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

June 11, 2003
DoubleTree Hotel Crystal City
Arlington, Virginia

ATTENDANCE

Board Members

Lew Flagg, Maine DMR
Bill Alder, Massachusetts Gov. Apte.
Gil Pope, Rhode Island Gov. Apte.
Eric Smith, Connecticut DMR
Gordon Colvin, New York DEC
Pat Augustine, New York Gov. Apte.
Brian Culhane, proxy for Senator Johnson (NY)
Jack Travelstead, Virginia MRC
Bruce Freeman, Vice Chair, New Jersey DFG&W
Roy Miller, Delaware DFW
Vito Calomo, proxy for Rep. Vergas (MA)
John Nelson, New Hampshire DMF
Dennis Abbott, proxy for Rep. Blanchard (NH)
G. Ritchie White, New Hampshire Gov. Apte.
Lance Stewart, Connecticut Gov. Apte.
Bob Lane, Georgia Leg. Apte.
Howard King, Maryland DNR
David Cupka, South Carolina Gov. Apte.
Susan Shipman, Georgia DNR
Kathy Barco, Florida Gov. Apte.
Dennis Damon, Maine Leg. Apte.
Tom Meyer, NMFS
Dan McKiernan, proxy for Paul Diodati
Jaime Geiger, US F&WS
Jerry Carvahlo, proxy for Rep. Naughton (RI)
Bill Goldsborough, Chair, Maryland Gov. Apte.
Rick Robbins, proxy for Cathy Davenport (VA)
Kelly Place, proxy for Senator Chinchester (VA)

Ex-Officio Members

Gregory Breese, US F&WS, TC Chair
Rob Winkel, NJ DFW, LEC Rep.
Brad Andres, US F&WS, F&WS Shorebird TC

ASMFC Staff

Bob Beal
Carrie Selberg
Vince O'Shea
Brad Spear
Nancy Wallace

Guests

Gerald Winegrad, American Bird Conservancy
Steve Myers, NMFS
Bill Cole, US F&WS
David Smith, USGS
Perry Plumart, National Audubon Society
Carl Schuster, VIMS
George Dawson, NJ
William Cooke, Citizens Campaign
Michael Oates, ANEW Inc.
Peter Himchak, NJ DFW
Stew Michels, DE DFW
Steve Doctor, MD DNR
Lisa Calahan, Atl. States Fisheries Journal
Bill Hall, Univ. of DE
Adrian Spidle, USGS
Dave Carter, DNREC

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

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HORSESHOE CRAB MANAGEMENT BOARD

DoubleTree Hotel Crystal City
Arlington, Virginia

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The meeting of the Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Washington Room of the DoubleTree Hotel Crystal City, Arlington, Virginia, on Wednesday, June 11, 2003, and was called to order at 3:50 o'clock p.m. by Chairman William Goldsborough.

WELCOME AND INTRODUCTIONS

CHAIRMAN WILLIAM GOLDSBOROUGH: Good afternoon. Let's call this meeting to order, please. Welcome to the Horseshoe Crab Management Board. My name is Bill Goldsborough. I'm the chairman of the board.

As you all know, we are behind schedule so we will have to be efficient in how we use our time. Time seems to be a factor for a lot of aspects of this meeting.

For myself, in particular, I have to be in Annapolis for another meeting at 6:00 o'clock this evening, so you will see me disappear mid-way through and Bob Beal is going to take over the chairmanship.

Looking around the room, it's quite clear that we have a quorum so we won't need a roll call. Let's turn now to the agenda, and I'd like to hear if anybody has any additions or changes to the agenda. Yes, Dave.

BOARD CONSENT

MR. DAVID V.D. BORDEN: Thank you, Mr. Chairman. No changes to the agenda, but when we get into the management section, I'm going to have a motion that I'm going to want to make, and I may have to leave early to go to the Strategic Planning session so I think what I will do is give the motion to Bob, and Dennis Abbot has offered to make it on my behalf. We'll have it typed up on the screen.

CHAIRMAN GOLDSBOROUGH: Thanks, Dave. That's the first obvious indication that we are trying to be very efficient with our time at this meeting. Anybody else? Anything on the agenda? Seeing no objections, we'll consider the agenda adopted.

And the proceedings from the February meeting; has everyone had a chance to look at that? Any comments or suggested changes? Seeing none, we'll consider the proceedings adopted.

PUBLIC COMMENT

At this time I'd like to provide an opportunity for public comment, and we will allow that at other intervals as necessary. I'd have to ask anybody who wants to comment to please come to the mike and introduce yourself and keep your remarks brief. Anybody in the public want to comment before the board at this time? Okay, we'll move along, then.

We have three technical, I'll say, reports. They are not necessarily all formal reports, but they will all provide sort of a preface for our subsequent management discussion, Number 7 on the agenda.

The first is some remarks on the population structure, genetic analysis study, done by Dr. King of the U.S.G.S. He is not available but he has sent I believe his post-doc, Adrian Spidle. Is that correct?

GEOGRAPHIC SUB-POPULATION STUDY

DR. ADRIAN SPIDLE: Yes, we've sampled horseshoe crabs from the extremes of the range in North America from Northeastern Maine down to the Yucatan Peninsula.

We sampled 21 locations: 3 in Maine; 1 in New Hampshire; 1 on the Atlantic side of Cape Cod; Narragansett Bay, Rhode Island; North Fork of Long Island; 6 locations in Delaware Bay; 2 in the Chesapeake Bay; then North Carolina; South Carolina; and 3 sites in Florida, 1 on the Atlantic Coast and 2 on the Gulf Coast.

We surveyed the animals with 15 neutral DNA markers called "micro-satellites." This is just an illustration of the DNA sequence on the left, and on the right is basically the picture that we would get on our laboratory equipment.

We surveyed several aspects of the data that we generated. I'm going to basically give just a quick overview of the results we found, and I can take questions at any point on any details that anybody wants to know about.

So, we assessed the genetic variations for measures of population structure. We looked at calculations that estimate the distribution of genetic variation within and between populations.
Does a population have a lot or a little of genetic variation relative to what is found in the entire range of the species, for instance? We also looked at the genetic distance between pairs of populations of horseshoe crab.

Then we looked at the data for measures of population status. We looked at the heterozygosity in each population across loci, across the 15 markers, which is an indication of the degree of genetic diversity within each population.

We looked at deviation from or confirmation to equilibrium, which is a calculation that indicates the degree to which the populations are behaving in normal, predictable manners. So, this is just a sample of several populations, a sampling of the populations.

Hog Bay, Maine, was the northern most population we sampled, and it really stood out for having very little genetic diversity: only 3 alleles per locus across the 15 loci, as opposed to about 8 to 10, which is what we saw in the rest of the Atlantic Coast of the U.S., and a very low heterozygosity.

In this one Hog Bay population, you see the Middle Bay population, which was not far from Hog Bay, had a very similar level of diversity to what was found on the rest of the coast, so that sort of indicates that the Hog Bay population may be very isolated and not really connected to the other populations near it.

The Yucatan population, the southern most that we sampled, also had a reduction in genetic variation. It had fewer alleles per locus and lower heterozygosity than we saw on the Atlantic Coast of the U.S. Without neighboring samples from elsewhere in the Caribbean, we can't really say if that reflects the state of the population or a sampling error.

Okay, these figures have been updated somewhat. We looked at 21 collections and we looked at 901 individuals. Basically there is a high level of heterozygosity, a significant differentiation at every level you look at.

They're not shared genotypes. There are different allele frequencies across all populations. There is a lot of diversity in these markers that we surveyed.

Hopefully, you have the handouts. The tree is color coded so each color indicates clusters of populations that are supported at the 90 percent level. So, within a color, those populations are very closely related. In addition, there are asterisks at some population clusters and that indicates 60 percent bootstrap support, which is weaker but notable.

You might not call it statistically significant, but you would call it worthy of attention. So, basically what we see, looking at genetic distances, is we see that the Chesapeake Bay samples, the two samples labeled "MD", the Maryland samples, that clusters together tightly within the larger purple cluster of populations; that is, that stretches from Cape Cod down to South Carolina.

The Gulf of Maine samples are highlighted in orange. Those are quite distinct, statistically distinct from the Mid-Atlantic samples that are in purple. And then when you move down the coast, the Atlantic Coast of Florida is quite distinct from the Mid-Atlantic collection.

And then when you move around the Gulf Coast of Florida, it is quite distinct, again, from the Atlantic Coast, and then there is the Yucatan that is by far an outlier in this collection, set of collections.

This is another one where the handout should be useful. The color codes indicate the collections of populations from the tree cell. The orangeish in the top left is the cluster of Gulf of Maine populations.

And what this table indicates is we've done multi-locus maximum likelihood assignment tests so we sample an individual from one population and match it up with the genotypes in every other population.

So, if you read across the row, there is a row for each population, and then across the row is the percentage of individuals from that population that were assigned to a different population.

So, the very top row is Hog Bay. Every single individual sampled from Hog Bay was assigned back to Hog Bay by this test. The same was true for the Yucatan population. Every single individual from the Yucatan was assigned back to the Yucatan.

But everything in between, there is a wide range of

potential populations that any individual could have been assigned back to. So, basically what that means is with this particular set of markers, you can't take a horseshoe crab and say for sure where it came from.

You would be likely to identify it as coming back from the Gulf of Maine, for instance, or from just the whole Mid-Atlantic from Cape Cod down to South Carolina, but that's about the level of precision we would have in identifying the origin of an individual.

Within the purple Mid-Atlantic collection, you can see that the Chesapeake Bay collections, they are still most likely to be assigned within Chesapeake Bay, but they still had genotypes that were found elsewhere in the Mid-Atlantic.

And if you were interested, you could look at each number to see the particular distribution of where individuals were mis-assigned to, basically.

And what the pattern basically shows is that there is some evidence of isolation by distance, meaning the individuals are most likely to be misassigned to populations closer to them. But basically there seems to be an extensive gene flow from Massachusetts down to South Carolina.

So, basically the patterns of genetic variation that we see reflect the geographic history and what you might expect. The Gulf of Maine populations are distinct. The Mid-Atlantic populations are not distinct from each other.

The division between Atlantic and Gulf Coast Florida is strong, and that has been demonstrated across a variety of organisms so that's not a surprise, either. The Yucatan population is quite distinct, which also stands to reason.

So, basically we see five clusters of populations in these samples. We have the Gulf of Maine, the Mid-Atlantic, Atlantic Florida, Gulf of Florida and then Mexico.

And, yes, there is evidence that the animals or at least their genes are moving far within -- they're moving a long distance and they're moving easily within the areas where they occur.

If you think back to the map, there are large gaps in the area that we sampled from Chesapeake Bay on down. We just sampled one area in North Carolina, one area in South Carolina. It would be useful to have additional samples in that area so we'd have a more uniform sampling distribution along the Atlantic Coast of the U.S., but that's the main thing we would need from here.

With a different set of markers, it might be possible to assign individual animals back to specific locations, but if there is as much gene flow as there appears to be, again, that might not be possible either.

And we'd like to thank the U.S.G.S. for funding this and the ASMFC, Fish and Wildlife Service, and all the people that sent us samples, and thank you for listening. I could take any questions.

CHAIRMAN GOLDSBOROUGH: Thank you, Adrian. I think what I'd like to do is open it up for any questions for clarification for Dr. Spidle, but hold off on any motions or actions until we've gotten all three presentations under our belt. So, any questions for Dr. Spidle? Okay, Bruce.

MR. BRUCE FREEMAN: I'm just unsure of the difference between the samples on the Florida Gulf Coast, and you have Florida GS and Florida GC. I'm assuming GC is Gulf Coast. What's the GS?

DR. SPIDLE: Oh, the G is for Gulf. The C and the S are -- C is for Cedar Keys and S is for Swamp something. Sorry.

MS. KATHY BARCO: Maybe Sarasota?

DR. SPIDLE: Could be.

MR. FREEMAN: Okay. One other point, we are finding, relative to the biomedical industry, where, for example, crabs are taken from the Middle Atlantic area, from primarily Delaware Bay, shipped to Cape Cod, for example, bled and then released in Cape Cod in some instances.

And so those crabs that are being transported up and down the coast that may be released in a different geographical area after they're bled -- now I'm not sure how many individuals and for what length of time they'd have to mix with a different geographical population before you start to see some intermixing of genes. I have no idea –

DR. SPIDLE: If you look at the table of assignment test, you see there is an unusual rate of misassignment to Massachusetts and misassignment from Massachusetts.

MR. FREEMAN: Well, I'm just saying that could be the cause; now, whether it is or not, I don't know, but just be aware of the fact that crabs don't

necessarily have to walk to these locations.

DR. SPIDLE: Right.

MR. FREEMAN: They're being carried and then being released. And so, it could explain for some of these abnormalities, as you indicate, where you do get a high degree of variation in a particular area. That could be some of the reason.

CHAIRMAN GOLDSBOROUGH: Jaime.

DR. JAIME GEIGER: Yes, Adrian, within the Mid-Atlantic group, the two Maryland populations, within that Mid-Atlantic group, is this data showing that those are unique and separate and identifiable populations?

DR. SPIDLE: Well, they are quite distinct and close to each other. They're closer to each other than any other Mid-Atlantic populations are to each other.

So, based on genetic distance, you would say that they are distinct, but when you look at the assignment tests, they're not as readily identifiable based on their genotype as, say, the Gulf of Maine populations. So, it is sort of in between. It seems like they might be getting carried across there as well, if that's happening.

CHAIRMAN GOLDSBOROUGH: Go ahead, Jaime.

DR. GEIGER: Yes, a follow-up. You know, I think Bruce certainly put an interesting suggestion on the table, again, looking at some of this genetic mitochondrial DNA or this DNA analysis testing, you know, it appears that, again, one possible explanation could be that we're having mixing of these various populations.

And, again, what would result from that is some of the release by these animals by the biomedical industry into areas outside of where they were originally captured, and is there any other speculation that you may have based upon this data that would reinforce or add to that particular hypothesis?

DR. SPIDLE: One way to address that hypothesis would be to look at old museum specimens that have been collected before the sampled animals are being moved by the biomedical industry.

And if you could demonstrate that museum samples - - you can extract DNA from museum samples and then you can try to look at the population structure of the animals before they were being actively relocated. That's one way to address that question.

A more vigorous analysis of simply isolation by distance, whether animals from here go to here and then from there they go to there versus discontinuities in genotype distributions, that's another way to address that question. We'll certainly be working on that in the final report.

CHAIRMAN GOLDSBOROUGH: Pat.

MR. PATRICK AUGUSTINE: Thank you, Mr. Chairman. Again, this population that you tracked was, what, roughly 900? Is this a one-time sort of thing or do you track them for a period of time?

DR. SPIDLE: One time.

MR. AUGUSTINE: One time. And will this then be used as a reference point and hopefully you will do this again in future years or future cycles, so we end up with a database that establishes where they typically are?

DR. SPIDLE: Right, that would make sense to do. We'd have to pursue additional funding for that, obviously.

MR. AUGUSTINE: Well, I'd have thought Audubon would have offered that up for you today. Oh, I'm sorry, did I speak out of turn? Thank you very much.

CHAIRMAN GOLDSBOROUGH: Jaime.

DR. GEIGER: Mr. Chairman, a follow-up question on that. Adrian, what kind of samples do you require? If you were going to continue to do this and, again, assuming that we're having ongoing trawl samples and other collection and survey techniques that we could get a precise location of animals, what kind of tissue samples would you prefer or need to do the analysis?

DR. SPIDLE: What we would really want - - what we're actually getting at is gene flow so you want to look at the place where the genes are flowing so you need samples from spawning beaches.

Without a spawning beach, without collecting an animal on a spawning beach, you don't know if it was just passing through or if it is there, if it's always

in that location. The tissue sample is fairly simple.

It's just snip the claws, snip a claw and put it in a tube of ethanol or another preservative, and it's best to have about 50 animals per location, so that's what we would like is 50 animals per spawning beach.

CHAIRMAN GOLDSBOROUGH: Any other questions for Dr. Spidle? Okay, well, let's move on to the Shorebird Technical Committee report that I believe Brad Andres is going to provide, in which he'll highlight the conclusions and recommendations of that group. Thanks, Brad.

SHOREBIRD TECHNICAL COMMITTEE REPORT

MR. BRAD A. ANDRES: Thank you, Mr. Chair. I'd like to start out just with a quick reminder that I was here in February and talked about trying to complete the report assessment and the drafting of conclusions and recommendations. We did manage to meet that deadline, albeit, I think of you most agree, a little later than you originally might have liked, but hopefully you do have copies of that report.

Rather than go through the full 82 pages page by page, we'll turn our attention to the conclusions and recommendations. What I'd like to do then would just be to highlight a few of those and we can just go ahead and take that document, again, the one that's conclusions and recommendations to the Horseshoe Crab Management Board on the shorebird-horseshoe crabs primarily in Delaware Bay.

And just, again, a little bit on the process. We have a Shorebird Technical Committee that originally compiled the report or contributed information and then went on to draft the conclusions and recommendations.

That whole packet was sent on to eight independent peer reviewers, which were chosen for their expertise on topics that were covered in the report such as population monitoring, energetics.

We also had horseshoe crab expertise, and probably as importantly, none of those peer reviewers had worked in Delaware Bay in more recent years so we were, again, striving to get a most independent and objective review of the report and those draft recommendations that we could.

So right now I'll just probably bypass or just hit a few of the conclusions and then move to the recommendations. Again, I covered the purpose and report there.

If we turn to Page 2 on the conclusions, I think it's pretty obvious to everyone, and certainly the media is out there convincing you fairly regularly that Delaware Bay is an important stopover for migrant shorebirds, primarily on northward migration, so in the springtime and with the notion of being tied to abundant food resources. No one disagrees with that. The data, although variable among years, certainly supports that contention.

The second sort of topic that we addressed were population trends, and, again, a lot of information has been out in various sources.

What we tried to do was compile a number of trend information that's out there from things like a checklist survey, believe it or not, in Quebec that had information, an assessment of volunteer-based council in the Atlantic Coast, information from Delaware Bay itself and then also from the South American wintering grounds.

I think the committee -- the committee and the peer review both felt that the evidence was pretty concordant to show a trend, a decreasing trend in the populations of the red knot, the sub-species rufa, which breeds in the Canadian Arctic and then travels along the Atlantic Coast to Tiara del Fuego.

Outside of the red knot, the only other shorebird that we felt really showed convincing and consistent evidence was the semipalmated sandpiper.

The other ones you may have heard about, ruddy turnstone, sanderling, were a little more variable depending on the method that you looked at. So, again, knots and semis really showing consistent patterns across a number of methods.

We tried to analyze a whole host of threats, and I think that, again, the committee and the peer review panel realized that a lot of this information was imperfect and incomplete from places like the Arctic, as well as from Southern South America, but in general we agreed that the habitat quality concerns elsewhere were not overriding the importance of Delaware Bay and the critical bottleneck that occurs during migration.

This is true for shorebird migration systems whether it's during the spring or the fall, but most believe that an energy crunch really occurs during migration time when there is a need to add weight as well as maintain the normal body function.

Then we turned our attention to shorebird use of crab eggs, and information that's out there from stable isotopes definitely documents the importance of crab eggs to red knots right now, and analyses are undergoing to look at that technique with other species.

Definitely, the committee and peer review felt that the evidence was pretty strong for the importance of crab eggs in the diet, but there were gaps in the use of alternative foods in Delaware Bay and other places, for that matter.

So, there definitely is convincing information, but a little bit of a gap in understanding the role that other foods, particularly foraging at high tides or at night away from Delaware beaches, may play in the ecology of the species while they're in Delaware Bay.

Availability of horseshoe crab eggs was the next topic, and both the committee and the peer review felt that this was really a critical piece of information, at least from the shorebird's perspective, that the number of crabs and such that, you know, that is definitely of interest to the spore, but if you are a red knot you really need to know about egg availability on the beaches.

And, as you know, the Horseshoe Crab Technical Committee has developed a sampling protocol that has not been implemented yet to assess egg availability. Along with that protocol another topic that came up with egg availability was just how little we know about the process of what makes eggs available on the surface.

And, this is sort of within the light of the notion that there needs to be a super abundance of crabs so that the females can dig eggs up and force them to the surface. We really don't know how weather and other factors play in keeping those eggs available or making them available to the migrating shorebirds.

Also, another issue that came up was how these birds deplete the this resource. Some of the egg data indicates that there is a heck of a lot more eggs out there in June than there are in May, and is that due to some environmental features of the beaches or is it really that these birds do deplete this resource over time.

Both the committee and the peer review panel recognized that this report would have benefited from a more thorough analysis of egg information that had been previously collected, but was unavailable to both the committee's and peer review's scrutiny.

And, lastly, both agreed that there needs to be an integrated bioenergetics model produced for all the shorebirds that use Delaware Bay in northward migration.

There's pieces here and there in the literature but someone who is very versed in the world of bioenergetics needs to help the committee or someone else sit down and really do a nice model so we know what the energetic requirements of these birds really are.

Our next topic we addressed was the shorebird weight gain. And, again, you may have known of some of the differences of opinion regarding interpretation of these data. Particularly, the peer review panel felt that was an artifact of personalities, perhaps, and not really one of the data; that the bottom line is that there does seem to be something occurring that is causing fewer birds or a smaller proportion of red knots to make this magic departure weight of 180 grams.

The peer review panel believes strongly that a more cooperative approach is needed to help ferret out the real truth in these data and really urged the Shorebird Technical Committee and perhaps this body to try to set that direction.

Amongst other species, semipalmated sandpipers, again, information on them was pretty convincing that there had been a change in weight gain over time, and that time being from 1996 to 2002.

This analysis was done in comparative to the least sandpiper that tends to be a more marsh-inhabiting species. So, similar sight and looking at two ecologies and semis tend to use horseshoe crab eggs quite a bit more.

Lastly, on the conclusions, we produced a section on shorebird survival. And, again, a lot of the information here, the peer review panel felt could stand a more rigorous analytical treatment; however, it seemed fairly convincing that the information presented that low weight red knots had a lower return rate to Delaware Bay, that that again was a pretty convincing piece.

Another part of this puzzle is the juvenile. The ratio of the juveniles have felt to be declining in the wintering grounds. And if you look at these ratios relative to other knot populations, they do tend to be rather low; and probably, more importantly, these

ratios have stayed low for a number of years.

Normally due to conditions in the arctic of predation and weather, the productivity tends to bounce around quite a bit over a time series; whereas, the information, albeit, again, a shorter time span, seems to have these numbers of juveniles at pretty low levels.

So, with all that said, the committee then went on to make a set of recommendations for this board to consider, and they acknowledged that many of the management actions you have taken, such as use of bait bags in various states, alternative bait development, and certainly the establishment of the reserve have been positive steps in the conservation of shorebirds and, of course, horseshoe crabs.

However, the committee, and seconded by the peer review panel, thought that a more risk-averse strategy is likely needed in the interim. We will stress the fact that both the committee and the peer review panel really wanted to -- or set this recommendation in an adaptive management approach, that there are a lot of gaps out there in the information so let's go fill them as quickly as we can and then see where we stand.

And these recommendations really fall into sort of two major groupings, one of direct management and then needed work. And, again, I'll turn you now to page -– yes, I heard someone say it Page 8.

You can see that the committee thought one possible action for this risk-averse strategy would be through a further reduction in the harvest. And, as is acknowledged here, this was a difficult thing to put any real science to, to figure out what that reduction might be.

And, again with a lot of caveats, the committee suggested and the peer review panel felt that this may be in the range of 50 to 75 percent. And, again, this is something that I think the stock assessment committee could help really figure out what that number might be.
Also, tied with this recommendation is the acknowledgement that the conservation measures that have been proposed that I mentioned, such as alternative baits, bait bag use and that such could really go a long way towards reducing the overall use of horseshoe crabs as bait.

Recommendation 2 focused on sort of two aspects, one of reducing disturbance on spawning beaches and increasing the egg availability, and that would be accomplished through a seasonal closure during May and the first week of June, basically from May 1 to June 7.

And, again, I guess I should make sure that you understand these recommendations are really geared towards the states of New Jersey and Delaware, and then secondarily to Maryland, in the case of the reduction.

And, lastly, with these direct management activities was the idea that beach nourishment may be a good management technique to increase spawning habitat and also then shorebird foraging habitat.

The peer review panel thought that although there is some evidence indicating that nourishment activities will increase spawning habitat, that it's only from two beaches in Delaware and felt that the generality of those conclusions probably ought to be investigated a little bit further before a large, broad recommendation on beach nourishment would be put forward.

Sort of that second grouping of recommendations falls under sort of needed work. And probably at the -- well, definitely at the top of that list would be a rigorous analysis of egg data that has been previously collected, primarily in New Jersey.

This would help us really understand what changes have occurred in egg availability and may even shed some light on design aspects and implementation of a bay-wide egg survey.

And probably second in priority in this grouping would be the implementation of the egg availability study and, as I mentioned earlier, perhaps some tied-in research into the process of what makes eggs available to shorebirds.

And then sort of lastly -- that covers the needed analysis, or at least the highlights of that -- the peer review panel really, again, strongly believed, and I know numerous committee members, that sort of a coordinated and prioritized research plan for the bay and even perhaps the hemisphere is urgently needed.

On the first draft of recommendations, they said this looks like a shopping list for master's theses. So, they saw it really as a disparate effort and really felt that everything would be more effective and more efficient if we could get a group that could annually, perhaps, sit down, decide what the priorities are, decide on the methods that everyone is going to use to deliver those priorities, and then also agree how data is going to be shared, reporting processes and all

that.

So, I think with that, I'll wrap up the presentation, and I'll be glad to try to answer any questions you have about the process or specific things in any of the two documents. Thank you.

CHAIRMAN GOLDSBOROUGH: Questions for Brad? Rick.

MR. RICK ROBINS: Thank you, Mr. Chairman. I do have several brief questions. First, Mr. Anders, when I went through the shorebird population threats, I noted there was no mention of hunting which occurs on the red knot in the South American Range, and I wonder if you could address that.

Looking at the Audubon red knot watch list report, they state on their website, "It appears that knots are still commonly hunted in South America, especially the Guianas. Based on the number of banding recoveries from hunted birds, it appears that this hunting might be fairly significant." I was curious to know if you had any insight on that issue?

MR. ANDRES: Well, the Guianas have very few red knots, actually, on that coast relative to Tiara del Fuego. My understanding is the Argentines don't hunt them that extensively.

We did have people from the country that have seen this document, but I'll certainly make a note and look into that for the board, if there is information available. That's often a hard thing to get real data on.

MR. ROBINS: I understand that. A couple other points. You mentioned the need for bioenergetic requirement analysis. I would point out, I guess, that in the original Horseshoe Crab Management Plan, the 1993 Castro and Meyers study was cited.

They went through their calculations and bioenergetic requirements and concluded that 1.8 million sexually mature female crabs would be sufficient to support the shorebirds of the Delaware Bay region.

And if we compare that with Dr. Berkson's mean estimate of 2.6 million that are in the trawl survey area, there are currently 144 percent of the stated number of crabs required to support the Delaware Bay shorebirds, according to that analysis. So, some analysis has been done already, and I would just remind the board of that.

MR. ANDRES: Yes, we did review the Castro paper in here, and also we did try to take it a step further and update it with more recent information.

I think your observation is why we need to revisit those models and with some of the newer information on costs of flight and things like that, update them and get a more realistic estimate of what the energetic needs really are.

MR. ROBINS: Okay, and third, if I may, to be clear, your conclusions and recommendations about the changes in the harvest level, those are tied to the lower control limit of Dr. Berkson's population estimate; is that correct?

MR. ANDRES: Yes, and with the caveats that are written about that of understanding that that sample doesn't necessarily sample the whole range of where Delaware Bay breeding crabs may be so it could be an underestimate.

It assumes 100 percent gear efficiency, those caveats. So, really, if you're referring to the 75 percent number, that is I think what folks would be as sort of the cellar of conservative action.

And, again, I believe that the Horseshoe Crab Stock Assessment Committee may have a more thorough analysis of that that they've undertaken in just the last couple of days, after seeing that recommendation.

MR. ROBINS: Okay, but your conclusion is based on the lower control level?

MR. ANDRES: Exactly.

MR. ROBINS: And not on the mean estimate?

MR. ANDRES: No. So that's the ultra conservative -– we were seeing that as the most conservative.

MR. ROBINS: Okay. And I will just point out to the board that the mean estimate in Dr. Berkson's analysis is already risk-averse and conservative for two reasons:

Number 1, the fact that it assumes 100 percent gear efficiency which, while relevant for purposes of analysis, is probably not realistic, so it understates the population by the difference between the actual and stated gear efficiency; second, the fact that no crabs

inside the Delaware Bay nor seaward of 12 nautical miles are included in that analysis. Thank you, Mr. Chairman.

CHAIRMAN GOLDSBOROUGH: Any other questions for Brad? Okay, yes, Jaime.

DR. GEIGER: Mr. Chairman, I would ask has the Shorebird Technical Committee report been vetted through the technical committee of the horseshoe crab group? Have they had a chance to review that and also provide comments related to the shorebird advisory group?

CHAIRMAN GOLDSBOROUGH: I'll defer that question to Greg Breese.

MR. GREGORY BREESE: Yes, both the stock assessment committee and the Horseshoe Crab Technical Committee have looked at the reports, although they were the draft reports and not the final, and they didn't see the peer review. I don't think the substance changed or the substance of their comments would have changed.

DR. GEIGER: And as a matter of the record, we have both the Shorebird Technical Committee report as well as the response of the technical committee will also be entered into the official record, Mr. Chairman?

MR. BREESE: Yes, when the technical committee report is provided, I was going to be covering that.

CHAIRMAN GOLDSBOROUGH: Any other questions for Brad? Okay, we will move on now then to the technical committee report that Greg will provide.

And it's my understanding that one outcome after this, we'll be giving our blessing to the terms of reference for the planned stock assessment.

TECHINCAL COMMITTEE REPORT

MR. BREESE: Thank you, Mr. Chairman. We have a PowerPoint presentation that Brad Spear put together to help lead us through this.

As Jaime had alluded to, the stock assessment committee and the technical committee both had a chance to review the draft shorebird report and the conclusions and the recommendations, although, as I said, not the final versions nor the peer review comments and conclusions.

The committee focused primarily on the sections that addressed horseshoe crab populations and monitoring efforts, and noted that there were a few clarifications that could have been provided and were maybe not as accurate as they could have been, but nothing that was really substantial enough to require changes or anything.

And recognizing that the Shorebird Technical Committee and the Horseshoe Crab Technical Committee are at the same level in terms of management actions and interface with the board, the Horseshoe Crab Technical Committee felt that the recommendations and conclusions by the Shorebird Technical Committee seemed reasonable, and they didn't flag anything as specifically having an impact on what they have done so far; except, that for the recommendations that call for a harvest reduction, further harvest reduction or things of that nature would need to be discussed.

Specifically, Recommendation 1 was discussed quite a bit by the technical committee, and one question or one observation they offered was that a straight harvest reduction might not be the most effective way of increasing egg abundance and availability and were interested in having some time to look at that and see what other management actions could fit the needs of what the Shorebird Technical Committee was feeling was necessary.

And in Recommendation 3 on the beach nourishment, as Brad had already alluded to, they also felt that there were a couple issues. One was a lack of understanding of how to do effective beach nourishment, but another very important issue is our lack of knowledge about where the juvenile crabs may be, and the danger potentially of sucking them up from the borrow area and displacing and having a negative impact on the population through that mechanism.

We really need better information on which habitat and areas are used by the juveniles before we'd feel real comfortable with a blanket recommendation to do a lot of beach nourishment.

That concludes what the technical committee saw in the shorebird technical report. Do you want to ask questions about each section, or do you want me to just go through the whole thing and then ask questions at the end, because there are sort of disparate pieces that I'll be going through.

CHAIRMAN GOLDSBOROUGH: What's

the board's pleasure on that? If you have burning questions about certain sections, perhaps Greg will pause to entertain them, but otherwise let's hold them until the end, how about that?

MR. BREESE: Okay, then could I have the next slide, please. The board also had asked the technical committee to review the memo that had been provided to the board by Smith and Millard relating to a stock assessment.

And in the interim time between when that had been presented to the board at the February meeting and today, the stock assessment committee acted a little bit proactively and took it upon themselves to develop that into a status report or a trend report which you should have in front of you; correct? Okay, so you have that in the appendix.

The technical committee had a presentation by Dr. Smith at their meeting to discuss what had evolved, and I think it was very responsible of them to take that step.

Basically the conclusions are that the spawning population has been stable for the last four years as opposed to some of what was being discussed earlier in the spring and that egg abundance is very hard to tease out right now with the data that has been forthcoming, but that it's also recognized that the horseshoe crab population likely was higher in the '90s, early '90s and '80s, and so that's something that needs to be factored in.

What the technical committee has tasked the stock assessment committee with doing in the future is providing an annual status assessment so that people will have the best information available as we're having these discussions in the winter, and hopefully that will help things in the future.

One issue that may come up with that is getting it in a timely manner for management decisions, and that may have to be discussed because that may involve some funding issues and trying to prioritize that work.

The management committee also asked the technical committee to review the letters that New Jersey and Delaware had submitted and focus on the recommendation that that be applied coastwide.

So, the technical committee discussed that at length and recognized that there certainly is potential for localized population depletions outside the Delaware Bay area if New Jersey and Delaware do restrict as heavily as they plan.

It was also recognized that there are regulations and caps that are in place, and that we don't have data that indicates a clear and present danger, if you will, of a population decline outside the area, and that there is the potential to treat New York somewhat unfairly as the letter was stated.

So, the recommendation by the technical committee was to have the states evaluate their situation individually and with the data that they've collected in the past few years; and if they feel that there is a need to have further restrictions, to do it on an individual basis as opposed to a coast-wide blanket reduction in harvest.

There was also another issue in those letters that was discussed at length, and that was the issue about reducing or restricting research in an attempt to reduce the impact of disturbance on the birds and give the birds the best chance to forage.

The concern the committee had was that there are really tough management questions being asked; and if we don't have the research going on to answer those questions, then we're not going to be in a good position to make recommendations.

So we need to carefully weigh the positives and negatives of that research and the disturbance, and the committee was just concerned that as the letter stated it sounded like a very strong recommendation to reduce research and monitoring.

The stock assessment subcommittee provided the technical committee with terms of reference. The technical committee made a couple minor modifications to that and feels that it should be passed or agreed to.

One issue that has come up is there will be a critical need to get data in a timely manner to complete the stock assessment, and we would hope that the board members would help ensure that's a priority and that data is forthcoming to the stock assessment subcommittee.

Also, something that Brad alluded to a moment ago is that the stock assessment committee, having seen some of the discussions that have been taking place related to how to set quotas for harvest and keying that on new recruited females to the spawning population, the prima paris females, that the stock assessment committee is also willing to analyze that and see how useful a tool that might be in setting quotas, and has also provided a draft set of recommendations or concerns about taking that as a

tool right now with our limited state of knowledge, and I can hand that out if the board members would like.

As the board heard in February, there is a plan to resubmit to the biomedical companies a survey helping to better assess the loss of crabs from the population due to biomedical uses. That would go from the point of take on the boats to all the way through the bleeding process.

That survey has been refined and is ready to go out, and in fact the technical committee is recommending that be done on an annual basis and be incorporated into the fishery management plan.

One of the questions that has come up is the most effective way to send the letter out this time prior to it going out through the plan where it's envisioned that it would be going from the states to the biomedical companies that are in their states.

But, some question has come up, would it be more effective to have this board or the chair of this board sign off on that letter to the companies to help ensure timely cooperation.

There were two questions on monitoring components at the last board meeting and indeed had been discussed at the technical committee over several meetings. One was related to Component A, the second bullet here.

There has been some difficulty in getting compliance of characterizing a portion of the commercial catch because it is a significant workload on the states, significantly burdensome to the states.

So, it was also brought to the attention of the stock assessment committee and asked whether the information is critical for the stock assessment analysis. The answer from the stock assessment committee is that data by itself is not particularly meaningful to the stock assessment.

However, in the future there will probably be a variation of that which will be identifying the newly recruited females to the spawning population, and so something like this will need to be done in the future, but currently there is no real requirement or critical need to do this.

However, if states are already taking it upon themselves to do this, it is good baseline data and we would recommend that they continue doing it to the extent that they're able.

There is also the question about Component F, the last bullet. That was a question of whether it was needed to re-characterize or re-identify spawning habitat on an annual basis.

After considering that and going back through the information and discussions that had occurred, we would now say that the primary purpose behind that was that the states would know where spawning habitat occurred, and they could comment effectively on permit issues that could cause a change, a negative impact to that habitat; and to the extent that the states feel that they have a good handle on where spawning habitat is and how it shifts over time from year to year, that there would be no real need to do a state-wide re-identification of spawning habitat.

That sort of leads into another issue that I'll just touch on before we address the bullets up on the screen, and that is that we had talked about the need to revise the plan; and so if an amendment is undertaken, there are a lot of revisions that the technical committee identified, primarily from outdated wording and new understanding, so there will probably be quite a few revisions that will take place if we go through an amendment process.

The first bullet here, coordinated Delaware Bay-wide horseshoe crab egg survey, was touched on by Brad. The technical committee saw that in the recommendations from the Shorebird Technical Committee as well and recognizes and supports the value of that as an important monitoring tool in assessing how well shorebirds are doing, although it does not have great utility specifically for horseshoe crab population assessments, especially with the population model that has been chosen.

The technical committee does offer their expertise in technical review and assistance for doing this survey, and there is a draft survey proposal that Dr. Smith had produced earlier in the spring that could be used as a starting point for developing a monitoring program that would give us that bay-wide index of egg abundance.

The second point had come up at a previous technical committee meeting, and there had been concern that there might be some loophole -– not loopholes, but cracks in our understanding of how many horseshoe crabs are being harvested legally, but in ways for personal use, for instance, that might not be counted effectively and industrial economics deserves a thank you for stepping up to the plate and taking it upon themselves to do an analysis of that and their analysis

looking at what, say, striped bass fishermen might be taking or individual eel fishermen, who can sort of come under the commercial radar screen, indicated that there isn't a significant amount that is uncounted, and so we probably can feel comfortable that we have captured most of the take and don't have to work too much about ferreting that out.

The third bullet, Virginia Tech has quite a bit of money to do some work on horseshoe crab, and they've got a variety of projects they've outlined for work on. They're still addressing the number one priority, which is to move forward on developing a coast-wide trawl survey, benthic survey.

My understanding is the way they're moving forward this year is by working with new partners and new gear is trying to look for a long-term stable monitoring program but are not expanding substantially geographically this year.

They are also continuing to work on how to accurately and reliably determine the prima paris, or the new female spawners, in the population, and that will be key to the population model that is going to be used for stock assessment in the future. And, Brad, did you have a couple other things you wanted to say on that?

MR. ANDRES: We can wait.

MR. BREESE: Okay. And the fourth bullet, it looks like New Jersey may have funding to put on a second alternative bait workshop which would look at new techniques that some of the fishermen have invented for further making more efficient use of horseshoe crabs as bait, as well as looking at a status of where we are with artificial baits, and so it looks like, assuming New Jersey comes through with that funding, we will have the funding to do that, and it looks like Delaware may be also able to provide funding. They're working on that for implementing some of the new techniques that come out of that workshop. And that's all I have unless there's questions.

MR. ROBERT E. BEAL: Okay, as you may have noticed, the board chair is no longer here, and Bruce Freeman is the vice-chair of this board; however, he has opted to participate in the discussions today as a member of the board rather than from the chairman's spot, so I've been asked to step in and chair the rest of the meeting, which I'm glad to do.

I just wanted to give you a heads up why some people have moved around the room. With that said, are there any questions for Greg? Mr. Colvin.

MR. COLVIN: I just wanted to follow up on the issue that was raised about the continuation of the Virginia Tech benthic survey; and if anybody can help me with this, I'd appreciate knowing.

Last year, in the absence of a significant amount of federal funds, the commission and some of the states and federal agencies tried to cobble together some money to continue that survey for a second year and to expand it geographically.

I know it was expanded geographically up closer to Long Island, and we were pleased to help support that. The question is, based on what Greg just said, I'm wondering is that geographic expansion that was done last year going to be maintained this year? Do we know?

MR. BREESE: My understanding is that Jim's intention is to focus on testing some new gear and testing how well he can work with a new partner. I don't think he was planning to continue sampling in New York this year.

MR. BRAD SPEAR: It was my understanding that Jim understood that was a priority, that expansion of the trawl survey was a priority, but that he was unsure as to whether this year he was going to be able to do that based on timing, which he said weather would have a factor on and also funding. So, there wasn't a clear intention or declaration that he would do that this year.

MR. COLVIN: I've got to tell you that I'm a little bit troubled by this; and when I say that, it's because I'm trying to think back and reconstruct in my head the nature of the recommendations that came to us a year ago.

I know it was presented. I recall the presentation and recommendations from a variety of folks, I think including the technical committee, indicating the importance of continuing the benthic survey that had been started for a second year; and hopefully during that second year, finding a larger source of money from the federal budget to continue it and to expand into other areas.

And, all that apparently succeeded last year and yet continuation for a third year doesn't seem to be in the cards now. I find that surprising and, as I said, a little bit troubling.

I'm also a little bit troubled by the absence of a commitment to continue what we started up into New York last year. I'm wondering whether the technical committee or the board has some opinions about this.

The other thing I'll say is this, with respect to working with other partners, I think last year the survey worked with contracting commercial fishermen, one or more.

I know in our case, after that arrangement had been made, perhaps, I think the timing was such, we had identified a research vessel, a university research vessel that would be probably available on a more or less continuous basis, almost permanently, that could have been used for the survey.

And if that is an issue, that same vessel is the one that does the New Jersey trawl survey and is available through the state university at Stonybrook. It may well be something that could solve problems if availability of a vessel is an issue, and particularly the long-term availability of a vessel.

I'd encourage the technical committee and the folks at Virginia Tech to explore that option. I would be happy to do whatever I can to get them together with the folks at the Marine Science and Research Center at Stonybrook, who I think would be more than happy to work with them on that, if that's the limiting factor.

MR. BREESE: I can say that the technical committee had quite a bit of discussion about that and are concerned and want that to be a high priority and have further expansion of that coast-wide survey.

As I understand it from Jim, one of his concerns was that to have a long-term survey that would be stable, he might need to work with partners and do some side-by-side towing to test out some new gear, and that's where he was headed. But, I think that we'd be happy, on behalf of the technical committee, to discuss that further with him and provide that offer.

MR. COLVIN: Yes, and, you know, not telling tales out of school, but Kim McKown, who is presently working with the technical committee from New York, has very close association with the university staff who run that research vessel, and I'm sure Kim would be very helpful as a go-between.

MR. BEAL: All right, thank you, Mr. Colvin. Bruce.

MR. FREEMAN: Thank you, Bob. Just an update on New Jersey's activities; since we last met, we were able to obtain funding and have a contract now with the commission for an amount of about $116,000 of which we have committed $30,000 for this survey.

And, Gordon, relative to your comments, originally, I think we're trying to come up with $100,000 for this survey, and now I think we're over that limit, and so my anticipation would be there would be sufficient money to do the New York work.

And I would, as you have already done, ask Brad to contact Dr. Berkson to see in fact that some of that work is done up in New York. There certainly is enough money now to cover that expense.

We also have contributed $9,000 for an alternative bait workshop that we anticipate being held this summer and $35,000 for the development and trial of a video sled, which was a development that the technical committee had looked at previously and indicated it was something they thought had tremendous potential but didn't have the money to fund that. Now I think we do have that.

And then we've also been able to provide $42,000 more to aid Dr. Smith in the tagging of horseshoe crabs, which is something we've just completed, and in fact we'll do a little bit more tagging this year. So, we are doing quite a bit more work on horseshoe crabs.

MR. BEAL: Mr. Colvin.

MR. COLVIN: Thank you. Bruce's comment on tagging raised another question in my mind. A lot of the discussion that is suggested in some of the information we received today –- and let me say at the outset that I'm very, very impressed with the amount of work that all of the various technical committees have done and the quality and the quantity of the work that was accomplished in the amount of time available was mentioned and it's appreciated, believe me.

One of the things -- there is a theme that kind of pops out in some of the recommendations that is expressing concern of the prospect that horseshoe crabs in the ocean, in the general vicinity or the general area of the Greater New York Bight, that may be landed in states other than New Jersey and Delaware may be of Delaware Bay origin.

And one of the questions that I had is whether or not there is any active ocean tagging effort underway that

might help give us insight as to the origin of crabs that may be taken from the ocean.

Because, there's some ocean landings that occur, even locally harvested off Long Island and I suspect south of Delaware Bay as well. I'm aware of tagging within Delaware Bay. I'm not aware of tagging efforts in the ocean.

MR. BREESE: I can say that the technical committee has been talking about that, as well as the stock assessment, and trying to work with Dr. Berkson to incorporate tagging as part of the benthic trawl survey to accomplish that.

MR. BEAL: Okay, next on my list was Mr. Travelstead.

MR. JACK TRAVELSTEAD: Back on the Virginia Tech proposed research, I'm just wondering what is the mechanics of approving the projects that Tech has proposed and the details? I mean, does someone at NMFS have to sign off on those and has that already happened? When will that happen?

MR. BEAL: I think Tom Meyer has got his hand up and he will be able to help us out with that.

MR. TOM MEYER: Thank you, Mr. Chairman. At the present time the grant package went out for review, and I do know one member that reviewed it and sent it in Wednesday of last week. So, once the three reviewers get the package back to our Northeast Science Center, then it can be awarded. So, we're real close.

MR. TRAVELSTEAD: Can I follow up?

MR. BEAL: Yes, Jack.

MR. TRAVELSTEAD: I guess what I'm getting at is Mr. Colvin's problem with ensuring that the survey is conducted in the northern part of the range. Does the proposal currently propose to do that?

MR. MEYER: The proposal currently has these six items listed here. But, again, the proposal -- – I haven't seen the package myself, but that's what I was told.

MR. TRAVELSTEAD: Well, I guess it's not clear to me at this point whether the proposal meets the concerns that Gordon Colvin expressed or not. And if it doesn't, what are the mechanics of modifying the proposal before it's to be approved by you all?

MR. BEAL: I think the first thing we need to do is probably have commission staff get in touch with Jim and see what exactly he intends to do or will be able to do this year with the funding that is available to him, and then we can probably work with the National Marine Fisheries Service to see how we can ensure that the full range of the survey is conducted this year.

MR. TRAVELSTEAD: My last point to that would be to ask what influence this board can have on the decision of the National Marine Fisheries Service, in their approval of it, to more or less insist that it does include an expansion of the range of the survey?

MR. BEAL: Tom, can you comment if there is any public comment or comment period for the board to influence the scope of the project?

MR. MEYER: I don't know that there is a comment period, but certainly anything the board would send forward we would listen to.

It's my feeling that what Gordon is talking about is already in there, but I don't have it in front of me and I haven't read it for a while, so I would have to go back and check that. But I think we'll find out that he is planning on expanding.

MR. BEAL: Thanks, Tom. I have a couple more hands up and then we'll decide if the board wants to send a letter or any other correspondence to the National Marine Fisheries Service. Dr. Geiger.

DR. GEIGER: Mr. Chairman, to that point, I would like to strongly suggest that the board does indeed send a letter to the National Marine Fisheries Service as well as to Dr. Berkson, and we clearly lay out our expectations on what we expect to be done, what additional funds, if any, may be available to add to the study and our expectations to the scope of work and goals and objectives that we are hopeful that will be accomplished with the expenditure of these funds.

I think in that way there will be very little or minimal confusion on the terms of Dr. Berkson as well as the board members on what our expectations really are. Thank you.

MR. COLVIN: Second.

MR. BEAL: Is that your comment, Mr.

Colvin? Pretty clear. Okay, unless there is an objection from anyone around the table, I think staff will go ahead and draft a letter, circulate it to the board, and upon review by the board, we will go ahead and send that to the National Marine Fisheries Service and to Dr. Berkson.

Who would be the appropriate person to sign that letter? Tom, do you have a comment on that or would the board chair, the executive director?

MR. MEYER: I'm not sure. My plan right now is, when I get back tomorrow, to give Jim a call and check in to exactly what was put on the grant request.

MR. BEAL: Okay, I guess the best course of action is that I will talk to you, Tom, maybe early next week, and we'll decide
-- if the scope is included in the proposal, then there is no reason to put together the letter.

But if it's not, we'll go ahead and staff can draft a letter, circulate it and probably have the chairman of the management board sign it, unless there is a different course of action that someone at the table thinks would carry more weight when it is received by Jim Berkson and the National Marine Fisheries Service. All right, seeing no hands, I think that's the course we'll take. Any other questions on the technical committee report? Gordon.

MR. COLVIN: Yes, is a motion in order, Mr. Chairman, to approve the terms of reference?

MR. BEAL: Yes.

MR. COLVIN: So moved.

MR. BEAL: **There is a motion by Mr. Colvin, seconded by David Borden, to approve the terms of reference.** The terms of reference are Appendix B of the documents that were just handed out right now.

These terms of reference will be used for the stock assessment that will be conducted in 2004, so this is kind of step 1 to initiating the assessment process and giving the technical folks the boundaries that they have to work within.

Any objection to approving the terms of reference for the upcoming stock assessment? All right, seeing none, the motion passes.

Is there anything else from the technical committee at this point or questions of the technical committee? Mr. Freeman.

MR. FREEMAN: I would suggest, just to get a quick update, in order to kind of round out this technical report, that Dr. Dave Smith, who has been doing the tagging work indicated to me just during the meeting, does have a brief report on his progress to date, which I think will probably take two or three minutes and it would be useful to the board to hear that.

MR. BEAL: Okay, Dave are you willing to give that report real quick?

MR. DAVID SMITH: Yes.

MR. BEAL: If you could give your name before you start, that would be great.

DR. SMITH: David Smith with U.S. Geological Survey. This will be very brief. We did begin a three-year tagging study, bay-wide tagging study jointly with Fish and Wildlife Service, New Jersey Division of Fish and Wildlife, Delaware Department of Natural Resources and U.S.G.S.

And what we accomplished this year, we ended up tagging over 17,000 crabs, beginning from the end of March through the end of May throughout the bay and at the mouth of the bay. We did incorporate double tagging to look at tag retention.

We're doing that both through the field experiment plus some separate experiments that the Fish and Wildlife Service are conducting, and we're doing that within the lab as well.

To date we've recovered over 250 tags. They're coming in daily from watermen, spawning survey participants, researchers and beachcombers. They look to be coming in throughout the bay.

These recaptures will be used to test hypotheses about the timing and distribution of spawning to estimate population parameters.

In addition, we're incorporating a radio telemetry part of this study and this year with an evaluation of equipment and tag design, and we evaluated different systems and some tag modifications.

We achieved over a four-mile range in one direction so eight miles per receiver, so we'll deploy next year about a dozen receivers throughout the bay; so that in addition to these regular tags, we'll be putting our

radio tags to help us identify the spatial pattern and the timing of migration and spawning. That is it.

MR. BEAL: Thank you, Dave. Any questions for Dave on the tagging efforts? Okay, seeing none, I think we're down to the board discussion on the horseshoe crab management action.

At the outset of this meeting, the chair noted that David Borden was going to make a motion when we got to this point so, David, would you like to make that motion now?

DISCUSSION ON MANAGEMENT

MR. BORDEN: Yes, thank you, Mr. Chairman. I'll be very brief and direct. I've been very impressed by the reports we've reviewed, and I think we should follow the technical advice, particularly the peer review advice.

I have written out a motion here and I would move that Delaware and New Jersey cap their horseshoe crab harvest landings at 150,000 per state and that Maryland cap their landings at the 2001 harvest levels; and, further, that Delaware, New Jersey and Maryland establish a closed period from May 1 through June 7th to the taking of horseshoe crabs. If I get a second I'll just point out --

MR. BEAL: All right, is there a second to that motion? Mr. King seconds. Go ahead, David.

MR. BORDEN: The main reason that I support this action is -- I mean, you read through all the technical advice, and there is so much uncertainty regarding some of the numbers in the documents and so forth, I think all the documents acknowledge that we have in fact stabilized the population.

The question is whether or not we've stabilized it at a level adequate enough to allow enough egg deposition for the birds. It seems to me we have to be a little bit more risk-averse in the strategy, and I think this will do that.

MR. BEAL: All right, thank you. I need to take off my chairman's hat and go back to the staff role. The difficulty with this motion is that the fishery management plan right now requires that harvest restriction changes be done through an addendum.

So, this motion probably needs to be reworded, saying that the commission will initiate an addendum to do the things contained in the motion or if the board felt that a recommendation or an endorsement of the actions to be voluntarily more conservative in those states, that's another course of action.

Recommending things to states is a little bit of a slippery slope, but we can probably have the discussion on the best course of action. Mr. Borden.

MR. BORDEN: Yes, thanks, Bob. I think that's a good point. I think that's a good point. What I would advocate for a strategy is because of the urgency in the recommendations from the peer review report, I would recommend that if the motion passes, the executive director be authorized to send a letter to the effected states asking them to take immediate action to implement this, and then it would be our intent to follow up as appropriate with an addendum to the plan as time and staff allows, so that those two states will know that it's the intent to modify the plan to back this up. It's not just merely a recommendation or a request; we're going to move forward with it.

MR. BEAL: Okay, thank you. And I think it's definitely a feasible course of action under the commission process. I don't think the language in the motion needs to be changed, given the explanation that you just gave on the record. Mr. Cupka.

MR. DAVID CUPKA: Thank you, Mr. Chairman. If that were to pass and we did move forward with an addendum, would we also include some of the other recommendations in there from the technical committee in regard to monitoring and those sorts of things?

MR. BEAL: That would make sense. There's no reason to do two different documents when we have numerous recommendations that take addendum to make the changes. I have Jack Travelstead.

MR. TRAVELSTEAD: Are you ready to discuss the motion?

MR. BEAL: Yes.

MR. TRAVELSTEAD: I just had questions for the effected states. Could you tell us what your harvest was last year and how this 150,000 crab quota relates to that, and what was Maryland's 2001 harvest level?

MR. BEAL: Mr. King.

MR. HOWARD KING: I'll start off, Jack. In 2001 the harvest was 172,000 crabs. And, yes, I would add that Maryland is certainly interested in going along with our neighboring states.

We also have some other restrictions, and with a new 172,000 cap, which is about 40,000 below our previous cap, we would be looking at a regulation to make sure there aren't any unnecessary burdens placed on our bait harvesters. So, we would be looking at a regulation entirely in relation to the new cap. Thank you.

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

MR. FREEMAN: To answer Jack's question, we have put in under emergency action this year, Jack, a regulation to cap the harvest at 150,000, which is about a 75 percent decrease from the base period.

And if you look at the report, it also has a range from 66 to 75 percent reduction, so it is certainly within that range. And we have closed our, as indicated at our last meeting, closed our harvest from May through June 7th in order to maximize egg productions before our harvest begins.

Our harvest previous to that was a little less than 300,000, about 293,000 crabs. So, it will be a considerable reduction over what we had last year. But as I indicate, we are under these terms right now so far as harvest restrictions.

MR. BEAL: Thanks. Roy, can you help out with Delaware's perspective?

MR. ROY MILLER: To give you a little background on Delaware's efforts to date, it was Delaware's intention to implement complementary emergency regulations to New Jersey and Delaware, in fact, did so.

We were challenged in court, and our ability to implement emergency regulations for horseshoe crabs was overturned in the Court of Chancery.

The second time we resubmitted it as interim regulations, which was in concert with the statute that was originally prepared in 1991. They were upheld in the Court of Chancery, and that was challenged to superior court and the superior court conclusion was that we lacked the ability to implement interim regulations because it was a statute intended for use in the early 1990s and too much time had expired since then.

So, in summary, Delaware was unable to affect any emergency regulations regarding the harvest of horseshoe crabs for the beach harvesting season this year.

What Delaware is doing is preparing, through the regular regulatory process, complementary regulations to those put in place by New Jersey as emergency measures.

I passed out the version of those regular regulations, a summary of them, the legal notice; and if anyone is interested in the exact wording of those regulations, I have that text with me in hard copy, if anyone would like to see it.

So, it is our intention that for the remainder of the 2003 harvesting season, beginning as early as August the 10th, we do hope to implement new regulations regarding the harvest of horseshoe crab, specifically the 150,000 horseshoe crab annual harvest quota, and the closed season from May 1 to June 7th and other measures as outlined on that notice before you.

And so that's in summary what Delaware's intentions are. Jack asked about Delaware's previous landings. In 2002 Delaware took 298,318 horseshoe crabs. The state quota is 361,801 horseshoe crabs.

MR. BEAL: Thank you, Roy. Jack, does that answer all your questions?

MR. TRAVELSTEAD: Yes, and I have some more.

MR. BEAL: Feel Free.

MR. TRAVELSTEAD: The closure in the motion, does that also prohibit the landings of horseshoe crabs in the affected states or is it only the harvest from state waters?

MR. FREEMAN: In our instance, Jack, it deals with the landing. In other words, if there are crabs in storage, which there are, cold storage, they're able to be used and to be possessed, but it prohibits the harvest.

And the reason for the time is that this is the period where the great majority of the birds migrate into the bay. They're only here for a few weeks, feed and move out. The strategy we developed with Delaware is to maximize egg production because of the

potential threat to the hemispheric migration of certainly the red knot and other species.

At this point, since there's so many unknowns, we need to maximize that egg production for both the horseshoe crabs and certainly for the shorebirds. So, again, that's the rationale for the early season closure. We believe that when the season is open prior to that date and after that date, certainly those crabs can be harvested.

MR. BEAL: Any other questions, Jack? Okay, any other comments on the motion? Mr. Robins.

MR. ROBINS: Thank you very much, Mr. Chairman. I am not able to support this motion. I think if you look at the history of the regulations as they were developed in Delaware and New Jersey, it's important to consider the fact that the Delaware Shell Fish Council on March 31st voted these regulations down six to nothing.

Similarly, New Jersey, their Marine Fisheries Council failed to pass these emergency regulations. I do not believe they reflect the will of all of the user groups in those states.

Additionally, I would point the board towards the current body of science indicating the fact that the horseshoe crab resource is effectively stable.
First of all, the U.S.G.S. horseshoe crab spawning survey indicates no trend in the data. The Delaware trawl survey similarly, since 1999, indicates no measurable trend in the data.

Thirdly, Dr. Berkson's analysis of the recruitment at 1.07 million crabs per year to the trawl survey area indicates that recruitment is occurring with a rate comparable with coast-wide harvesting, and that recruitment is just in the Delaware Bay region.

So I think it's fair to say that based on his mean estimate, recruitment exceeds harvesting right now, and I don't think there is any evidence before the board that we are not in a rebuilding period, which was exactly the goal originally of this plan. I think we are rebuilding the resource based on these factors.

Additionally, I would point the board to the British Trust for Ornithology, Report Number 307, which was released this spring. Much of the pressure and initiative that came in Delaware and New Jersey for these emergency regulations was based on the research of Dr. Larry Niles.

At the same time that he was conducting his research, the British Trust for Ornithology was conducing a parallel study and those findings were published in Report Number 307.

They state the original hypothesis that birds in Delaware are failing to put on sufficient weight to reach their arctic breeding grounds and breed receives only limited support from these analyses.

The majority of birds do still put on sufficient weight during the period. This, of course, is referring to the red knot. The report goes on to state, "The primary reason for a decrease in the number of birds putting on sufficient weight for their migratory flight is due to an increased proportion of late arrivals."

And while the late arrivals of red knot is unfortunate, it's not being caused by commercial fishing activity in the Delaware Bay region.

And, again, I would get back to the original purpose of this plan. The stated goal back in 1998, when this plan was drafted, was to manage this resource for the mutual benefit of all user groups.

And, it's my opinion that if we go this route, we're managing the resource for the benefit of one user group at the sole expense of another, specifically, at the sole expense of the commercial fishing industry.

These two states have already paid a significant price. The fishermen have. They've cut their harvest by 53 and 55 percent, respectively, and that's quite a history of sacrifice, in my opinion.

I think for us to impose any additional impositions on those fishermen at this time, given the current body of science which indicates that the resource is essentially stable, would be inappropriate. Thank you very much, Mr. Chairman.

MR. BEAL: All right, thank you. Gordon, do you have some comments?

MR. COLVIN: I want to follow up on the question I think that David Cupka raised, the prospect that should the passage of this motion lead us in the direction of an addendum, that such addendum might address other issues the technical committee has brought forward.

One of those issues, I recall, was a couple of recommendations with respect to biomedical, and I think one was to provide a provision for compulsory monitoring as a compliance requirement, and I think

another had to do with reversing the plan's current provisions with respect to disposition of crabs that had been used for biomedical purposes and to require rather than prohibit their transfer into the bait market; is that correct?

MR. BEAL: Greg, can you comment on that?

MR. COLVIN: Did I get that right, Greg?

MR. BREESE: Approximately, yes. The discussion has been that they should be reporting annually on what their harvest is and also what their discard is. The reason for that is the discard is a bit unknown, and the plan has a threshold level of loss of crabs due to the biomedical that would put them under greater scrutiny, so we need to have a clear idea of what that level is currently.

And the second was that Massachusetts has led the way in using the crabs as bait following the bleeding, and that has been seen as a very reasonable way to go and a way that reduces the total damage to the population, so that it would be recommended that would be occurred is what is being envisioned.

MR. COLVIN: Despite the fact that the plan presently prohibits it, as I recall?

MR. BREESE: I'd have to go back and refer to the wording of the plan. I think that has been quite a discussion over the time, and what is actually prohibiting it is the wording in some of the regulations that the biomedical facilities are working under, which comes out of the FDA and --

MR. COLVIN: I was just hoping to have an opportunity to offer my friends in Massachusetts congratulations on a non-compliance activity, that's all.

But my reason for raising the question is to ask the staff if they believe that those measures which have bearing on compliance can be done via addendum, or do they require some further action?

MR. BEAL: We'll probably have to go back and review, but my initial read on it is that they can be done through an addendum, but we'll have to go back and look through the document to make sure that's true.

MR. COLVIN: I hope they can because I very much agree with the technical committee's assessment on this notion of changing the disposition requirements and trying to get those crabs into the bait fishery rather than seeing them wasted. Thank you.

MR. BEAL: Brad, do you have a comment?

MR. SPEAR: Just one comment. There was considerable discussion at the technical committee about transfer of crabs using the biomedical industry to the bait industry. However, there wasn't consensus to make this a requirement in the plan.

It was a recommendation. The reasoning was because -- I forget which state, but in one of the states it wasn't practical for them to set up a system like that.

MR. BEAL: David Cupka.

MR. CUPKA: Thank you, Mr. Chairman. In our state right now we don't allow any harvest for bait. It's all biomedical, and they are required to release those crabs so I would hope -– I think I would be opposed to requiring them to go into the bait.

I would be less unsettled about it if we were to change it from a prohibition to allowing rather than requiring, so that the state would still have the option on whether or not they want to go that route. I would hope that would be one of the options if we decide to go that route that we would look at.

MR. BEAL: Yes, it would probably make some sense on -- we can either do it two ways. One is to have a range of options; or if the board sees no need to require that, to change it from a prohibition to permitting that and even encouraging that language in the plan. It's probably the way to go. Greg, do you have a comment on that?

MR. BREESE: Yes, I just wanted to say that the technical committee recognizes that, and in the discussions we've had it's more to try to make that sort of the standard but allow exceptions where it makes sense.

MR. BEAL: Okay, thank you. Anything else? Yes, Mr. King.

MR. KING: One comment and one question. Maryland has gotten reluctant but voluntary compliance of the biomedical industry to go to our bait harvesters, and our bait harvesters are certainly appreciative that they're getting that added value.

I do have a question, though. Maryland currently has a closed season April through May. What's the significance of that first week in June? That's directed to either New Jersey or Delaware.

MR. BEAL: Bruce or Roy, do you care to comment on that? Roy.

MR. MILLER: Last year I would have said that the first week of June is not as significant, but this year I would have changed that advice.

It was quite significant this year because the crabs were late in showing up and so were the shorebirds, and so there were appreciable harvests that took place the first week of June this year.

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

MR. KING: Maryland does not permit beach harvesting so is the June 7th really significant for our offshore fishery?

MR. BEAL: I'm not sure. Does the technical committee have comments on that? During the development of this addendum, maybe that is one -- if the tech committee has no advice right now, we can look into that through the development of this addendum.

MR. BREESE: I'll take a stab at it and then Brad can jump in as he wants. The recommendation in going into the first week of June was in case of late-staying birds, and so it was focused on beach harvest and focused on Delaware Bay to allow the birds to feed undisturbed, especially at the end of the season where some birds are catching up actually by gaining more weight than you would normally expect the birds to gain.

MR. BEAL: Howard, is it your intention -- I guess intention is the right word –- to continue your closure through the end of May and only allow trawl harvest or offshore harvest from June 1st or after June 1st?

There will be only a one-week discrepancy if the addendum is written in a way that allows Maryland to continue what they have in place, but has a different set of requirements for New Jersey and Delaware?

MR. KING: We may have no objection to June 7th, either. I was just wondering what the significance was, but we may be consistent.

MR. BEAL: Okay, thank you. Bruce.

MR. FREEMAN: I would simply add, as Roy has indicated, that the closure is essentially to allow the birds to feed unmolested on the beaches. So long as Maryland conducts its harvest through otter trawl in ocean waters, quite frankly, I don't personally feel there would be any difficulty with allowing that first week.

I just also need to add that this issue does not just affect the harvesters in New Jersey. We've actually now closed sections of the beach, where horseshoe crab spawning occurs, to the public in order to keep the public off from walking their dogs and riding up and down the beach with vehicles and so forth in order to maximize the time the birds have to feed. So, we're taking action not just affecting commercial harvest, but it is affecting the entire public on this particular issue.

MR. BEAL: Thanks, Bruce. Roy.

MR. MILLER: One issue that has not been highlighted, if it turns out that we charge the plan development team with preparing an addendum, something else to consider that we're considering within our state is a definition of a bait-saving device," first of all, within our regulation and then requirements that no more than one-half of a female horseshoe crab or one male horseshoe crab be used as bait in any type of pot; and, further, that if a person fishes with a conch pot that is not equipped with a bait-saving device –- well, in other words, if you're using a pot that has horseshoe crabs or parts thereof as bait, then there should be some sort of bait-saving device in that pot.

Now, the industry itself has made great strides in that regard voluntarily in terms of, as everyone knows, using bait-saving devices, so this particular aspect, if it is put in the form of an addendum, may be an after-the-fact suggestion, but nonetheless I think it's important to have something in any future addendum to that effect. Thank you.

MR. BEAL: Thank you, Roy. Any other comments directly on the motion? Yes, Mr. Travelstead.

MR. TRAVELSTEAD: I've thought for a long time that one of the most significant things that Delaware and New Jersey could do to protect this resource was to close the spawning beaches from May through June 7th, and so I'm very pleased to see that they're proposing to do that.

I think that's going to do more to help achieve what we've been trying to achieve than anything. The only part of the motion that concerns me is that you're also cutting your quota.

And, of course, that has effects on fishermen up and down the coast. Obviously, when you close the spawning beaches, there is going to be some reduction in harvest in the three states.

But by reducing the quotas in this motion, you're preventing crabs from being harvested up and down the Atlantic that potentially could be landed in your states and distributed elsewhere along the Atlantic.

I guess that's the part that has concerned me, and I'd like to hear some comments from the affected states as to why that is needed to be a part of the motion.

MR. BEAL: Bruce.

MR. FREEMAN: Our law, Jack, only allows the hand harvest. There is no mobile gear harvest. Now different states have different regulations. But, we prohibited the use of any other types of dredges, trawls, so the only way you could do it is by hand harvest.

So, the possibility of taking crabs from ocean waters doesn't exist in our particular case. Now, that's obviously not true of Maryland, but that's the way our laws are set at the present time. So, again, it would not in any way disrupt the fact of what our existing law requires, so there is no ocean harvest at all.

MR. BEAL: Roy.

MR. MILLER: Just to chime in for our state, our state does allow the use of mobile gear to the limited extent that Delaware by state statute issues five horseshoe crab dredging permits annually, so there is a dredging component to our harvest in addition to beach collecting.

It was felt that some cap on overall harvest would be desirable coupled with seasonal closure to prevent catching up, so to speak, one sector of the fishery counteracting the conservation measures imposed upon the collectors during that May 1 to June 7th period.

MR. BEAL: All right, thank you. Any other comments or questions regarding the motion before we vote? Jack.

MR. TRAVELSTEAD: I'd ask just for one final clarification. Is this motion merely to approve the preparation of an addendum at this point?

MR. BEAL: Yes, there are two things, as David mentioned. One is if this motion were to pass, a letter would be sent from the executive director to the states of New Jersey, Delaware and Maryland recommending that they do these things; and also we would initiate the drafting of an addendum to take out to public hearing for further consideration by the board.

MR. TRAVELSTEAD: So there will be further public hearings and debate on the issue?

MR. BEAL: Definitely.

MR. TRAVELSTEAD: Thank you.

MR. BEAL: All right, I saw one hand in the audience before we vote, a couple hands, and we can go to the audience and then I think we're pretty close to ready to vote. Yes, Gerald.

MR. GERALD WEINGRAD: I'm with the American Bird Conservancy. My name is Gerald Weingrad. I'm vice president for policy for the American Bird Conservancy and obviously, along with many in the conservation community, we've been interested in this issue for a long time.

I'd like to say that sudden and dramatic declines in horseshoe crab and shorebird populations make clear that prompt action is needed to protect these resources.

Studies show the concentration of horseshoe crab eggs on the bay shore has declined significantly over the past decade, leaving many shorebirds without enough eggs to eat.

Unable to gain sufficient weight during their Delaware Bay stopover, many shorebirds lack the energy to complete their arctic migration and reproduce. Most in peril is the Western Hemisphere Red Knot population.

By acting today, we aim not only to prevent the dire future predicted for the red knot, but also to preserve the ecological balance throughout Delaware Bay.

Now you have heard a lot of data and a lot of statistics. Every one of those words, verbatim, was from the commissioner of the New Jersey

Department of Environmental Protection in a statement of April 30, 2003, announcing their restrictions in Delaware Bay.

I would also like to state with all the data and statistics you've received today, that the need for more stringent regulation is based on increasing concerns regarding the status of the red knot, Calidris canutus rufa, populations using the Delaware Bay, which are dependent on horseshoe crab eggs and horseshoe crab declines noted in several fishery independent trawl surveys on the Delaware Bay.

The Delaware Division of Fish and Wildlife's 30-foot trawl survey indicated a highly significant decline in horseshoe crab relative abundance since 1990. Further, the division's juvenile horseshoe crab's index shows a marginally significant decline, and the horseshoe crab young of the year index also showed a decline.

The 2002 index figures in all three surveys were the lowest for their respective time series. The number of birds reaching sufficient weight to reach the arctic has fallen, and it goes on to say that the annual survival rate of red knots has declined. This is from the Secretary of the Delaware Department of Natural Resources and Environmental Control.

These are not from National Audubon, American Bird Conservancy, or any environmental group. They're from the highest ranking natural resource officials to the epicenter of the horseshoe crab and shorebird phenomenon in Delaware Bay.

These two gentlemen, with their resource backgrounds, have had no problems in identifying what they term significant declines from the data, and the trawl survey that is cited in the stock assessment committee goes to '94.

I don't know why they didn't go back to 1990 where they believe there is statistically significant data. And that is also cited, I should point out, at the Shorebird Technical Committee. If you look at their assessment, they also note those trawl surveys all showing declines in horseshoe crab populations over that period since 1990.

I would also point out in favor of the resolution and it's adoption, that the document that you had presented by Brad Andres, which is the product of several years work and peer review by scientists, pointed out on Page 8 –- and that's the short one, the recommendation -– the committee recommends further reductions in bait landings for New Jersey, Delaware and Maryland. Period.

And then the peer review of other scientists, independently looking at these findings, say that acting in a risk-adverse fashion would mean that you would take the low end of the population survey, the trawl survey done by Berkson, and therefore they say to cap any growth in the critical female crab population, you would have to have a 75 percent reduction over the reference period landings.

If you only had a two-thirds reduction, you would have no population growth at all. And if we are to adhere as fishery -- most of you are fishery managers -- and as the United States to the risk-adverse precautionary principle, they are saying we need a 75 percent reduction and what, curiously, if you will look at the reference year landings for New Jersey, if you take a 75 percent reduction, you come out with 151,012 crabs.

In Delaware it would be 120,600, and in Maryland it would be 153,306. We think that these recommendations ought to be followed in a risk-adverse situation.

And, finally, I would point out that in 2002 the coast-wide landings of horseshoe crabs went up 25 percent. That is very significant with what we see as data showing in the Delaware trawl surveys and other surveys the lowest year, 2002, of relative abundance of horseshoe crabs with noted declines in red knots, which the technical committee, your Shorebird Technical Committee that you asked to report to you, said there is definitely declines in red knot populations.

There are also in that report clearly documents that less birds are making the body weight necessary, the red knot, of 180 grams to successfully fly, breed, make nests and feed in the arctic to successfully breed. And there has been a decline from other scientists' notations in the red knots in Tiara del Fuego as well as the recruitment of young.

That increase was substantial in Delaware Bay crabs as Delaware's harvest went up 23 percent. Maryland's harvest went up 63 percent in 2002. You have all of this data. This was reported to you in February.

New Jersey's harvest went up about eight-point-some percent during that same period of time. So we think a risk-adverse management principle would have these states adopting this, and also other states looking at their harvest, particularly I would suggest

the state of New York, which may escalate greatly in that region, and from the genetic thing, those seem to be very closely related to the whole Mid-Atlantic population.

So, not just in the interest of shorebirds but the whole ecological balance on which horseshoe crabs are dependent upon, including commercial and recreational sport fish, loggerhead turtles, the medical industry, that this commission adopt the resolution and act as the highest ranking natural resource officials in Delaware and New Jersey have stated, as well as the Shorebird Technical Committee and their peer review panel that there be reductions in the current landings.

MR. BEAL: Thank you, Gerald.

MR. PERRY PLUMART: Perry Plumart. I'm director of government relations for the National Audubon Society. I'd like to ask permission, Mr. Chairman, to have entered into the record the editorial from the New York Times and the Washington Post story that has been distributed in the room today.

MR. BEAL: Yes, sure.

MR. PLUMART: If this was a homeland security situation, we'd be facing a "code red." I think the science here is compelling to make strong fisheries management decisions based on the evidence on both the horseshoe crab and the migratory shorebirds.

I think, Number 1, if you look at overall fisheries management, which has been discussed in two recent ocean's reports and is described in the New York Times editorial, and the way that the horseshoe crab fishery has been managed is the same way that the ones that have been described in there, we're definitely facing an overfished resource, one that needs new, significant management controls.

When you take a look at the Washington Post article -- and I know that the reporter talked to many of you and there are some of you in this room because you're quoted in the story -- additionally they looked at the scientific evidence in a news analysis kind of way, and what their headline says is, "Tipping a Delicate Balance."

I think we've tipped that balance and I think we need the kind of action that the resolution describes before you today. When you take a look at the letter from both Delaware and from New Jersey Department of the Environment, that in each of those letters, that the head of their natural resources department --in Delaware's case, the letter to this commission said there is a highly significant decline in horseshoe crab abundance since 1990.

New Jersey's letter, I'll quote, says, "They feel strongly that horseshoe crabs and shorebird populations are in alarming decline."

Again, I think that the scientific evidence being presented to you and the analysis done by people suggests that we have a code red situation, and that this resolution is the minimum action that we need to take, that this action should be expanded to other states along the Atlantic seaboard, including New York and Virginia.

And in addition, it was suggested by one of the commissioners from Virginia that we're actually rebuilding a resource. I suggest that there is no evidence for that at all. And what we do know -- and I think this is an important fact that is consistently neglected and when we're talking about this resource because what we do know is that at a minimum, in the late 1990s 15 to 20 million horseshoe crabs were landed, many of them going to commercial businesses in Virginia.

And we know that they were targeting the pregnant female crabs. Some suggest that why is that, they were paid more for female crabs at the dock. And from personal observation, in watching the watermen go after horseshoe crabs several years ago in Delaware Bay, they consistently were going after the females.

So, I think that, additionally, no study in the past ten years has provided evidence that the horseshoe crabs are thriving under the management regimes that are in place, nor are the shorebirds thriving.

All of the evidence indicates that we're in a decline, and that the action being proposed today I think is an important step forward and a minimum that we need to take.

So, additionally, it has been discussed with the shorebird technical report, which I think is excellent evidence. Consistently the conservation community, who has been asked to provide scientific evidence, and consistently when that evidence is provided, there is a lack of substantive evidence on the other side showing that there is a thriving horseshoe crab fishery under the management regimes that exist.

I would also point out that the management of the fishery has been based on what historically fishermen took, and so it's not based on scientific principles. It's not based on what the resource can bear.

It has been consistently based on what fishermen took and that, I think, has been part of the problem and, again, urges that this resolution be adopted. Thank you, Mr. Chairman.

MR. BEAL: Thank you, Perry. I see two more hands in the audience, and hopefully they will be quick comments, and then I think the board is ready to go ahead and vote on this.

MR. WILLIAM COOK: I appreciate the opportunity to offer comment. My name is William Cook. I'm the Director of Government Relations for Citizen's Campaign for the Environment, which is the largest member-based environmental and conservation organization in New York and in Connecticut.

Clearly, we support the resolution, but my comments are directed towards those folks who represent New York. I would like to see New York's delegates support this, but I also am very concerned because when we asked the state of New York to reduce the harvest in this calendar year, their response was more than doubling it from last year.

We agree with the resolution offered, but we also think that the state of New York should independently reduce the numbers taken from its waters to 150,000 or less, and we believe that the science is clear on this. Thank you.

MR. BEAL: Thank you, Mr. Cook.

MR. DAVE CARTER: My name is Dave Carter. I'm also with Delaware Department of Natural Resources, with our coastal programs.

I have, over the last five years, to the amount of $750,000, been funding research on egg densities, impacts of beach restoration and the shorebird work. The detailed report was funded by us as well as many others.

I do support this resolution. I know the data is still shaky and needs to be improved. One thing I can say is that I want to thank this board and the U.S. Fish and Wildlife Service for the peer review.

Having managed that disparate effort of trying to do this research and being responsible for those funds, it was one of the most valuable things that I could have had to help with this issue.

In your deliberations here, I hope you will also, as part of the recommendations you make, make it clear at least to request the U.S. Fish and Wildlife to not just take that peer review and short-term act on it, but to actually have a standing committee to help us implement it.

In my fiscal year, '04 next year, our state coastal program has budgeted $340,000. A large portion of that money is targeted to some of the things that have been recommended in the peer review.

As you make these hard actions, I want to help with them. I need all the technical guidance I can to fund those things properly; so that if we aren't directly on target, we can get in to adaptive management. I'm committed to that.

I work very closely with Roy Miller and Stu and others in our state. We will continue. So, as you move forward, please at least give some consideration for this board to at least request and endorse that committee becoming a standing committee, hopefully linked in some way to the Horseshoe Crab Technical Committee or this board.

I would love to have some accountability. Any guidance they give me, I will appropriately amend my funding to make it more useful to management and accept that responsibility if we do take risk-averse action -- at least in Delaware we accept the responsibility to do the best we can to improve the science and make that better over time. We could really use the help of that technical committee. Thank you.

MR. BEAL: Thank you, Dave. Roy, the last comment, then we'll have a caucus and we'll vote.

MR. MILLER: To the point raised by Dave Carter, I would just like to recommend -- if the board deems it appropriate to prepare a letter with recommendations, I think it would also be appropriate for the board to direct a letter to our partners in the Fish and Wildlife Service to encourage them to make the Shorebird Technical Committee a standing committee and not a one-time endeavor. Thank you.

MR. BEAL: Jaime, in response to that.

DR. GEIGER: Yes, certainly, we see the

value of recommending at least to this board and the wishes of the board to maintain this committee to monitor the implementation, the recommendations, and also to assist the Horseshoe Crab Technical Committee on the ongoing work that is going to be needed to be done on the addendum.

I would further recommend that this committee be made permanent and made a subcommittee under the Horseshoe Crab Technical Committee, if it is the wishes of the board.

MR. BEAL: Let's get back to that issue and make sure there's no objection on it after we vote on this motion. I think there has been enough time. We will have a 30-second caucus and then we will go ahead and vote.

(Whereupon, a caucus period was held.)

MR. BEAL: Is everyone ready to vote? I think all the caucusing is done. **All in favor of the motion, raise your right hand, please; those opposed, like sign; any abstentions; any null votes? The motion carries 13 votes in favor, 2 in opposition.**

Back to the issue of the Shorebird Technical Committee. Is there any objection from anyone here of the commission facilitating that group becoming a standing committee and serving at the pleasure of this board or being tasked at the pleasure of this board on future horseshoe crab-shorebird issues?

All right, seeing none, are there any other issues to come before the board? Brad, do we have everything off the agenda?

MR. SPEAR: That's it.

MR. BEAL: All right, any other issues for the Horseshoe Crab Board? Seeing no hands, the board is adjourned.

(Whereupon, the meeting adjourned at 6:00 o'clock p.m., June 11, 2003.)

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