

PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

HORSESHOE CRAB MANAGEMENT BOARD

Atlantic Sands Hotel
Rehoboth Beach, Delaware
October 21, 2008

Approved May 4, 2009

TABLE OF CONTENTS

Call to Order	1
Approval of Agenda.....	1
August 21, 2008 Proceedings.....	1
Public Comment.....	1
Addendum V Implementation Plans.....	1
Technical Committee Report.....	1
Joint Horseshoe Crab/Shorebird Meeting.....	1
Biomedical Tagging Update.....	4
Approval of Amended Proceedings.....	5
Adjourn.....	6

INDEX OF MOTIONS

1. **Approval of Agenda, by Consent** (Page 1).
2. **Move that the Board moves to accept the Addendum V implementation plan as presented by the PDT** (Page 1) . Motion made by Mr. Augustine, second by Mr. Himchak. Motion passes (Page 1).
3. **Motion to accept the Proceedings of May 7, 2008 as amended** (Page 5). Motion made by Mr. Adler, second by Dr. Rhodes. Motion passes by consent (Page 5).
4. **Motion to adjourn, by consent.** (Page 5).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for G.Lapointe (AA)	Russell Dize, MD, proxy for Sen. Colburn (LA)
Doug Grout, NH (AA)	Steve Bowman, VA (AA)
G. Ritchie White, NH (GA)	Jack Travelstead, VA, Admin. Proxy
Rep. Dennis Abbott, NH (LA)	Kyle Schick, VA, proxy for C. Davenport (GA)
Dan McKiernan, MA, proxy for P Diodati (AA)	Willard Cole, NC (GA)
Bill Adler, MA (GA)	Louis Daniel, NC (AA)
Vito Calomo, MA, proxy for Rep. Verga (LA)	John Frampton, SC (AA)
Mark Alexander, CT, proxy for D. Simpson (AA)	Malcolm Rhodes, SC (GA)
Sen. George Gunther, CT (LA)	Robert Boyles, SC (LA)
James Gilmore, NY (AA)	Spud Woodward, GA, proxy for S. Shipman (AA)
Pat Augustine, NY (GA)	John Duren, GA (GA)
Peter Himchak, NJ, proxy for D. Chanda (AA)	Bill Sharp, FL, proxy for Gil McRae (AA)
Erling Berg, NJ (GA)	Rep. Mitch Needleman, FL (LA)
Gil Ewing, NJ, proxy for Asm. Fisher (LA)	Brian Hooker, NMFS
Roy Miller, DE, Chair, proxy for P. Emory (AA)	Jaime Geiger, USFWS
Bernard Pankowski, DE, proxy for Sen. Venables (LA)	Bryan King, DC
Tom O'Connell, MD (AA)	

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

Ex-Officio Members

Mike Millard, HSC Technical Committee Chair, US FWS
Greg Breese, Shorebird Technical Committee Chair, USFWS

ASMFC Staff

Bob Beal	Brad Spear
Vince O'Shea	

Guests

Michael Oates, Anew, Inc. DE	Chris Hayes, ACCSP
Glen Gauvry, DE	Russ Allen, NJ DFW
William Hall, CMES, University of DE	Rob Winkel, NJ State Federation of Sportsman
Benji Swan, Limuli Labs, NJ	Tom McCloy, NJ DFW
Red Munden, NC DMF	Chip Lynch, NOAA
Arnold Leo, Town of East Hampton, NY	

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Swan Ballroom of the Atlantic Sands Hotel, Rehoboth Beach, Delaware, October 21, 2008, and was called to order at 2:15 o'clock p.m. by Chairman Robert H. Boyles, Jr.

CALL TO ORDER

CHAIRMAN ROBERT H. BOYLES, JR.: Good afternoon. My name is Robert Boyles. I'm Chair of the Horseshoe Crab Management Board, and I'd like to call this meeting of the management board to order.

APPROVAL OF AGENDA

The second item on the agenda is board consent for the agenda and also approving the proceedings from our meeting on August 21, 2008. Are there any additions to the agenda?

AUGUST 21, 2008 PROCEEDINGS

MR. WILLIAM A. ADLER: No, I do have something on the minutes.

CHAIRMAN BOYLES: Okay, go ahead, Bill.

MR. ADLER: According to the minutes, I seconded a motion; number five, move Option 2 in the Draft Addendum V, and I don't believe I was at the meeting. Maybe somebody could check that over. I think I had to leave early that time so it was somebody else that would have seconded it.

CHAIRMAN BOYLES: Okay, Bill, we will look into that. We'll come back to approving the minutes at the end of the meeting. That will give us some time to review that. Any items to add to the agenda? Okay, seeing none, the agenda is adopted by consensus.

PUBLIC COMMENT

At this point in every management board meeting we offer an opportunity for the public who may wish to comment on items that are not on the agenda. I don't believe we've had anyone sign in. Is there anyone in the public who would like to comment before the Horseshoe Crab Management Board at this time? Seeing none, we'll move right along and Brad is going to give us a presentation of Addendum V Implementation Plans.

ADDENDUM V IMPLEMENTATION PLANS

MR. BRADDOCK SPEAR: You will recall at the August board meeting you approved Addendum V with an implementation date of November 1st. That triggered a requirement for states to submit implementation plans. The four states affected, New Jersey, Delaware, Maryland and Virginia all submitted those implementation plans to the plan review team.

In fact, all states had regulations on the books that were consistent with Addendum V already because it was a carryover from Addendum IV. The plan review team finds that all states' implementation plans should be approved by the board with implementation by November 1st.

CHAIRMAN BOYLES: Thank you, Brad. We've got the implementation plans in place. I believe we need a motion to approve. Mr. Augustine.

MR. PATRICK AUGUSTINE: Mr. Chairman, I don't know what I'm going to make a motion on other than what he just said, so how do you want it worded to make it clearer. **I move that the board accept the PDT's recommendations for implementation to be effective November 1st –**

CHAIRMAN BOYLES: How about the board moves to accept the implementation plans as presented by staff; is that what you mean?

MR. AUGUSTINE: Excellent, yes, it's much clearer.

CHAIRMAN BOYLES: Mr. Augustine made the motion; is there a second? Seconded by Pete Himchak. Any discussion? Any opposition to the motion? Seeing none, the motion carries. Next we're going to have the technical committee report. Mike.

TECHNICAL COMMITTEE REPORT JOINT HORSESHOE CRAB/SHOREBIRD MEETING

MR. MIKE MILLARD: I'm going to give a brief overview. The Joint Horseshoe Crab/Shorebird Technical Committee met in early September in Delaware, and I'll give a brief update on that. It was well attended. We had over 28 folks there, I believe, including some public folks.

Part of the meeting, we were updated on the August 21st Addendum V, which you all are very familiar with, I believe. We were updated on the Red Knot Candidate Status Review. What I can tell you about that is that the numbers in the overwintering grounds are still low and getting lower, I believe. The red knot remains warranted but precluded in the ESA lingo.

There will be another, what we call CNOR, Candidate Notice of Review or a review of the status of the red knot again. I think it's coming out in December. They will see if the listing priority for the red knot remains where it is at Level 6 or if it goes to a higher level. I'm not an ESA biologist, but that's what I can tell you about the status of Red Knot Candidate Review.

There is some federal funding available, apparently, to examine red knot genetics of those birds that overwinter in Florida. It is a pretty complicated dynamics of the red knot migration trends. I would urge you, if you have more questions on this, to seek out my colleague, Greg Breese, on the shorebird side.

Then, of course, most of the meeting was dedicated to the progress of the adaptive resource management workgroup. That is well underway now and I'm going to real quickly give you a little overview of what they have been up to and the progress they have made. Just to set the stage again, I think most of you know what this is all about, but this was a clear need and a very good candidate for adaptive management.

Especially Bullet Number 2 here is the institutional capacity to sustain this adaptive program, and I think that speaks directly to you folks. You've shown a great deal of patience throughout these last ten years of ups and downs. I think you have indulged us and allowed us to go down this adaptive resource management path and hopefully you will allow the time to continue to do so. I think today I'll show you that we're making some real progress on this.

What that does, very quickly, is it allows us to work through this cycle of defining the objectives very early on in the process. This is much easier said than done. It's a very complex process of building both the horseshoe crab models and the red knot models and integrating them into a multi-species set of suite of models that work together; choosing management alternatives, which you will hear about in a minute.

And then working them through the models, they will spit out an optimum alternative from all the management alternatives. These models will tell you

which one is optimum and which ones are not optimum. You, of course, have the purview of choosing whichever management alternative you like. We would suggest that it would be the optimum alternative that meets our objectives.

Then in the adaptive context, of course, over the years we get to observe the results and give greater weight to those models that appear to be predicting what we actually see. Then we refine the models based on that and go through the cycle. Most of you are familiar with this concept, I'm sure.

I always like to put a slide like this up to remind us a little bit of where we've been and where we are now. This is a graph of the female horseshoe crab landings in the Mid-Atlantic states. It's important to know that I put all of the unknowns as females, so probably these levels in the early goings are a little bit lower, maybe half of what you see, assuming a one-to-one male/female back when we weren't doing sex reporting.

But you can see we've come down quite dramatically, and this was without any sort of formal quantitative stock assessment. This was you folks implementing safe management techniques in the face of what appeared to be high harvest, precautionary management techniques. The working group has been together for about a year now. They're working on the objective functions and the management alternatives that are going to be evaluated by the models.

They're working on refining the horseshoe crab and the red knot models and getting them such that they'll work together. We have hired a post doc. Conor McGowan, who came from Iowa, has a great deal of experience in this sort of modeling. He is working eight to ten hours a day on this, and that's all he is working on is this process.

We need to simplify our horseshoe crab models a little bit so they can fit into the overall framework of the multi-species model, and then he is developing these marked recapture models for the red knots themselves. The idea that we need to do with that is link the survival of the red knots to horseshoe crabs, and it's going to be weight.

Somewhat this metric of red knot weight, which we know is important that they leave at weight when they leave the bay, will be the metric that is related to horseshoe crab numbers. Then we're going to use the literature to specify some function of red knot

fecundity and horseshoe crab abundance. There is still some sorting out to do.

Some people are suggesting that we skip the egg phase of horseshoe crabs and go right from horseshoe crab numbers or abundance to the red knot model. This is because the egg data are quite variable and some people see that as a problem in making the models work. There are others who say, no, the eggs are the link; they are, in fact, the link between the two animals, so we should keep that term explicit in this modeling exercise. The team is going to work and see which technique will work best.

There are currently two objective statements, and these are important. I can't get into the weeds of all this with you because we'd be here way too long, but the objective statements are very important in coming up with the decision matrix that will be put before you. The first one is tiered approach that maximizes HSC harvest constrained by a combination of various levels of red knot population size and departure weights.

For instance, at low levels of red knots, and if not many red knots were making weight, then the utility of harvest is very low, and this bears directly upon the decisions that would be put in front of you. If the population of knots were low but every knot were making weight, there would be a possibility of harvest. If the population of red knots is very high and all knots are making weight, then it also would encourage harvest, which would show up very favorably in your list of decision options.

Then there is the much simpler I think and it's more desirable because of its simplicity, the simple threshold approach which maximizes HSC harvest based on the notion that the red knots are at some threshold. Now no numbers have been put on that threshold yet, but it will be, it will have to be in time.

This would be simply be we're going to manage horseshoe crabs to get the red knots to that threshold as quick as we can, and then the decision matrix would change a little bit. I can't go into the subtleties of the difference of this except to say the expectation is that either of these would allow horseshoe crab harvest as long as red knots are making weight and that the population growth of the knots is not suppressed by horseshoe crab harvest.

Early on, about a year ago we had a big list of the management alternatives that would go in to be assessed by the models and the list was too long. We kind of said, well, what would be the minimum and

what might be a maximum and what are some levels in between, and it was clear that we were going to winnow this list down.

What came out of the last meeting was this particular set of management alternatives that the models would assess. I know people see numbers and they tend to get a little alarmed. This may not be the final set that goes into the models, but it should be close. Of course, this is the total moratorium phase, and this is what we thought was probably the maximum biologically and politically that might be allowed in the Mid-Atlantic states.

There is no allocation involved in this. It's important to know that this is just Delaware Bay animals removed. There is no notion of state allocations in these sorts of numbers. At some point – and we'll about a timeline here in a minute – the board, if they see something in here that they don't like or if they don't see something that they'd like to see, the technical committee and the adaptive management workgroup would like to hear that.

And this is the part that gets very complicated. I'm not a shorebird modeler, but Dr. McGowan is working on what he calls the "multi-state open robust design, mark-recapture/resight survival analysis". Please don't ask me to explain that. The idea is to estimate annual survival of red knots based on their weight or mass when they leave the bay for the Arctic, and then divide the time that they're in the bay and the time periods and use modeling and resight data to see how many are moving from one weight class to the next – it's a measure of weight gain – and then, again, tie that to some horseshoe crab matrix, either abundance and spawn timing or availability of eggs.

The timeline for the group is here; you can see this; I don't need to read it. What is important I think is in May of 2009 the workgroup hopes to come before you and give you the first year's results, which I'm hopeful will be fairly far along. I think you should be pleased with the progress that has been made. I'll wrap up my report there.

It also wraps up my two-year tenure as technical committee chair. It's been a great time working with the board. I think it's important to know that we're on the cusp, I believe, of a true multi-species management effort here, the likes of which I'm not familiar with. I'm not familiar with all the marine management protocols that the councils deal with, but at least in our environment and the coastal and freshwater environment this is a multi-species

management model that I think is the first of its kind. It's a credit I think to the board and the committees to get this far along as they have to push it across the goal line. Thank you.

CHAIRMAN BOYLES: Mike, thank you. Any questions for Mike? Vince.

EXECUTIVE DIRECTOR JOHN V. O'SHEA: Not a question, Mr. Chairman, so much as a comment and public thanks to MR. MILLARD from the staff's perspective. He has been a real professional and just a terrific person to work with from our staff perspective. We appreciate very much the help you have given us in doing our job in supporting this board. Thank you very much, Doctor.

CHAIRMAN BOYLES: Mike, I think on behalf of the management board I'd also like to offer our sincere thanks. It's been a very, very difficult row to hoe, but we certainly appreciate the guidance that you've given the board and our thanks and our gratitude. Representative Abbott.

REPRESENTATIVE DENNIS ABBOTT: That's some of the things that I would have said, but, Mr. Millard, wouldn't it be better if you stayed on for another year with where we are and where we're going? Would it be helpful to everybody to have you serve for another year in your present capacity?

MR. MILLARD: Well, I didn't ask to be removed, but I guess it was commission protocol. I would leave that up to the commission. There are capable people behind me, and I will still be on the technical committee participating, but thank you for your vote of confidence.

CHAIRMAN BOYLES: Any other questions for Mike? Okay, next Brad is going to give us an update on some work that we had asked regarding biomedical tagging.

BIOMEDICAL TAGGING UPDATE

MR. SPEAR: Thank you, Mr. Chairman. This agenda item is in response to a board task from the August meeting and actually a previous meeting as well to look into putting together a tagging framework that biomedical companies can use if they would like to initiate a tagging program. It's a general framework. Comments are received from the technical committee as each specific company's area objectives would need to be fleshed out for each specific project.

The committee is there; we have a tagging subcommittee for horseshoe crabs that is available and has experience in this area that can help any biomedical company that is interested. Just a little background; ASMFC has held a number of tagging workshops in the past, both across species and horseshoe crab focused.

Back in 1998, when the original Horseshoe Crab FMP was passed, there was a requirement for biomedical companies to initiate a tagging program; albeit small ones, but there was an effort on the part of all of the biomedical companies at the time. There are at least two companies now that are continuing their tagging programs to date.

If you recall this past year, 2007, there was a fairly significant increase in harvest of crabs for biomedical use, which prompted the board's interest in exploring a tagging framework. Possible objectives at this point for a tagging program is to identify population structure and management units; to look at survival and mortality of crabs, including long-term survivability after bleeding, for example; also, to look closer at the effect of bleeding on spawning behavior in the crabs.

Another objective is to determine movement and migration rates. You can also structure tagging programs to look at retention rates and reporting rates. These can all be part of a program or just one can be part of the program. Obviously, if a program can be designed with more objective coverage, the better it is.

Just some of the elements in the framework of design; tag-and-release timing and areas; length of a program for it to actually be useful and provide some information for the technical committee and the board; also, details on the number of tags that would make it a useful a program; and a discussion about the tag type and tag procedure that biomedical companies or any interested parties can use for tagging horseshoe crabs.

More elements of the design and the framework are what sort of data would be required to record at the time of tagging and release. Also, there is some about promoting and rewarding tag recapture as a way as putting in some sort of lottery, which would require funding, to get a better idea of how many of these tags are being recaptured.

The last is some information on reporting and data management and analysis. That's it for the design. There were some technical members that identified

this framework as useful. If biomedical companies were looking to initiate a tagging program, they can work with the technical committee on this.

However, at least some members felt that a more useful approach would be for scientists or principal investigators to run the tagging program, design it, but work with the biomedical companies, but just having outside third party scientists run the study has benefit, they felt. The downside or the cons are it would cost money, and right now obviously money is tight, but there have been discussions from the board of possibly getting money from the biomedical companies. That's certainly not the only option. It hasn't been used in the past, but it has come up from the board. That's it.

CHAIRMAN BOYLES: Brad, thank you. Any questions? Pete.

MR. PETER HIMCHAK: I couldn't sit through a board meeting without saying something. I'd feel like I was neglecting my job. The whole impetus of reviving the tagging protocol was the investment of the biomedical companies into the resource. Whether it be through tagging or whether it be through their funding for a third party to tag – I'd like to know even what they do for education and research.

But, the whole impetus for the tagging – and if there is something better, then they can invest in that for the resource because the fishermen have paid dearly for the management actions over the years. I would suggest – I would like to know what the companies are doing as far as investing in the resource, which ones are tagging, how many they're tagging, what do they budget for information and education, do they do any research projects? As a starting point I think we could poll them to see what they're doing to invest in the resource that they make many, many millions of dollars on. Thank you.

CHAIRMAN BOYLES: Pete, those are good suggestions and I agree with them. I think it's something that we can staff out. Mike, did you want to respond, as well?

MR. MILLARD: Well, just a comment, I guess, and I mean no disrespect to the biomedical companies. They obviously provide a great service to the public all over the world, but in the past they have not operated as a cohesive group of companies, and that's understandable. They are in most respects market competitors.

So, a tagging program run by and held within the companies would probably be a piecemeal effort that wasn't well coordinated. I'm just speculating on history here. It's not well coordinated. Each one might be fine, but to get a better coast-wide, organized sort of tagging effort, we would suggest using like the striped bass model tagging program as a model. Perhaps if there was some way that biomed could help fund that effort and the actual program could be run similar to the striped bass program, we think that would be a better bang for the buck, probably.

CHAIRMAN BOYLES: Thanks, Mike. Other questions or comments from the board? Pete, to follow up on your comment, we just had a sidebar conversation, and I think we can ask Brad to survey the biomedical companies and find out what they're doing. I agree with you. If you recall from the discussions at the August meeting, we did discuss estimates of mortality, how good are those estimates of mortality, particularly given the measures that this board has taken in the Delaware Bay Region.

Recognizing that the biomedical harvest is a player in this fishery, I think it behooves us to get better information from that standpoint. I guess it's my sense from you all is that these are recommendations from the technical committee that would constitute, for lack of a better phrase, best practices that we'd like to see the biomedical companies adopt. Can I get an affirmation? Yes, okay. Jaime.

DR. JAIME GEIGER: I think Mike's analogy of using the striped bass tagging model is a very good one and a valid one. Plus, I think, again, have some kind of standardization would suit us well. Plus, I think it gives an excellent opportunity for the biomedical industry to contribute and be part of the solution. I also think it also gives an opportunity for some of the advocate groups, such as Audubon and the American Bird Conservancy also step up tall and be part of the solution as well. Again, I think it's a good mechanism. I think the technical committee did a good job putting this document together. I would just hope that – you know, I'd certainly support and I would the board would as well. Thank you.

APPROVAL OF AMENDED PROCEEDINGS

CHAIRMAN BOYLES: Thank you, Jaime. Any other questions or comments on the biomedical tagging? Brad, I think we've got marching orders for the next meeting. The only other item I've got on the agenda is going back to the top of the agenda. Mr.

Adler pointed out a correction that needed to be made in the minutes. I am going to turn it over to Vince.

EXECUTIVE DIRECTOR O'SHEA: Mr. Chairman, I reviewed the contents of the minutes for the list of motions under Item 5. What did happen was the motion was made by Jack Travelstead and it was seconded by Pat Augustine. We also went to the summary of the commission meeting where we had a list of motions, and that also reflected Travelstead made the motion and Augustine seconded it. That would be the correction that you ought to make to your minutes.

CHAIRMAN BOYLES: **Is there a motion to accept the minutes as amended. Mr. Adler.**

MR. ADLER: So moved.

ADJOURN

CHAIRMAN BOYLES: Seconded by Dr. Rhodes. Any discussion? Any opposition to the motion? The motion carries. Mr. Adler, thank you for pointing that out to us. Any other business to come before the Horseshoe Crab Management Board? Seeing none, the Horseshoe Crab Board is adjourned.

(Whereupon, the meeting was adjourned at 2:48 o'clock p.m., October 21, 2008.)