the provisions before you, first of all, New Jersey and Delaware have already adopted these measures, and it's important for the commission to put its imprimatur and amend the fishery management plan.

We've been through many hearings and written comments with overwhelming public support for the addendum. We support the provisions of Option 2 in the addendum for these caps and also think that New York should cap its landings at 150, and also the other states, New York and Maryland, should adopt the bait bags as New Jersey, Delaware and Virginia have.

But of critical importance, to address a couple of things, one is on the stock assessments and the data that has been presented to you. At the last meeting on December 16th, this same body delayed adoption of Addendum III because there were rumors of stock assessments, specifically Jim Berkson's, probably emanating from what I've heard here from the boat captain that there were plenty of horseshoe crabs and other indicia that people were saying without documentary evidence or published reports that there was an increase and that we should hold off to look at that data.

The Stock Assessment Committee, the Technical Committee looked at that data. Dr. Berkson has made a presentation. Dr. Breese has made a presentation. Those presentations, if you will look at your documents, clearly indicate that there is a need – this is at Page 30 of your document that you have of the Stock Assessment Committee -- that there is continued precautionary management necessary for coastwide and particularly for Delaware Bay region populations.

Further, there are signals that declines in some regions have abated. It is still unclear if spawning biomass is sufficient to sustain the population for the long time under current harvest thresholds, and it is unclear if spawning biomass is sufficient to sustain

dependent wildlife such as shorebirds, so this is extremely important.

Dr. Berkson's work shows that over the three years, there is insufficient data yet to indicate the relative abundance, but that there is significant data in 2003 over 2002 to see a significant decline in the primiparous males and female crabs, which should be of some concern to this body.

I would also point out in the technical review of the other long-term surveys, particularly for the Delaware Trawl Survey -- I mean, the Delaware Bay surveyed crabs, those surveys show a significant downward trend.

If you look at 52, the chart that was put up on the wall, you will see those declines very significant since the 1980s. As best can be said is despite the actions to restrict harvest by this commission and the states, that those trends that showed significant declines in crabs from 1980s through into the 1990s, the only thing you can say is they may have been arrested and we may be seeing some stabilization, not increase in the populations which you're striving for.

The final two points, Mr. Chairman, that have been discussed here, and I think are new evidence, there are two new peer-reviewed reports that have been accepted for publication on the red knot populations.

One is called, "Rapid Population Decline in Red Knots, Fitness Consequences of Decreased Refueling rates and Late Arrival in Delaware Bay." It's the international team with scientists from four continents putting their names on this, going through peer review.

It's due to be published in the proceedings of the Royal Society of London. They clearly document a very precipitous decline in the red knot population, Rufa, that goes on our East Coast to Delaware at its wintering grounds in Tierra Del Fuego, dropping almost in half over several years, and "seriously threatening the viability of this subspecies. Demographic modeling predicts imminent endangerment and an increased risk of extinction of this subspecies without urgent risk-adverse management."

The second report has been accepted in the Condor, and it's called, "Declines in Red Knots", also showing the very, very significant declines in both papers, linking this to the lack or at least a substantial possibility of linking this to the decline of the availability of horseshoe crab eggs.

I will end by saying that the most important thing that we can do is to act in a precautionary principle, take the data that we have, even when we don't like the data, and start to realize that when you really analyze what we're trying to do, the horseshoe crab at its current population levels, as the Stock Assessment Committee pointed out and Dr. Berkson has also pointed out, we don't really know whether the harvest levels are sustainable right now, not just for the population of horseshoe crabs but for the other wildlife that are dependent on the horseshoe crab.

So it is really incumbent upon us to adopt this addendum, to enforce this addendum, and to move forward. My final point would be when you really analyze this, the horseshoe crab itself, the solution is to keep Rick Robins, to keep the fishermen behind me happy in terms of using conch and eel bait.

Rick is not so much interested in horseshoe crabs and selling them as he is in selling conch that he harvests with horseshoe crabs. The importance is to put more and greater funding into alternative baits. That would be the ultimate solution, to stop the harvest pressure on the crab and move to alternative baits. I thank you very much.

MR. BEAL: Thank you. Any additional comments from the audience? Okay, Mike, please keep it to new points that you haven't made earlier in the meeting. Be brief.

MR. LITCHKO: On your options, I'd like to go with the Option 1 of status quo. As far as your Option 2 goes, you discriminate against the elderly people and the handicapped people that are capable of harvesting horseshoe crab. You restrict them severely when you do that, and it's not fair for them.

As far as Rick Robins and the vote for New Jersey, New Jersey twisted that vote. The council did not support that vote, which is not the same as disapprove, so if you can figure that out, that's what happened.

Quite frankly, we all know that the letter that New Jersey produced here, that all points to their science, the weight gain, the populations in both New Jersey and South America are severely flawed, totally flawed and not useful for assessing populations or trends, and it was deemed that by the Stock Assessment Committee.

It was deemed that the extinction rate was false. It was inadequate for assessing any extinction rate,

because they only used a high and a low number, and that can't be used. You need to throw in there mortality, juvenile, breeding, non-breeding. You have to include all these in the matrix.

The only way that New Jersey and all this science is being used is it's being used on one side. They do not put all of the parameters of what should make up a matrix or a scale in there. They only show you one part of that.

The decline in South America, they're not talking about the juvenile population. They're not talking about the non-breeding population. They're not talking about the breeding population. They're only talking about a wintering population.

That's a population that stays there year round. What you don't know is that they're not talking about the whole population in all or any of these species. That's how they can show their declines, but they don't want you to know that.

That's the whole point of these people behind me in letting you know they only want you to know just a little part, and they do all they can to keep the whole picture of everything, just like the horseshoe crabs.

You've got to know the juveniles. They shielded the 15 million juveniles that are in this population of horseshoe crabs in Cape Cod Bay. You have to wonder about that, because this study was peer reviewed and published. Berkson's study was not. Now why is that omitted?

That's omitted because they don't want you to know the whole picture here. They only want you to know just a little bit and only what they want. The money value is on them; the money that they receive to shield this and hide this and construe this information so that not everybody is able to get this information.

It's the dollar value on them. The people that suffer is that everybody -- every state is going to suffer: tackle shops, marinas, recreational fishermen and commercial fishermen. Let's face it, the environmentalists want to take the New Jersey Bay over and make it into MPA sites, make them petting zoos.

They need to have a moratorium on the horseshoe crabs in the Delaware Bay. The DEP in New Jersey is already trying to take over Title 50 from the oystermen, which would take the ground from them, so that they can enact these MPA sites in the Delaware Bay and stop recreational fishing.

Don't forget, New Jersey may be the starting point on this, but every bay from every one of these states, they are going to attack one at a time. They're going to be able to play little things at a time in there to get the whole big picture together, so that this is not just about the Delaware Bay.

This is about everybody that is going to be involved in this, that votes at every state, every bay, every little place where there are birds at, you are going to be restricted and limited; your fishermen, your industry. This isn't just about horseshoe crabs and the red knots.

This body here was supposed to regulate the population of horseshoe crabs, not whether or not the birds are able to fly from South America to New Jersey. We're not here -- we're supposed to assess the population of the horseshoe crabs and the needs, maybe, for the horseshoe crabs, which they never talked about. They never talked about the threat to the horseshoe crabs.

MR. BEAL: Mike, can we wrap this up?

MR. LITCHKO: That was omitted, the threats to the horseshoe crabs in this 2003 survey, which is the pollutions, the aerial spraying of the toxins. Now we know what happened in Rhode Island. We know what happened in Connecticut.

Those industries were wiped out. Those lobster industries were wiped out from that aerial spraying, and it has gone from there all the way down to Florida, to Cape Canaveral. These toxins have killed millions and millions of horseshoe crabs, fish and our species and has wiped out our inner-tidal food chain. These people, environmentalists, take money, billions of dollars --

MR. BEAL: Mike, let's wrap this up.

MR. LITCHKO: -- billions of dollars from these chemical companies to assure that you do not hear this. Thank you.

MR. BEAL: Thank you. The next comments. Please identify yourself for the record.

MR. TIM DILLINGHAM: Yes, Mr. Chairman, my name is Tim Dillingham. I'm the executive director of the American Literal Society, a conservation group based out of Sandy Hook, New Jersey.

I just wanted to put us on record this morning in

support of Mr. Miller's motion on the protective options that are before you in Addendum III. We also want to take the opportunity to applaud the board for putting this process in motion.

We think this is an opportunity of tremendous importance in advancing the goals of the FMP as well as horseshoe crab and shorebird conservation. Throughout the discussions and the debate that your process has fostered, I think we all have become very well aware of what is at stake, both ecologically and economically.

The process of the investigative work, in particular, that you have sponsored, the stock assessment, the Shorebird Technical Committee report, have provided information that we think is compelling in support of the need to support the increased protection measures that are in Addendum III.

Those measures obviously directly reflect the recommendation of the Shorebird Technical Committee about increasing the abundance and availability of eggs in order to support the migratory shorebird.

I would add just one comment, listening to the discussion and the debate, that in each and every case where the management board brought together the leading experts and applied them to the best of their abilities to develop the science to inform your discussion and your decisions, their conclusions or recommendations have echoed some common themes, I think.

There are, indeed, strong and growing indications of decline in horseshoe crab populations, particularly in Delaware Bay. Mr. Weingrad mentioned the reports on the shorebird population trends, and I think this raises in our minds obviously an issue of deep concern about the ability of the Bay crab populations to support the shorebirds.

Also, that the indications of all these declining trends argue for continued precautionary management and reductions in the current harvest level; and, further, that the very conservative methods are warranted and supported by the nature of the available science.

Just in sum, the scientific conclusions and recommendations which have been received by this board in response to a process that they initiated, supported and that were validated, I think, by the public review and comment are the recommendations that are embodied in the protective measures in Addendum III and have been put forward by Mr.

Miller in his motion, so we would urge you to support that. Thank you.

MR. BEAL: Thank you. Yes, sir, the gentleman in the front row.

MR. ERIC STILES: Mr. Chairman, my name is Eric Stiles. I'm the vice president of Conservation with New Jersey Audubon Society. In the hopes of keeping this brief, we concur with the statements brought forward by Mr. Weingrad and Mr. Dillingham.

In addition, there are two recent peer-reviewed documents to which Mr. Weingrad reported that I will be submitting for the record. The first one, which talks about the -- led by Dr. Baker, the scientist from Fort Continent.

I'm just going to read verbatim excerpts from the abstract. Again, I think it's compelling information that underscores the Tech Committee report.

It says, "Most populations of migrant shorebirds around the world are in serious decline, suggesting that vital condition-dependent rates like the fecundity and annual survival are being globally affected.

"A striking example is the red knot, *rufa*, subpopulation wintering in Tierra del Fuego, which undertakes a marathon 3,000 kilometer hemispheric migration. From 1997 to 2002 an increasing proportion of red knots fail to reach threshold departure masses of 180 to 200 grams, implicating later arrival in the Bay and food shortage from concurrent over-harvesting of crabs."

It concludes, "Population size in Tierra del Fuego declined alarmingly from 53,000 to 27,000 in only three years, seriously threatening the viability of the subspecies. Demographic modeling predicts imminent endangerment of an increased risk of extinction of the subspecies without urgent risk-averse management."

The model within this shows that the population could reach lower than 2,000 by 2010. This has been accepted for publication into the proceedings for the Royal Society of London, a peer review journal.

The second one, sir, appears in this issue of *Condor*, a peer review avian research journal, put forward by Morrison and two other PhD scientists.

Surveys of the North American race of the red knot on its wintering areas on the coast of Patagonia and

Tierra del Fuego showed a dramatic decline in the wintering population.

Totals in 2003 were about 30,000 compared to 67,500 in the mid-1980s. Possible reasons for the declines are discussed. Banding studies in Delaware Bay have shown that in recent years an increasing proportion of red knots is unable to gain sufficient weight for migration to the breeding grounds.

This is likely due to reductions in their main food resource, eggs of the horseshoe crab, *limulus polyphemus*. The resulting increase in mortality could account for the magnitude and severity of the declines we've observed.

I want to commend the ASMFC for launching this public transparent process culminating in clear recommendations which are embodied in Option 2 of the addendum and would encourage the board to affirm its ability to delivery on that process. I'd like to leave these with whomever for the record, sir. Thank you.

MR. BEAL: We will accept those. We're going pretty long here on public comment. Let me see the number of hands of individuals that still would like to comment. All right, that looks like the rest of the audience. This meeting has to end at 10:30.

We have another meeting in this room so if you support comments that have previously been made on the record, please come to the mike and just say you support the comments made by a certain individual. If you have nothing in addition to add to those, just please keep it as brief as possible.

We'll move through these comments. We have only, at most, another ten minutes on public comment, and then we'll have to cut it off, and the board is going to have to take action on this motion. Yes, sir, in the front row.

MR. WILLIAM COOKE: William Cooke, Citizens Campaign for the Environment, representing 80,000 members in New York and Connecticut. We support the adoption of the addendum. We certainly don't need to dwell on the reasons.

We think they've been made very clear. I do want to thank New York's representative for seconding that. We're hopeful that New York would be part of that, but certainly we certainly need to see the addendum advance today. Thank you.

MR. BEAL: Thank you for your comments and your brevity. Benji Swan.

MS. SWAN: In the past the board has been extremely supportive for my collection within the confines of the Carl N. Shuster, Jr. Horseshoe Crab Reserve. Today I'm asking for your continued understanding and support to allow me to collect horseshoe crabs during the proposed May closure. The loss of this one critical month, in an already short manufacturing season of six months, has the potential to devastate my operation.

To this end, I would like to point out that although I am sympathetic to the plight of the shorebirds, that the manufacture of lysate is essential and critical to human health. Lysate saves lives.

For 20 years I have not only manufactured this unique product, but I have also been deeply concerned with horseshoe crab conservation. Of utmost importance to me, as I conduct my bleeding operation, is the health and survival of these animals.

At this time I both hand collect and trawl collect horseshoe crabs, and this proves to be agreeable to the horseshoe crab population. Should closures force me to collect horseshoe crabs from further distances, the mortality of the horseshoe crabs will escalate.

It will further aggravate the situation in years to come. Another consideration is that unhealthy horseshoe crabs create the need to utilize more horseshoe crabs. That's really all I'd like to say and thank you. If you have any questions, I'd be happy to answer them.

MR. BEAL: Next commenter.

MR. ADAMS: Yes, my name is Albert Adams, III. I'm here representing commercial waterman. All I have to say is I'd like for everybody to -- on the short amount of time that you have, I'm sure you've read through a lot of the information that has been put forth before you, but I'm sure you don't have time to analyze it.

A lot of people have analyzed it, and it has been analyzed in so many different ways it's confusing to everybody, and I just hope you read between the lines and support Option 1 with no further Addendum III needed. Thank you.

MR. BEAL: Okay, thank you. Yes.

MR. SHAWN MAHAR: Thank you, Mr.

Chairman. My name is Shawn Mahar. I'm here from Audubon New York, the 50,000 member New York state program of the National Audubon Society. Audubon New York strongly supports Addendum III, and we are glad to see that the states have come together to act on the compelling scientific data that has shown the need for increased conservation measures to protect the horseshoe crab and the red knot.

We also support the decision of New York state to cap their landing quota at 150,000 crabs for next year, but it is our hope that New York will solidify this commitment by joining with other states and put this cap in a future addendum as soon as possible. This forward-thinking step taken by New York and other states is a critical step in the future conservation of the red knot and the horseshoe crab. Thank you very much.

MR. BEAL: Yes, ma'am.

MS. AMY DULAC: Good morning, my name is Amy Dulac. I'm with Defenders of Wildlife. I'd like to echo the comments of Mr. Weingrad and Mr. Dillingham and express Defender's support for Mr. Miller's motion. Thank you.

MR. BEAL: Thank you. Yes, ma'am.

MS. DESIREE GROVES: My name is Desiree Groves, and I'm speaking on behalf of Audubon Maryland, the state program for the National Audubon Society. We wish to commend the management board on their proactive efforts to support increased conservation measures for the horseshoe crab populations along the Atlantic Coast, thereby helping to ensure the survival of thousands of migrating birds that depend upon the horseshoe crab eggs during their annual spring migration.

We strongly support Addendum III, limiting the landing quota in Maryland to 170,000 crabs annually. We also support prohibiting the harvest and landing of horseshoe crabs from May 1st through June 7th every year in the state of Maryland.

These measures will greatly benefit thousand of migrating birds, and in turn benefit Maryland tourism with the many people that enjoy the awesome spectacle of the annual spring bird migration. Thank you.

MR. BEAL: Yes, sir, in the green jacket.

DR. LARRY UNDERWOOD: Thank you,

Mr. Chairman. My name is Dr. Larry Underwood. I'm representing the Fairfax Audubon Society of the Virginia Audubon Council, the Wildlife Trust and the Virginia Ornithological Society.

We urge the commission to take whatever actions are necessary to protect the horseshoe crab population. There has been a lot of discussion today on the adequacy of the data that you have to work with.

As a professional ecologist, I know how difficult it is to come up with these data. They are never definitive. So I urge you, if you need more data, to get it, but in the meantime go with the data you have. What we're all asking for, really, is a healthy resource, and so I hope that you'll adopt this Addendum III and protect the resource at all costs. Thank you.

MR. BEAL: Thank you. We had two more hands.

MR. FRED LAYTON: Good morning, my name is Fred Layton. I'm a commercial horseshoe crab harvester from New Jersey. I use the horseshoe crabs in my eel business, in my conch business and my minnow business.

As of now, in New Jersey we've had up to an 85 percent reduction in what we can take for horseshoe crabs. We've been restricted to go not on the beach where it intermingles with the birds or anything.

We've been restricted to go 1,000 feet back off into the mud and the ditches to do this. Now, it was brought between you folks from Delaware and New Jersey several months ago that they wanted this Addendum III, we'll say, and it was deemed that if the states wanted to restrict their people, their harvesters more, that so be it, that the ASMFC here felt that the stock was good, and there was no need for doing this.

To date I think with Mr. Smith and Mr. Berkson and what we're hearing, what this year we did in the Delaware Bay -- I was part of it -- we were doing trawl surveys, and every time we came up, we came up with 100 crabs or better in that dredge.

These were areas that normally there weren't crabs, but they were there, so there is a lot more to be learned about the crabs, and I think we're on a good foot on that part. As far as putting any more reductions or -- when is enough, enough? That's what it has come to.

The ink doesn't even dry on the paper in New Jersey before we've got another restriction coming on us, so I'm asking you folks to go with Addendum I and that's it. Thank you.

MR. BEAL: Thank you. Yes, ma'am.

MS. CATHERINE GRANT: My name is Catherine Grant and I'm representing the National Audubon Society. I'd like to thank you all for allowing us the opportunity to talk to you very briefly today.

We fully agree with the positions and appreciate the American Bird Conservancy and American Litteral Society and our state chapters for presenting our shared positions so well here today. We also want to acknowledge and thank Perry Plumart for all the work he coordinated for Audubon with this board and council over the last several years.

On behalf of our one millions members and supporters, we once again urge you to support Addendum III as outlined in our previous letters and testimony to the board and as presented here today by our partners and state offices. Thank you.

MR. BEAL: Thank you and one last comment, Charlie. Briefly, please.

MR. GIVENS: Yes, my name is Charles Givens again and thank you for letting me comment. I have a great deal of respect for Gerry Weingard, who commented a little bit earlier. He's from the ABC, I believe.

His organization is the one that brought to the forefront the spraying of phentheon and how it affects birds, and I have some common ground with him there. He mentioned two studies that are about to be reported or published. One was in Condor and the other was the British publication there.

I'm familiar with the draft reports of those studies. The one that is going to be published in England will be in conflict to the findings of your own Technical Committee for shorebirds. That's a review of the egg counts.

The other one is a comparison of the studies in South America. There's temporal and spatial differences in those studies that don't make sense. They're not correct. I would like to point out that the study that I originally talked about here this morning, the one that included the 95,000 to the 32,000, that 95,000 figure, as you know, was six weeks. New Jersey compares

that to one day.

Now that study has been published. It's not about to be published; it was published in 1993. It was published in Condor. I have that study with me if anybody should care during the caucus to review those numbers.

It's true that figure is not true. The Shorebird Technical Committee has reviewed that. Brad Andres analyzed that data, included that figure, and that figure compares six weeks of counts, six days of counts of birds to one day. If you take that figure out, you have an increase of red knots. Thank you.

MR. BEAL: Thank you. Mr. Augustine.

MR. AUGUSTINE: Thank you, Mr. Chairman. We've heard a lot of comments from the public in full support of what we're trying to do here, and I would suggest we've had about enough of it, and I think we're all in agreement with this, so we would like to call the question and move on.

MR. BEAL: Okay, thank you, Pat, we'll do that. Earlier in the meeting, the chairman mentioned a comment from the Horseshoe Crab Workshop that took place a month ago that may be of interest to board members prior to this vote, so I'll let Brad make a comment on that, and then we'll have a caucus and vote on this motion.

MR. SPEAR: Just quickly, the summary of the Conch and Bait Workshop Summary that was handed out earlier, there were a few recommendations that were directed towards the board and managers in general.

If you look at Recommendation Number 5, the group recommended in reference to the biomedical applications options in Addendum III, that if Option 2 is selected by the board, states that are looking to encourage the transfer of crabs from the bait market to the biomedical industry and back to the bait market, that the states do some sort of analysis to show that is beneficial to both the resource and the watermen, and they recommended possibly that language be incorporated into the addendum.

MR. BEAL: Pat.

MR. AUGUSTINE: Thank you, Mr. Chairman. Can we charge the staff to add that language without any major problems? Has the Technical Committee also reviewed it?

MR. BEAL: The Technical Committee has not reviewed that language. It's a policy decision right now rather than a technical decision. It doesn't look like a substantial change to the overall content of the addendum; and if the board members are comfortable with that change -- let's make that clear before we take a vote on this -- then that language could be incorporated into the addendum.

MR. AUGUSTINE: Mr. Chairman, I would hope some other board members might respond to that.

MR. BEAL: Let's do it this way. Is anybody uncomfortable with including the language that came out of the horseshoe crab alternate bait workshop that Brad just presented, having that included in the final version of the addendum? Roy Miller.

MR. MILLER: Mr. Chairman, thank you. In looking at the wording of Option 2 under exceptions, it says "encourage states where appropriate." Considering that language doesn't make it a compliance item, I'm not entirely certain we need to do anything in this regard. I believe that would allow the states some flexibility to incorporate any new information and not be forced to follow the suggestion of Option 2.

MR. BEAL: Okay, thank you. With that comment, is anyone on the board uncomfortable with altering Option Number 2, the language that encourages states to transfer crabs from the biomedical industry to the bait fishery, with adding Number 5 to that language that encourages states to do that.

As Roy said, it will not be a compliance criteria. Seeing no hands being uncomfortable, let's take a 30-second caucus on the motion -- no, one more comment by Brad.

MR. SPEAR: One other point of clarification for staff from the board was in reference to a comment that was made by Ms. Swan earlier. If you look at the closed season options in Addendum III, just to be clear on the board's intent, the proposed closure from May 1st to June 7th, staff would like to get on record to whom that closure applies.

MR. BEAL: As it is written right now in Option 2 and as the motion reads, all harvesting and landing of horseshoe crabs is prohibited from May 1 through June 7th. If anyone wants to alter the motion, we need to do that now. Roy Miller.

MR. MILLER: Bob, going back to this exceptions for biomedical applications, the wording on Page 8 of Addendum III appears to conflict with the wording that Brad just referenced. One says "encourage" and the other says "do not encourage."

Perhaps we should alter the wording in Option 2 prior to taking this vote, so at least the two sentences don't conflict with each other.

I'm thinking that states should consider whether bait and biomedical fisheries be allowed to use horseshoe crabs harvested under a bait permit. Something to that effect, I believe, would incorporate the apparent level of uncertainty that has come --

MR. BEAL: Roy, can you repeat that language?

MR. MILLER: -- up over this issue.

MR. BEAL: Can you repeat that language, Roy?

MR. MILLER: If I were going to suggest a modification to Option 2 under Number 3, exceptions for biomedical applications, instead of saying "encourage states where appropriate", could we not say, "States that have bait and biomedical fisheries should give consideration to allow biomedical companies to use horseshoe crabs harvested", et cetera?

In other words, strike the word "encourage" and "where appropriate" and say "States that have bait and biomedical fisheries should consider allowing biomedical companies".

MR. BEAL: Any comments on Roy's language, or do we need to -- we can put that up on the board, if it would help, folks. Your language is states that have bait and biomedical harvest should take into consideration.

Okay, the new language is on the board. I'll read that into the record, and, Roy, I believe this would constitute a modification to your motion, a clarification of new language for Option Number 2 in Issue Number 3. Is that true, Roy?

MR. MILLER: Yes, I would consider this a friendly amendment, and I'll pass it over to the seconder, if you would, Bob.

MR. BEAL: Does the seconder concur, Pat?

MR. AUGUSTINE: Thank you, yes, that's very appropriate.

MR. BEAL: Okay, let me read the language: States that have a bait and biomedical fisheries should consider allowing biomedical companies to use horseshoe crabs harvested under a bait permit for biomedical purposes and require subsequent return of the horseshoe crabs to the bait market. Crabs used in this way count against a state's bait quota. Is there any discussion on this change? Pete Jensen.

MR. W. PETE JENSEN: I think we are confusing the issue. It's already possible for this to happen under the current FMP. What this says to me is that you can only do it intrastate. In other words, if you have a biomedical harvest in a state, you can only put it into the bait fishery in that state.

I think that's unduly confusing and restrictive. It really adds nothing to the current FMP giving the states the ability to do this if they want to and that's appropriate.

MR. BEAL: Rick.

MR. ROBINS: Thank you, Mr. Chairman. For the record, these are my personal remarks, but I think the language that's on the board falls short of the intention of Point Number 5 that was a management recommendation from the alternative bait workshop.

The intention was based on testimony that was given at that workshop from fishermen who said that bled crabs were not as effective as bait; consequently, they didn't want to be forced or regulated to use them in a state unless they were evaluated and a test was done by that state, for example, to prove their effectiveness prior to implementing the regulation.

I think the language that's up there falls short of that. I'm not in a position to amend it, so I don't know if a board member would consider revising it. Thank you.

MR. BEAL: Thank you, Rick. Bill Goldsborough.

MR. WILLIAM GOLDSBOROUGH: Just one editing point, Mr. Chairman, if this is to remain the language. I think the word "require" should be "requiring" and that might clear up a little confusion.

MR. BEAL: Thank you, Bill. Pete Jensen.

MR. JENSEN: Mr. Chairman, I move to divide the question.

MR. BEAL: You would like to separate all three issues or --

MR. JENSEN: No, I would divide the question between Option 2 of Issue 1 and Option 2 of Issue 3.

MR. BEAL: Okay, there is a motion to divide the question. The first part of the divided question will be Issue 1 and Issue 2, Option 2 will be selected. And the second part of the motion, if it is divided, will be to support Option 2 as modified for Issue Number 3 in the document. Is there a second to the motion to divide?

MR. JOHN I. NELSON: Second.

MR. BEAL: John Nelson, thank you. Do we need to caucus on the motion to divide? Seeing none, those in favor of the motion to divide; those opposed to the motion; abstentions, two abstentions; null votes. Seeing none, the motion to divide passes.

Now the motion before the management board is supporting Option 2 for Issue 1, which is the harvest level threshold and Option 2 for the closed season. Does the board need to caucus prior to that vote? Mr. Nelson.

MR. NELSON: Just a clarification, Mr. Chairman. I think you were attempting previously to deal with the closed season and the biomedical harvesting during the closed season under Item 2.

I'm not sure that was resolved. It sounds to me like the biomedical folks wanted to be able to land horseshoe crabs in the three states during that time frame; and according to this, they cannot do that; is that correct?

MR. BEAL: That's the way it stands as of now, yes.

MR. NELSON: I think you started asking the board if anyone wished to have that modified, that they should address that at that particular point. So if that's where you left off, I think you ought to ask that one more time to get anyone's clarification on this.

MR. BEAL: Okay, thank you, Mr. Nelson.

Is there support or would anyone like to modify the motion to permit the biomedical harvest of horseshoe crabs from May 1st through June 7th? Bill Adler.

MR. ADLER: Mr. Chairman, what would you like? Would you like a modification that would allow an exception for biomedical harvesting during the closed season; is that what you want?

MR. BEAL: I would just like to know the will of the board. Do they want to modify this motion prior to voting on it or are they satisfied --

MR. ADLER: Yes, I'd like to make the motion that there is an exception to any closed season to allow for the biomedical harvesting during that time.

MR. BEAL: So, we have a motion to amend, which is allowing the biomedical harvest from May 1 through June 7th. Do we have a second to that motion? Gerry Carvalho. Any discussion on the motion to amend? Yes, Spud.

MR. SPUD WOODWARD: Wouldn't this be a pretty substantial change from what we took out to public comment on this particular issue? Are we not kind of getting in a precarious position by doing something like that?

MR. BEAL: Spud, there was public comment that suggested the alternative that is included in this motion to amend, and there is a note in the draft addendum that the board may modify some of the options that are included in this document. Roy Miller.

MR. MILLER: Mr. Chairman, I would need a clarification from the maker of the motion as to what area this refers to. Didn't I understand Benji Swan to say that she would like to be able to harvest from the Shuster Sanctuary, that is the ocean environments, or is she talking about Delaware Bay, in particular. I would need to know what areas we're talking about with this particular amendment.

MR. BEAL: I believe, as it is worded now, the harvest of horseshoe crabs and subsequent landing in New Jersey, Delaware and Maryland would be permitted from May 1 through June 7 regardless of where the crabs are actually harvested. Mr. Miller.

MR. MILLER: If I could follow up, then, perhaps Ms. Swan would enlighten us as to whether her biomedical needs could be accommodated by

harvesting from the Shuster Sanctuary outside this period May 1 to June 7. Thank you.

MR. BEAL: Benji, do you have a comment on that?

MS. SWAN: Yes, this past year the state of New Jersey did not allow me to collect horseshoe crabs in the creek area, the 1,000 feed from the shoreline. That would be hand harvest. I feel there is many benefits to hand harvesting.

I just feel there is very little incidental loss. The mortality rate is extremely low. The survival of the crabs is excellent. Many of those animals that have been bled have come back up to spawn on the shores within hours of bleeding. I would really like to continue hand harvest.

But, really, what I'm asking now is if my state of New Jersey feels it is not in the best interest of the shorebirds to collect horseshoe crabs from the Delaware Bay shore, I would like to be able to either trawl in New Jersey state waters, trawl within Maryland state waters, trawl within the confines of the Carl N. Shuster, Jr. Horseshoe Crab Reserve. I just would like another option to get horseshoe crabs so I can manufacture my contracted quota.

MR. BEAL: Roy, does that provide the clarification you needed?

MR. MILLER: The one follow up I have is, Ms. Swan, what level of permission do you now have with regard to harvesting in the Shuster Sanctuary?

MS. SWAN: Right now I'm able to harvest 10,000 horseshoe crabs, and I harvest those from August -- I really like to say "collect", though, I don't like to say harvest, because I release all my animals, and there is a good survival rate.

I do that from August to October, so I would actually have to ask National Marine Fisheries Service if they would allow me to do some of that collecting during May, but my 10,000 crabs I need, I usually collect about 6,000 from the Delaware Bay shoreline, so that would kind of be in addition.

MR. BEAL: Okay, thank you. Gerry Carvalho.

MR. GERALD CARVALHO: Yes, thank you, Mr. Chairman. I don't know if the speaker can answer this question, but what is the total amount of crabs that can be harvested by the biomedical

technical committee during the closed season?

MS. SWAN: By the biomedical industry during the closed season from May 1st to June 7th?

MR. CARVALHO: That's correct.

MS. SWAN: Right now I am actually the only biomedical company that I think is affected by this new regulation. I usually collect 6,000 during the month of May, and I'm asking to be able to still land 6,000 horseshoe crabs either by trawl or hand or some other state. Does that answer your question?

MR. CARVALHO: Well, my concern in this, Mr. Chairman, because I seconded the motion, is that I'm concerned that one user group might be in a position to harvest the entire quota, and that is not my intent.

MS. SWAN: Excuse me, you mean collect the whole 150,000; is that what you --

MR. CARVALHO: Yes, that's my concern.

MS. SWAN: That my company would collect --

MR. CARVALHO: Not that your company would but that the biotechnical community would or industry would take that out.

MS. SWAN: How my state works is that the crabs that I collect do not come off our bait quota, because all those horseshoe crabs are released back into the bay, so right now my 30,000 horseshoe crabs that I collect for my manufacture do not come off the state's quota.

MR. BEAL: Mr. Freeman.

MR. FREEMAN: This issue is complicated in that the state controls Ms. Swan's harvest, because she harvests in New Jersey. It's a difficult situation. Ms. Swan has been very instrumental in having an interest in the resource of horseshoe crabs many years before we got into the situation we did.

Nevertheless, our concern for the benefit of the shorebirds is maximize egg production; therefore, we're very conscious of allowing even the temporary removal of crabs to be bled and then put back on the beach.

We're not certain if, in fact, those crabs will now participate in spawning and therefore increased egg

production. It may well be that we could work something out with Benji relative to conducting an experiment where we could be convinced that temporary taking of crabs to be bled and put back on the beach would not affect egg production.

If that's the case, then we may be able to allow her to continue harvest. Nevertheless, we have prohibited the commercial taking at that time; and because of that, we certainly want to be fair to everyone and not essentially allow one group to be treated differently than another.

But, certainly, New Jersey would look at the situation that Benji has relative to seeing if some adjustments could be made. Again, this motion will affect only Delaware Bay.

MR. BEAL: Okay, thank you. I had a few more hands. Bill Adler then Tom Fote and then Roy Miller.

MR. ADLER: Yes, I just wanted to say that if this was in the addendum, it still leaves the states involved with the ability and the authority to adjust it the way they want. It's just that it won't be carved in cement for those states that they have to prohibit it, and if they want to have their own rules and to how it's done, when it's done and work it out with whoever, they would at least be able to do it.

If they wanted to not allow it, they could do that to, so it just releases those states from the mandatory thing and they can work with whomever they have to work with whatever rules.

MR. BEAL: Thank you, Bill. Tom Fote.

MR. FOTE: I think we should leave this in the hands of the two states involved. We're, basically, heavily regulating the commercial fishermen and heavily regulating the biotechnical industry, and we should let the states do that.

They have the control. I don't think we need this as a part of the amendment. I think it's unnecessary. They'll work out whatever is going on. We have to be fair to all the harvesters of this resource.

What they should be doing is working together to find out a way of utilizing the crabs for both ends instead of double harvesting. That's my concern and that's what I would like to see done.

MR. BEAL: Thank you, Tom. Roy Miller.

MR. MILLER: Thank you, Mr. Chairman. It has been suggested to me that we could consider adding two words with regard to Option 2 under Issue 2, closed season. If we were to add two words -

MR. BEAL: Hang on, Roy, Vince has a comment.

EXECUTIVE DIRECTOR JOHN V. O'SHEA: Mr. Chairman, you're well on your way to getting — it seems to me we're well on our way here to getting all tangled up. We're trying to get the motion, previous comments put into the computer so you can see them up on the screen.

If I could just suggest a minute, let us get that up there and then I think it would be a lot clearer. There are a number of people around the table that are already confused about what is going on here. Thank you.

MR. BEAL: Thanks, Vince. We will wait to get that up on the screen. Okay, the language is up on the screen. Right now, we're concentrating on the motion to amend, which is the lower motion that's on the screen right now. Are you suggesting a change to the motion to amend, Roy?

MR. MILLER: Yes, I am.

MR. BEAL: Let's dispense with the motion to amend, and then we'll take a vote on that, and we'll decide where we go from that.

MR. MILLER: I would like to offer a substitute motion. I would move to amend Option 2 under Issue 2, closed seasons, where it says, "New Jersey, Delaware and Maryland shall prohibit the harvest and landing of horseshoe crabs", the amendment that I would offer as a substitute motion would insert the words "for bait" after "horseshoe crabs", and then it continues to read the same "from May 1 through June 7."

MR. BEAL: Gordon Colvin has seconded the substitute motion to amend. Okay, once this is up there, what we're going to do, after David Borden's comment, we're going to vote on this substitute motion to amend.

After that vote, if this were to pass, then that becomes the motion to amend. Then we'll vote on that, and if that passes, then the main motion will be modified, and we'll vote on that. There are a lot of layers to this thing that we've put together here. David

Borden.

MR. BORDEN: Yes, thank you, Mr. Chairman. My only suggestion here is the motion to substitute is -- the force and effect of that is the same as the motion to amend, and you can save yourself a lot of aggravation if Bill Adler and Mr. Carvalho will withdraw their motion and simply allow that perfection to stand. We can do away with a whole vote.

MR. BEAL: Mr. Adler, are you acceptable to that?

MR. ADLER: Yes, I am.

MR. BEAL: Mr. Carvalho.

MR. CARVALHO: Yes.

MR. BEAL: All right, that motion has been withdrawn. That brings us back to the motion -- we've taken away one layer. Now we have a motion to amend the divided motion that we had. This would add the two words "for bait" in Option 2 for Issue 2.

Let's have the board vote on that motion to amend, and then we'll go back to the main motion. Any need for a caucus? Seeing none, all those in favor of the motion to amend, please raise your hand; those opposed; abstentions, one abstention. That motion carries.

Now, we're back to the initial part of the divided motion which is Option 2 for Issue 1 and Option 2 for Issue 2 with the two words "for bait" added after the words "horseshoe crab" in Option 2 as presented in the public hearing document.

Are we ready to vote on that issue? Any need for a caucus? We'll get that up on the board before we vote. Does anyone need further clarification of the motion that we're currently voting on? Seeing no hands, any need for a caucus?

Seeing no hands for a caucus, let's vote on the initial part of the divided motion. All those in favor, please raise your hand; like sign for those opposed; abstentions, one abstention; null votes, three null votes. The motion carries.

That brings us to the second part of the divided motion, which is Issue Number 3, the biomedical exceptions. Megan, can you scroll back to the new language that was proposed by Roy Miller dealing

with the modification to Option Number 2.

Okay, the language that is on the screen now, which is the modification suggested by Roy Miller and included in the original motion before it was divided is the motion that is before the management board right now.

The motion would be to adopt Option 2 for Issue 3 as modified on the screen right now. Is there any discussion on that motion? Rick would like to make a comment.

MR. ROBINS: Thank you, Mr. Chairman. Once again, I think this does not address the concern that was raised in the bait workshop, and I'm not in a position to add the language but I would suggest that a board member consider the following; adding a sentence that says, "States should study and confirm the effectiveness of bled crabs as bait before requiring transfers of crabs from biomedical users to the bait market." Thank you.

MR. BEAL: Roy Miller.

MR. MILLER: Mr. Chairman, I have a suggested perfection to the motion, if I could. The term "requiring", I think needs altering, and I would suggest instead of the word "requiring", that under a bait permit for biomedical purposes and allowing the subsequent return of the horseshoe crabs to the bait market instead of "requiring."

MR. BEAL: Okay, thank you. Roy, this is your original motion and Pat Augustine was the seconder of this motion. Pat, do you accept the change?

MR. AUGUSTINE: Yes.

MR. BEAL: Pat has indicated he does. Any additional comment on the motion that is on the screen right now? Seeing none, is there a need for a caucus? Okay, I'll read that into the record.

The motion before the board is: States that have a bait and biomedical fisheries should consider allowing biomedical companies to use horseshoe crabs harvested under a bait permit for biomedical purposes and allowing the subsequent return of the horseshoe crabs to the bait market. Crabs used in this way count against the state's bait quota.

No need for a caucus. All those in favor, please raise your right hand; those opposed; abstentions; one abstention; any null votes, one null vote. Gil, was that a null vote or an abstention?

MR. POPE: Null.

MR. BEAL: Okay, that brings us to the final issue that's included in the addendum, which are the monitoring program changes. There are some suggested changes to the state monitoring programs. Let me try to make this simple. Is there an objection to the proposed changes to the monitoring programs that are included in the addendum? Okay, Eric Smith.

MR. SMITH: Mr. Chairman, I don't have an objection, but I do have a recommendation that I'll follow with a motion and, hopefully, it won't take a lot of debate. Looking at the table that's in the document, Table 1, there are a lot of states with large harvests, and there are a lot of states with small harvests.

My trouble with the monitoring program on Page 9, Component A1 is that it requires all states to record landings numbers by sex and a lot of states just -- with such a small amount of landings, it's really not necessary in my view to go back through your regulations to change your data collection requirements to require something that you don't now require.

Therefore, I believe we ought to try and segregate the minor states from the major states in terms of data collection, so I would move that any state with landings less than 5 percent of the total only be required to report total crabs landed by month. In any year in which landings exceed 5 percent of the total, the full reporting requirement would be applied in the following year.

MR. BEAL: Thank you, do you have that language written down, Eric?

MR. SMITH: Megan has it. It's on the board.

MR. BEAL: It's already up on the screen. Is there a second to that motion?

MR. FLAGG: Second.

MR. BEAL: Lew Flagg. Any debate or comment on the change or on the motion before us? Pete Jensen.

MR. JENSEN: Can you just quickly refresh my memory of what the changes are in here? I'm not able to identify what's new and what's old in this

proposal.

MR. BEAL: Brad can do that.

MR. SPEAR: Currently, all states are required to report landings by sex and by harvest method. The intent is that the information will be used in a full stock assessment once the data is available and the appropriate methodology is put in place.

The Technical Committee recommends that states continue to report this information, because it will be used. The change that Mr. Smith is suggesting is to allow states just to allow the numbers harvested, not by sex or harvest method.

MR. SMITH: If I may, to clarify Pete, because I've already looked at the table in there. There are seven states that have landings less than 5 percent of the total, and five of those states have landings less than 1 percent of the total, so it would apply to those seven, and then the others would do the full complement.

MR. JENSEN: That's the only change in the reporting requirements?

MR. BEAL: Yes. Any need for a caucus on the motion? Seeing none, all those in favor, please raise your right hand; opposed; abstentions; or null votes. Seeing none, it passes unanimously.

Can we have a motion to adopt Addendum III as modified today. Mr. Augustine.

MR. AUGUSTINE: Thank you, Mr. Chairman. There has been a very healthy discussion, a lot of good information put on the table. There is no question that this is the right thing to do. I would move that the board vote on Addendum III as corrected and amended.

MR. BEAL: Thank you, is there a second to that motion?

MR. FREEMAN: Second.

MR. BEAL: Mr. Freeman, thank you. Is there a need to caucus or is there any discussion on the motion? Seeing none, is there a need for a caucus? Seeing none, all those in favor of the motion, raise your right hand, thirteen votes in favor; opposed, no one opposed; abstentions, no abstentions; null votes, two null votes. The motion carries.

I think we are summarily out of time for the other two agenda items, which is the Delaware Bay Tagging Study and the Horseshoe Crab Bait Workshop. We'll pick up those agenda items at the next meeting. I apologize to Dave Smith for not being able to get him on the agenda. Gordon, please.

OTHER BUSINESS

MR. COLVIN: Very briefly, because of the time. During the discussion on Addendum III, there were several references to recommendations for action by New York state with respect to horseshoe crab harvest.

We have distributed to the board this morning a copy of New York state's annual determination dated March 1 that sets our harvest cap at 150,000 horseshoe crabs. Attached to that letter is a letter from Director Jerry Barnhart to horseshoe crab permit holders that lays out the rationale for that decision. If any of the board members have any questions, I'd be happy to entertain them off line. Thank you.

MR. BEAL: Thank you, Mr. Colvin. Vince.

EXECUTIVE DIRECTOR O'SHEA: Thank you, Mr. Chairman. Earlier during this meeting, there was a reference to Brad Spear's not allowing a public presentation on the agenda this morning, and I want to just point out that we do have a process. There are time constraints on how we run our board meetings.

I have been concerned and working with the staff to make sure that we use the board time as effectively as possible. Any concerns or complaints about what Brad Spear did in enforcing those constraints should be directed to me and not to Mr. Spear. Thank you.

MR. BEAL: Thank you, Vince. We are adjourned.

(Whereupon, meeting was adjourned at 11:01 o'clock a.m., March 10, 2004.)
