

Atlantic States Marine Fisheries Commission

Horseshoe Crab Management Board

*May 22, 2013
11:15 a.m. – 12:15 p.m.
Alexandria, VA*

DRAFT Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to order (*D. Simpson*) 11:15 a.m.
2. Board Consent 11:15 a.m.
 - Approval of Agenda
 - Approval of Proceedings from February 2013
3. Public comment 11:20 a.m.
4. Update on Virginia Tech Trawl Survey funding (*M. Hawk*) 11:25 a.m.
5. Consider FMP and State Compliance (*M. Hawk*) **Action** 11:30 a.m.
 - Review biomedical mortality (*M. Hawk*)
 - Review status of the horseshoe crab stock and whelk fishery (*M. Hawk*)
6. Other business/Adjourn 12:15 p.m.

The meeting will be held at the Crowne Plaza Hotel Old Town, 901 N. Fairfax St, Alexandria, VA 703-683-6000

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015

MEETING OVERVIEW

Horseshoe Crab Management Board Meeting
Wednesday, May 22, 2013
11:15 a.m. – 12:15 p.m.
Alexandria, VA

Chair: David Simpson (CT) Assumed Chairmanship: 5/12	Horseshoe Crab Technical Committee Chair: Penny Howell (CT)	Law Enforcement Committee Representative: Rutherford
Vice Chair: Jim Gilmore (NY)	Horseshoe Crab Advisory Panel Chair: Dr. Jim Cooper (SC)	Previous Board Meeting: February 20, 2013
Shorebird Advisory Panel Chair: Dr. Sarah Karpanty (VA)	Delaware Bay Ecosystem Technical Committee Chair: Greg Breese (FWS)	
Voting Members: NH, MA, RI, CT, NY, NJ, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (17 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 20, 2013

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update on Virginia Tech. Trawl Survey Funding (11:25 a.m. – 11:30 a.m.)
Background
<ul style="list-style-type: none">• Virginia Tech Trawl Survey abundance data is necessary to run the ARM Framework• Only \$6,000 for 2013 survey has been donated; funding needed in the amount of \$194,000
Presentations
<ul style="list-style-type: none">• Value of VT Trawl Survey and options if funding is not found

5. Fishery Management Plan Review (11:30 a.m. – 12:15 p.m.) Action
Background
<ul style="list-style-type: none">• State Compliance Reports were due on March 1, 2013• The Plan Review Team reviewed each state report and compiled the annual FMP Review
Presentations
<ul style="list-style-type: none">• Overview of the FMP Review Report by M. Hawk (Briefing CD)

- Discuss biomedical mortality
- Review status of the horseshoe crab stock and whelk fishery
- Overview of status of horseshoe crab stock by M. Hawk (**Briefing CD**)

Board actions for consideration at this meeting

- Approve 2010 FMP Review and State Compliance Report.

6. Other Business/Adjourn

DRAFT

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PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

HORSESHOE CRAB MANAGEMENT BOARD

Crowne Plaza Hotel - Old Town
Alexandria, Virginia
February 20, 2013

These minutes are draft and subject to approval by the Horseshoe Crab Management Board.
The Board will review the minutes during its next meeting.

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1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of October, 2012** by Consent (Page 1).
3. **Move to recommend to the Policy Board that the commission send a letter to the U.S. Fish and Wildlife Service urging expedited review and possible action on the importation of all Asian horseshoe crab species** (Page 5). Motion by Stewart Michels; second by James Gilmore. Motion carried (Page 6).
4. **Move that the staff prepare a resolution in keeping with the recommendations of the technical committee on this issue that encourages the states to take any and all appropriate actions to address the importation of Asian horseshoe crabs** (Page 6). Motion by Jack Travelstead; second by Louis Daniel. Motion carried (Page 6).
5. **Move that the state of New Jersey consider alternate management strategies to a harvest moratorium, including pending legislation, due to the negative impacts to regional horseshoe crab populations and concerns with potential ecological and human health issues with the importation of non-native species** (Page 7). Motion by James Gilmore; second by Bill McElroy. Motion defeated (Page 10)
6. **Motion to adjourn, by Consent** (Page 11).

ATTENDANCE

Board Members

Dennis Abbott, NH, proxy for Sen. Watters (LA)	Roy Miller, DE (GA)
Doug Grout, NH (AA)	Tom O'Connell, MD (AA)
G. Ritchie White, NH (GA)	Bill Goldsborough, MD (GA)
Dan McKiernan, MA, proxy for P. Diodati (AA)	Russell Dize, MD, proxy for Sen. Colburn (LA)
Bill Adler, MA (GA)	Jack Travelstead, VA (AA)
Rep. Sarah Peake, MA (LA)	Rob O'Reilly, VA, administrative proxy
Mark Gibson, RI, proxy for R. Ballou (AA)	Cathy Davenport, VA (GA)
Bill McElroy, RI (GA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Rick Bellavance, RI, proxy for Rep. Martin (LA)	Louis Daniel, NC (AA)
David Simpson, CT (AA)	Mike Johnson, NC, proxy for Sen. Jenkins (LA)
Dr. Lance Stewart, CT (GA)	Robert Boyles, Jr., SC (AA)
James Gilmore, NY (AA)	Sen. Ronnie Cromer, SC (LA)
Pat Augustine, NY (GA)	Pat Geer, GA, proxy for S. Woodward (AA)
Peter Himchak, NJ, proxy for D. Chanda (AA)	James Estes, FL, proxy for J. McCawley (AA)
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)	Jaime Geiger, USFWS
Tom Fote, NJ (GA)	Derek Orner, NMFS
Stewart Michels, DE, proxy for D.Saveikis (AA)	

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

Ex-Officio Members

Mark Robson, Law Enforcement Representative

Staff

Robert Beal
Toni Kerns

Marin Hawk

Guests

Willis Spear, Yarmouth, ME
Loren Lustig, PA Gov. Appointee
Raymond Kane, CHOIR
Bob Ross, NMFS
Kelly Denit, NMFS
Kim McLean, NMFS
Peter Burns, NMFS
Russ Allen, NJ DFW
Wilson Laney, USFWS
Michele Walsh, NOAA
Charles Lynch, NOAA

Wendy Morrison, NOAA
Ross Self, SC DNR
Janice Plante, Commercial Fisheries News
Benjie Swan, Lemuli Labs.
Christine Lecker, Wako Chemicals USA
Mary D. Wolf, Lonza
Barry Kratchman, PA
Carl Schuster, Arlington, VA
Bud Brown, Georgetown, ME
Peter Hreben, Kleinschmidt Assoc.

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel Old Town, Alexandria, Virginia, February 20, 2013, and was called to order at 11:00 o'clock a.m. by Chairman David Simpson.

CALL TO ORDER

CHAIRMAN DAVID SIMPSON: We will get started with the Horseshoe Crab Board. This is the call to order.

APPROVAL OF AGENDA

CHAIRMAN DAVID SIMPSON: Board consent on the agenda; are there any additions to the agenda? Doug Grout I think had one thing at the end that I am aware of. He wanted to address a monitoring issue in New Hampshire.

APPROVAL OF PROCEEDINGS

CHAIRMAN DAVID SIMPSON: We have approval of the proceedings from the October 2012 meeting. Were there any issues with that? Is there any objection to approving those? Seeing none; we will consider those approved. Public comment; is there any public comment on items that are not on the agenda? Seeing none; we will move to Agenda Item 4, which is review and discuss importation of Asian horseshoe crabs. We have a presentation by Glenn Gauthy.

DISCUSS IMPORTATION OF ASIAN HORSESHOE CRABS

MR. GLENN GAUVRY: I am assuming that most of you already received the notes from the technical committee conference call that happened two weeks ago, which would have included a letter from the IECN Committee, the notes from the meeting itself and some correspondence that has actually circulated from a few of the states that we're looked at as state-by-state level of what could be done to address this issue.

What I'm going to try to do today really is just to make – I'm really here for the most part as an advocate for this issue. For those of you who don't know me, my name is Glenn Gauthy, and I am the director of the Ecological Research and Development Group. Our mission is the conservation of the world's four horseshoe crab species.

I also sit on the IUCN Species Specialist Group for Horseshoe Crabs, and I am the coordinator of the

Trade Industry and Use Subgroup under the IUCN that has to do with the issue that we're talking about today. What I thought I would do is let you know what we know, and a lot of that is probably covered in the notes that you have from the last meeting with the technical committee.

What we know is that in 2011 a New Jersey importer – actually Blue Water Seafood brought in several thousand horseshoe crabs from Thailand assumedly for the conch fishery. In 2012 we know that a New York importer, East Coast Bayshore Seafood, brought in several thousand horseshoe crabs, two species, *Tachypleus gigas* and *Carcinoscorpius*, from Vietnam. The first one was from Thailand; the second was from Vietnam. Again, we're assuming that is for the conch fisheries based on the correspondence we have received both the supplier in Vietnam and some anecdotal information that we have received from various distributors up and down the coast.

Just recently in 2013 – actually just last week – several thousand horseshoe crabs were confiscated in South Sumatra, which is Indonesia. Then were enroute to an export location in North Sumatra. In Indonesia there are some regulations that govern the harvesting and distribution of horseshoe crabs.

Their tails had been cut off and they had been stuck in with a bunch of snails and they were trying to kind of get them through that way, but they were collected. There were about 3,000 some odd that were picked up. We're not quite sure yet where they were ultimately going to. They may not have been going to the United States.

They may have been going to some other market that exists in Asia. I have been contact with the current exporter that has shipped the last several thousand to the New York East Coast Bayshore Seafood Company. He has been actively or – aggressively would probably be a better word – aggressively seeking customers up and down the east coast for Asian horseshoe crabs, which he is saying is primarily coming from Vietnam.

We also know that this particular importer has actually been aggressively advertising in Asian publications looking for horseshoe crabs to bring in. Whether this person that I'm talking with now drops to the wayside, there are others that are rather anxious to take his place to meet a market demand. That is what we know.

Our concerns, for the most part, are outlined in that IUCN letter that you have, but since these animals are being brought in a somewhat frozen state – they're not totally frozen. As a matter of fact, when I have talked to the exporter of them, he only assured me that they would be cold when they arrived in the United States.

Since we don't know really what the condition is, but we're assuming that they're just partially frozen or just chilled, our concerns are, of course, the three main ones that were outlined in the IUCN letter, which was the introduction of parasites and pathogens and non-native invasive species into U.S. Waters. That would be one of our main concerns.

Our second concern is, of course, the introduction of disease and parasites that could harm our U.S. Species, horseshoe crab species and how that could feasibly carry over in terms of the Adaptive Resource Management Plan and how it affects shorebirds that depend on horseshoe crabs for survival.

There are a lot of parasites that we have identified on the U.S. Horseshoe Crab Species and there are a similar number of diseases and parasites that exist on the Asian species. We don't know the effects of the Asian parasites on the U.S. Species because there has not been any studies on that, but that is a concern.

The third concern that we have is the introduction of poisonous substances into the U.S. Human Food Supply. One of the species that is being brought over at least in the last batch that came over from Vietnam was *Carcinoscorpius*, which has been known to have TTX or tetrodotoxin. That causes several deaths every year in that part of the world where people will inadvertently consume the wrong species. They do eat them in Vietnam. The problem of bringing that species into the United States and then having that be the food supply for the conch, which ultimately ends up into the human supply, is a concern that should be looked into.

I guess fourth, which doesn't directly involve this body, is, of course, the – as I have said earlier, our mission is the conservation of the world's four horseshoe crab species, and the three Asian horseshoe crab species are under serious decline. One of the reasons why we were able to get the IUCN to take us on as a species workgroup having to do with horseshoe crabs is because right now all three species are considered data-deficient according to the IUCN.

What we're trying to do as a result of the formation of this workgroup is to start to address those issues so that we can engage the IUCN's clout in issues like this, but right now we don't have any clout so we're looking at what can be done on the U.S. side. Lastly, I guess the question is do we have the responsibility, both scientifically or morally, to put an end to this practice; and if yes; do we have the tools do it?

There I think is where when the technical committee was meeting on the conference call they were kicking around some ideas of things that might currently exist on a state-by-state level that could at least slow down this practice until we have the chance to review what the detrimental effects might be to the horseshoe crabs, to our horseshoe crabs to introducing species into our waters and into our food supply.

There was some talk about things that might be able to be done on a federal level, too, but we're just kind of scratching the surface on that. I guess the last thing that I just want to say is that just as the moratorium in New Jersey, the Horseshoe Crab Harvesting Moratorium in New Jersey had a ripple effect on the bait market in states north and south, we're now beginning to see this ripple effect extend all the way to Southeast Asia.

What it is basically doing is it is creating a market that didn't previously exist. They do harvest horseshoe crabs for a multitude of purposes there and human consumption is one of them. Even though it has been contributing to the decline in the Asian population because of lack of regulations, it has at least been reasonably balanced.

What has happened as a result of our hunger for more horseshoe crabs to introduce into our bait market is we have created a very lucrative market, and so now people are willing to actually break the laws in the case of Indonesia to get their hands on horseshoe crabs to send over to us to meet that demand.

The ERDG and the IUCN's big concern, of course, is trying to see if we can put a stop to this on the U.S. side and the positive effects it would have on the conservation of three Asian horseshoe crab species. That is pretty much all I have. I am perfectly happy to answer any questions that I might have the answers to.

CHAIRMAN SIMPSON: I think the technical committee has a related presentation, fairly brief, and I think what I will do is we will take, too, and then we can entertain the questions for both.

TECHNICAL COMMITTEE REPORT

MS. MARIN HAWK: Penny Howell is the chair of the technical committee, but she couldn't make it today so I will be giving the presentation. The technical committee met to discuss this issue about two weeks ago. We obviously focused on the importation of Asian horseshoe crabs into the U.S. The technical committee agreed that addressing this issue is necessary to reduce the risk of harm to our native population.

I'm just briefly going to go over the status of each state for you and whether or not they have imported horseshoe crabs and whether or not there is the potential motivation to import those horseshoe crabs. In Massachusetts there are no known bait shortages and also no known importation. In New York about 2,000 *Tachypleus gigas* were imported in 2011 to address bait shortages and also 7,400 kilograms were imported in 2012.

In Connecticut there are fluctuating landings and an apparent increase in demand but there are no imports yet. In Rhode Island it has been reported that the fishery is exhausted within two to three weeks. The demand for bait remains high, but nobody is aware of anyone importing Asian horseshoe crabs.

In Delaware, Maryland and Virginia the technical committee members decided that the ban on the harvest of females could potentially lead to the motivation to import Asian horseshoe crabs, but there is no known importation yet. Glenn just talked about a lot of these concerns with importation so I won't spend too much time on them, but I did just want to emphasize the point that the technical committee was concerned with the fact that the horseshoe crabs may not be completely frozen when they enter the United States, which could lead to the transfer of parasites, diseases or vibrios.

Some possible solutions, which Glenn also just discussed briefly, the Asian horseshoe crabs are under review for a likely IUCN Red Listing, but that could take up to a year. The U.S. Fish and Wildlife Service has also been reviewing their authority under the Lacey Act to add Asian horseshoe crabs to the List of Injurious Wildlife, and that would allow them to regulate the import of that species if it was listed as injurious wildlife. However, that may also take up to a year.

During the conference call we did discover that some states already have in place regulations to address the import or use of non-native species, and so the

document that you have in the supplemental materials outlines the regulations in each state that they may or may not have. Basically, the technical committee recommends that the board initiate a state ban for the import or use of the Asian horseshoe crabs if possible in that state.

The technical committee also recommended that the Horseshoe Crab Board write a letter of support to the Committee on the Environment and Public Works, which is reviewing the Invasive Fish and Wildlife Prevention Act of 2012. That is a bill that is in the committee right now. It is attached to the technical committee report, which is in your supplemental materials. It basically will give the U.S. Fish and Wildlife Service authority to regulate invasive species before they become invasive instead of after. Thank you, Mr. Chairman.

CHAIRMAN SIMPSON: Are there any questions for either Glenn or Marin? Jack.

MR. JACK TRAVELSTEAD: I appreciate the technical committee looking into this so quickly and doing such a thorough job. The technical committee is recommending that the states ban imports if they are able to do so. Are we talking about an addendum to the management plan to affect that or is this simply a request of do something if you can?

MS. HAWK: In the FMP there is not much power to deal with Asian horseshoe crabs, so it would have to be a state-by-state basis. It would be in the state legislature and not an addendum to the FMP.

MR. TRAVELSTEAD: I'm not clear on the answer. We want states to do something about this if they're able to, but we're not forcing states to do something through an addendum.

CHAIRMAN SIMPSON: Bob might be able to help, but I suspect our plan reads horseshoe crabs, the species that we have here, and so this is almost outside the scope of the species' plan. Bob, do you have more thoughts on that?

EXECUTIVE DIRECTOR ROBERT E. BEAL: I was going to make that comment; and also under the adaptive management section of the current Horseshoe Crab FMP I don't think we even contemplated this happening when the FMP was developed. I think we'd probably have to go through the full amendment process, which would take as long or longer than some of the processes that are being talked about through the other avenues that were up on the screen a minute ago.

CHAIRMAN SIMPSON: It seems almost like the Asian oyster kind of question; another one we don't manage. Certainly, there is reason to be very concerned about it and for states to take action. I guess related I had a couple of questions and we'll see where they go. One is are there materials out there for species identification so that our biologists, our law enforcement people, fishermen, dealers know how to recognize these species of concern separate from our limulus species?

MR. GAUVRY: Not to my knowledge. For the most part, a lot of the conchers are buying their bait from their distributors, so it would seem that the first course of action would be the distributors, and they're the ones that impart information to what it is that they're supplying their watermen. I don't know of the willingness of all of them to do that. I know that I have had conversations with Rick Robins and he is very willing and very concerned about this issue; but some of the distributors to the north that are actually importing these, I don't know if they will necessarily be willing partners.

CHAIRMAN SIMPSON: Right, and so that could be an impediment to management. I guess I was also thinking in terms of whether there is a protocol or best practices of freezing or something that would render these pathogens or parasites sterile or no longer a problem. Then I also have the question about the TTX and whether that would make any difference if they're frozen. Usually the toxins aren't so affected by cold or heat.

MR. GAUVRY: Right; and I was provided by the exporter a series of photographs of their operation. For the most part, it looked like they put them on a large table, they hose them down, and they put them in plastic bags.

The information was we then freeze them and then they were put into cardboard boxes and banded and then shipped out. To the extent that they were frozen, if in fact they were even frozen, we don't know. Short of getting some of these animals as they come into the United States and start testing them to see what is still alive on them, it is going to be difficult to determine the level of threat that we have got from them.

At the very least we should be looking at that and there is very little information out on the TTX. There are not a lot of scientific papers that have been done on it. We know that it exists; we know it is a problem, but in terms of how it is transferred into, say, conch and then how that would affect the human

food supply, there is nothing out there. Again, it is something else that we really ought to be looking into before we start to kind of give the green light to this sort of practice.

MR. JAMES GILMORE: Mr. Chairman, just an additional point because of the issues with the Southern New England Lobster Fishery, our conch fishery seems to be blossoming, which is I think even further increasing the demand. We have got some multispecies issues going on that is making this worse. In New York, the concern I had, too, was trying to have a – through the plan and trying to impose something on all the states may not be appropriate.

But just to tell you what New York was doing is that we're considering regulations through – I have regulatory authority under it so I don't have to go through the legislature and we're going to do that pretty soon, including possibly looking at the conch fishery, which seems to be going downhill pretty quickly because of the increased harvest.

That is for multiple reasons because we have this issue with the Asian crab coming in and it is documented coming into New York already. On top of that we have the other issues with the horseshoe crab management that has been problematic to our population. On top of that we have also had an escalating biotoxin issue through shellfish, which is growing and getting – and we're up to like 20,000 acres last year of shellfish harvest area I had to close down, so I really don't need another toxin coming in that I am going to have to deal with. We're already well on the road to trying to do some regulatory things this year to try to shut this down.

MR. WILLIAM A. ADLER: Mr. Chairman, I wanted to ask if there is some body that is looking into what you mentioned about do they have toxins; does freezing do something good, bad, whatever? Are we just speculating that this is what could be or is there somebody actually checking on this now because that information would be very useful if you have to put a ban or something in?

MR. GAUVRY: No; nobody is checking into it. We do know the toxins exist in *Carcinoscorpius*. That is documented. We do know that people die every year in Southeast Asia from eating *Carcinoscorpius*, which is pretty much a mangrove species, so it is kind of a species of opportunity. It is much easier to harvest them, so people think that they're going to get *Tachypleus* and they end up with *Carcinoscorpius* and they eat them and they die.

We do know the cause and effect of the toxin and we do know the species that toxin comes from. To answer your question directly do we know that it is a problem once it is frozen; no. Do we know that it transfers into another species and then could be transferred to a human and still cause the same effects; no, there has never been any test that I'm aware of that has been done because this hasn't been a problem in the past.

MR. ADLER: If I may, okay, so who or what would be the entity in our world here that would be able to test this stuff so we would have some proof of what has been thought could be a problem? Is there a state that could test this or is there a federal – somebody that could test this and get some actual answers to this stuff?

MR. GAUVRY: I don't know the answer to that. There has been some conversation about the FDA, but I don't know if they would take this on or not.

MS. HAWK: Under the Invasive Fish and Wildlife Prevention Act of 2012, it would give the U.S. Fish and Wildlife Service authority to do research into imported organisms.

MR. DAN McKIERNAN: To follow up on Jim Gilmore's comments, in Massachusetts we have a real challenge managing our whelk fishery and guys taking them with conch pots. That is the demand for a lot of the horseshoe crab baits, and so I think the Horseshoe Crab Management Board really ought to be going home and looking at how we manage the conch pot fishery.

I know in my state we've probably seen effort as defined by the number of pot hauls which equates to so many pieces of horseshoe crab has increased over the last few years, especially as the Southern New England lobster has declined, but there is no interstate management plan for the whelk fishery or there is no guidance of how we should be managing that at home.

Clearly, there was talk a decade ago about bait cups and envelopes and trying to minimize the portion of the crab that you're using. That all makes perfect sense, but I wouldn't be surprised if we're faced with a situation where we eventually need to create a section or a management board for whelks because there is interstate commerce. There are problems of the increasing demand, and it is causing problems now in Southeast Asia, so let's get on with it.

CHAIRMAN SIMPSON: I think one of the fundamental problems we have may be identifying the species; so if you don't catch it at the airport, that is probably your only opportunity to manage this issue. That would be my concern right now. Roy.

MR. ROY MILLER: My perception of the discussion thus far is that people are in general agreement that we need to do something about this importation issue with regard to these three species. Now, the question is what can we do collectively that would be most effective? I suspect that if it is strictly on an individual state basis, the outcome is uncertain and certainly the timeline would be uncertain.

Some states have regulatory authority; some states don't. Some have proclamation authority. It varies. One authority we all share is through the commission. My question is what can the commission do on a fairly rapid basis either through an emergency declaration or something of that nature. I was wondering if you had some guidance in that regard, Mr. Chairman, or perhaps Bob might have some guidance. Thank you.

CHAIRMAN SIMPSON: Well, my thought on it would be that this is an issue of importation and liberation, and that is beyond the scope of any authority I have that comes through ASMFC. That is well beyond the scope of our ability to set rules; and then the question would be who would enforce it? That is outside of DEP. This is literally an importation to the country issue, and I suspect it will have to be dealt with. I am going to let Jaime respond because I really see this as – there is actually a federal role once in a while in some of our problems. Jaime.

DR. JAIME GEIGER: Mr. Chairman, sorry I had to step out of the room, but did anybody mention the Lacey Act and declaring these as injurious wildlife? I do believe that there is some activity going on right now with our Division of Aquatic Invasive Species in our Washington Office Headquarters, looking at the information to see if there would be support or appropriate science background to propose that. I think certainly it would be helpful that if the commission feels strongly that this be continued and accelerated, certainly a letter from the commission to the U.S. Fish and Wildlife Service would be very beneficial to help us to proceed in that direction.

Again, I want to be sensitive because I do believe some of the horseshoe crabs and the value that they may or may not be serving, and there may be different opinions around this table about what they

can and could and should be doing and whether or not unilaterally the Service should prohibit these I think is still premature. Again, I think this is something that the more information we have as we move forward I think it would be beneficial for obviously our collective interest in protecting these American populations of horseshoe crabs.

CHAIRMAN SIMPSON: Thanks, Jaime; it does sound like that might be our most effective avenue as a commission. Stew.

MR. STEWART MICHELS: Well, I was just going to ask, Dave, if we need a motion to move that forward.

CHAIRMAN SIMPSON: Yes, I think that would be helpful.

MR. MICHELS: Okay, I would like to move that the board send a letter to the U.S. Fish and Wildlife Service urging expedited review and possible action on this issue; something like that.

CHAIRMAN SIMPSON: Jim seconded that. Is there discussion on this motion? Pat.

MR. PATRICK AUGUSTINE: And possibly add something about best management practices, as you mentioned, Mr. Chairman, as part of that, that maybe the U.S. Fish and Wildlife Service either could, should or move toward developing the best management practices in handling that particular species as it comes in. If we're going to do it, do it as the whole package in our letter to them. We hope they can supply a means for controlling and evaluating as they come in; and who else can do it if it is their responsibility.

CHAIRMAN SIMPSON: I saw Jaime nodding as you were making that comment, so that seems to fit with his perception of the role. Jack, did you have another comment?

MR. TRAVELSTEAD: Yes; I certainly support the letter, but I'm wondering if a resolution from the commission on this issue that lays out our concerns and encourages all of the states to take whatever action they can currently might not be an additional approach we should consider. If I had something I could carry back home that was supported by the full commission, I think that would help me be able to do something and perhaps other states.

CHAIRMAN SIMPSON: Okay, should we take that up as – Toni, go ahead.

MS. TONI KERNS: I think you want to make this a recommendation to the Policy Board to send this letter. That is how we typically move forward with these.

CHAIRMAN SIMPSON: Okay; does everyone accept that? What I might suggest is that we dispense with this and then maybe entertain a motion to develop a resolution for the commission to do that very same thing because I think that would be helpful to every state to get something going at the individual state level. Is there any further discussion on this motion? Pat, can you look that and there was some additional thought that you had on there in terms of protocols or something. Is there language you would like to add?

MR. AUGUSTINE: Whatever Dr. Geiger would like in terms of words relative to best management practices and what might be more appropriate that we put in there. He might have a recommendation, Mr. Chairman, but it should deal with best management practices either developed by them or outlined by them.

CHAIRMAN SIMPSON: Jaime, any thoughts?

DR. GEIGER: However the board wants to craft that, I'm certainly acceptable to that, but I would also specifically reference Asian horseshoe crabs on this one, so we're clear on what you're asking the Fish and Wildlife Service to consider and look at.

CHAIRMAN SIMPSON: And there are three Asian horseshoe crab species. Do you think we need the species listed in this motion or we will just take it out of the meeting minutes?

MS. KERNS: I think we're okay if we say all Asian horseshoe crab species, and we have said on the record that there are three, so the intention is there.

CHAIRMAN SIMPSON: Okay, I will read the motion into the record: **move to recommend to the Policy Board that the commission send a letter to the U.S. Fish and Wildlife Service urging expedited review and possible action on the importation of all Asian horseshoe crab species. That is a motion by Mr. Michels and seconded by Mr. Gilmore.** Is there any further discussion on the motion? Dan.

MR. McKIERNAN: Yes; to follow up on Jack Travelstead's comments, it seems like we were going down the road where the board was going to ask each state to take what action it could while the U.S. Fish

and Wildlife Service did something on a more comprehensive national scale; so is that not part of this intent?

CHAIRMAN SIMPSON: What I was going to do is dispense with this and then get a separate resolution type of motion. Is there any other discussion on this one? Is there any objection to this motion? **Seeing none; we will consider it adopted unanimously.** Jack, do you want to put up a motion on this concept of a resolution?

MR. TRAVELSTEAD: **I guess it would go something like I move that the staff prepare a resolution in keeping with the recommendations of the technical committee on this issue that encourages the states to take any and all appropriate actions to address the importation of Asian horseshoe crabs.** It would be my hope that could be done and voted on by the commission at this meeting.

CHAIRMAN SIMPSON: Okay, so we would forward that to the full commission for consideration at the end of this meeting. Louis, are you going to second the motion?

DR. LOUIS B. DANIEL: I am going to second and then comment. I support this, but I also wanted to speak Dan's comment. We, too, are seeing an increase in conch harvest in North Carolina. I think some of this may be precipitated by some of the very stringent measures that are being put on queen conch and the potential for them to be listed as an endangered species.

A lot of those conch are being sent down south to make up for that loss. I think we're going to see increasing demand. This is an interjurisdictional fishery that has very unique life history. They mature at like six or seven years old, so you can have a pretty significant impact on the population. I just wanted to speak in support not only of the previous letter and this resolution but also not letting Dan's comments about the potential for interjurisdictional fishery's management on these things to be considered.

CHAIRMAN SIMPSON: Are there any other comments relative to this motion? Mark.

MR. MARK GIBSON: I support the motion. This will be helpful back home. We have what is called Bio-security Board that I represent the Marine Fisheries Program on; so this will give us traction into that to explore what state authority we have. It may difficult for us to conduct interdiction,

inspection and enforcement actions at the state level, but at least we can make an attempt. I support that.

I am also thinking about what Dan suggested about the conch or whelk fisheries. There are multiple species involved, and in Rhode Island as well we have seen escalation in that fishery. We have stock assessment information that shows that biomass is coming down and fishing mortality rates are going up.

They tend to be a localized population with limited movement, so it might be hard to make a case as to what one state's fishery had to do with another one, but I think it might warrant a discussion. I don't know if it is at the Policy Board or where or whether the commission wanted to get involved or not as a managed set of species.

CHAIRMAN SIMPSON: Is there anything else on this motion? Is there any objection to the motion? **Seeing none; then we will consider it approved** and we will have something for the full commission to consider later this week. Toni.

MS. KERNS: We will get something together for the meeting tomorrow. The Policy Board is this afternoon and I am not sure we will get something together by then.

MR. AUGUSTINE: Mr. Chairman, mine is a larger question and it has to do with bait in general. I think the report and the direction we're going is an excellent approach to addressing a major issue, but a bigger problem is the fact that we have several states still on a moratorium with the horseshoe crab in terms of harvest.

The real question that has to be asked is what is the status of the stock? That is part of it. New York stock seems to be being pounded upon regularly. We had a quota of 365,000 crabs and cut back to 150,000 to be in line with what would be more appropriate. In the meantime because of interstate commerce and the demand for horseshoe crabs up and down the coast, particularly in the southern states, our populations are being beat up regularly. I notice on the agenda we have a notice that New Jersey's legislature is looking to remove their moratorium.

I guess the greater question is if we're having a bait shortage issue; is that the major reason we're getting the imports – and I know the answer is yes – so therefore why don't we look at the status of the stock; and if it is rebuilt in a condition in those states where

they could actually go back into an active fishery, why can't we address that?

I surely would like to get some comments from the states who do not have an active fishery anymore and see what they could offer up or is going to be on the technical committee to make us a presentation as to what the status of the stock is. Now, there are two or three questions all wrapped around that, but I sure would like to get some answers, Mr. Chairman, because I want to move that the moratoriums be all removed if the status of the stock is where we want it to be.

CHAIRMAN SIMPSON: I will check with staff just to confirm the timetable for any future assessments on horseshoe crabs.

MS. KERNS: Well, we can give you status of the stock at the May meeting when we do – compliance reports are due March 1st, and so through the FMP review we can give you status of the stock. I'm going to turn back to Pat to see if he has the next assessment. I don't know it off the top of my head. We believe the technical committee recommended an update in 2015 for the next assessment.

CHAIRMAN SIMPSON: So if we get a final word on this because we're sort of stepping outside the agenda right now, Pat, and I want to make sure we finish up on time because A.C.; you know, his views of my running a meeting are important to me and I don't want to disappoint him. Pete.

DISCUSSION OF NEW JERSEY MORATORIUM ON HORSESHOE CRABS

MR. PETER HIMCHAK: Mr. Augustine, that's a nice segue into the next agenda item. You will recall that the commission required a moratorium on horseshoe crabs in the states of New Jersey and Delaware in 2006 and 2007. Then an addendum allowed for a limited harvest in the 2008 season, and Stew Michels will correct me if I'm wrong on this.

Our Marine Fisheries Council in 2008 vetoed regulatory authority to maintain the moratorium. Subsequently, a bill was introduced into the legislature and enacted in May 2008 that established a moratorium on harvest and possession of horseshoe crabs in New Jersey with some rather severe penalties as a major deterrent. That is where we stand.

Now, a bill has been introduced in the state senate as of December 17, 2012, to repeal the current law that

enacted a moratorium. I understand a companion bill was also introduced into the Assembly. That is all I know on the particular bills that have been introduced. I don't know what the department's official position is on either bill.

There have been no committee meetings that I am aware of or any testimony on either bill. Now, when I was given the assignment to review the status of the New Jersey Moratorium on horseshoe crab harvest, that I see as a two-part assignment. Part A is the impact on New Jersey harvest is that we have none. Part B, the impact of the moratorium on harvest in other areas along the Atlantic Coast and now in Asia is up for discussion at this meeting. I guess that is something that you all have to answer. I can't comment further on the bills that have been introduced. I'm just giving you an update on where we stand.

CHAIRMAN SIMPSON: Are there any questions for Pete? Jim.

MR. GILMORE: Just some comments on I think where – well, it is an update more than anything else. I think I have brought up this issue before about – you know, and Pat already talked a little about the impact to our population and what is going on. We continue to have management headaches with this whole thing.

The cost of the crabs just keeps going higher and higher; and the more it goes up, the more poaching we're having and the more difficulty we're having managing the fishery. I think when that assessment comes out in 2015 I'm hoping to see that we didn't have a healthy population that is going downhill.

I am starting to worry that is the case just because of the amount of enforcement that we are doing, which is getting significant violators under this, and I think it is just the tip of the iceberg. This year, quite frankly, we lost it. We had put on the management approach we had been taking with trip limits; we had triggers built into it; and we were doing this all by a paper, and we lost it this year to the fact that we went over our voluntary reduced quota because it is just such a lucrative fishery now.

We really have the problem of the management under a moratorium which is in another state is having its impact and now you're throwing in the Asian crab import. We really need to start acting on both those issues. I have a motion when you're ready, Mr. Chairman. **I move that the state of New Jersey consider alternate management strategies to a**

harvest moratorium, including pending legislation, due to the negative impacts to regional horseshoe crab populations and concerns with potential ecological and human health issues with the importation of non-native species.

MS. KERNS: Jim, if you have that written down and you could just bring it around, that would be helpful.

CHAIRMAN SIMPSON: I need a second to that motion? Bill McElroy will second it. Tom.

MR. THOMAS FOTE: I don't know what the purpose of this motion is. The management of horseshoe crabs is decided by the legislature of New Jersey right now. The Division really doesn't have any say in it. The state legislature would have to do it. According to all our management plans if a state wants to be more conservative, that is up to them by implementing a moratorium.

I'm looking at the purpose of this and the state cannot do alternative management. The legislation there are specific rules of what needs to be done and what the stock assessment needs to be before they can open up the fisheries. I'm having a difficult time with this motion because it is directing us to do something we can't do.

CHAIRMAN SIMPSON: I think it is understood that the commission can't compel you to open a fishery that you don't want to open. I might suggest when it is done that we consider tweaking the wording of this so that it might be that the commission is pointing out some issues that relate to New Jersey's moratorium and its impact on other states and fisheries. Tom, go ahead.

MR. FOTE: The followup to that is what I'm hearing here is we have an increase in the conch fishery and this is going to take over whether New Jersey opens up its commercial fishery on horseshoe crabs; that even if we had a fishery on that, there would be other states that need more horseshoe crabs for their conch fishery.

That is really the problem here because of the growing conch fishery where there is a greater need for horseshoe crabs. If there wasn't a greater need for horseshoe crabs, then it wouldn't be there. That is I think your real problem here. When we put the moratorium in New Jersey, it didn't affect other states until we started increasing the pursuit of conch because of the lack of lobsters. That is your problem and that is what you need to deal with and figure out how you're going to deal with that.

MR. THOMAS O'CONNELL: Maybe I have a question for Marin. I know a lot of time and effort and monies were spent in developing the Adaptive Resource Model and it included the shore birders, the conch fishermen, the horseshoe crab fishermen, and we agreed last year to base our decisions upon the results of that model. I just wanted to confirm in my memory is that there is an allocation that the ARM Model identified could be harvested in New Jersey and it goes unused because of the current moratorium; is that correct?

MS. HAWK: Yes; that is correct; there is 160,000 horseshoe crabs that could be harvested.

CHAIRMAN SIMPSON: We will take a quick break on this motion for Toni to clarify the planning horizon for assessments.

MS. KERNS: I have to correct myself. The benchmark is scheduled for 2016 and an update is scheduled for 2014.

MR. G. RITCHIE WHITE: I have a problem with this motion in that if a state wants to be more conservative in its application, it certainly has the right to do it. I think for this commission to say that a state can't be more conservative, I think we're getting into dangerous ground here. I guess I'm not going to support it.

MR. TRAVELSTEAD: Well, just to that point, I don't think we're saying that. Certainly every state we know has the right to be more conservative than the management plans. I assume if the motion passes it would be sent to New Jersey in the form of a letter perhaps where we could explain in more detail some of these issues that Jim has brought up and that Tom has mentioned with the ARM and just simply point out for New Jersey's consideration all the reasons why we think a moratorium is not necessary in that state and to address some of these other problems.

I don't think we're saying, New Jersey, you can't be more conservative. We're just suggesting that there are now other problems along the Atlantic Coast as a result partially of your moratorium that could be solved and apparently there is legislation to address that. I think that's all we're saying here.

CHAIRMAN SIMPSON: So, are you suggesting the tone of a letter, if we decide to send one, would be more informational than persuasive, say?

MR. TRAVELSTEAD: Well, a little of both, but I think we need more information than simply just

saying, New Jersey, here is a motion we passed. If we could have more explanation that, for instance, horseshoe crabs have been in short supply in Virginia in recent years and that is causing problems with poaching and things of that nature; and if New Jersey's supply were to be made available, perhaps that could be alleviated; the point that Tom O'Connell made, that we can safely manage this resource under the ARM; we don't need a moratorium. I think we've done that now for a couple of years.

CHAIRMAN SIMPSON: Are there other comments on this motion? Jaime, go ahead.

DR. GEIGER: Mr. Chairman, I'm concerned that the optics of this may have some significant unintended consequences down the road. This board has done a great job putting the ARM Model in place, looking at the appropriate funding, looking at industry, making the hard decisions necessary to conserve horseshoe crab populations and have really done an outstanding job moving towards conservation of this stock.

I guess that anything deviating from that agreed-upon procedure, the process we put in place with a whole diverse suite of stakeholders may be problematic, especially at this time and place. I would just urge a little caution on this one. Again, I must admit I don't clearly understand the real intent of this. I certainly think that I agree that if a state wants to be more conservative, they should by all means have the opportunity to do so. I do think there may be some unintended consequences here that we may want to think about.

MR. ROBERT H. BOYLES, JR.: Mr. Chairman, I agree with Dr. Geiger. I have heard several people say around the table we're not really clear why we're doing it; and the more we talk the less clear it is becoming to me. If I could ask a question of New Jersey delegates; what is the commission's interest here; what are we trying to accomplish? I apologize for my density but I could use some clarity.

CHAIRMAN SIMPSON: Are you asking New Jersey or New York, the maker of the motion?

MR. BOYLES: I am asking anybody who will help clarify it.

CHAIRMAN SIMPSON: Let's give New Jersey the first crack at it. Pete, could you help us?

MR. HIMCHAK: Dr. Geiger spoke about unintended consequences, and I think the letter that

may come out of this board addresses unintended consequences of a moratorium that was established as a conservation measure. I think that is what the board is trying to comment on.

MR. ADAM NOWALSKY: Mr. Chairman, if I could just add to that since the legislator that I represent has an interest in this issue. It would be my opinion that the most that this board could do at this point would be to offer support for that legislation and offering the technical advice as to what would support it; and then that would be within the power of the legislator to pass on and up through the process.

No advice that this board gives to the state DEP is going to change anything at this point. It has got to be done through legislation; so if the motion is going to do something, that is what it would need to do; be in support of the legislation specifically and offering technical advice as well as the ramifications of why that legislation is supported by this board.

CHAIRMAN SIMPSON: Thanks, Adam; I think that helps a lot. Louis.

DR. DANIEL: Maybe the south is dense today, but is this recommendation appropriate based on stock status? I guess that is the question that I'm not clear on is can we harvest more horseshoe crabs? Is that cool? We're having the same problem in North Carolina and thanks to the great state of Georgia we do get some transfers. We're seeing the same thing down in North Carolina. Is it the technical committee's opinion that we can have an additional harvest of horseshoe crabs?

CHAIRMAN SIMPSON: Well, I think what I heard before was the ARM suggested there could be additional harvest; but central to this motion and whether it passes or not to me is to what extent should the commission be sending letters to states that are being more conservative than our plans require, encouraging them to be less conservative. It sounded like you were starting to move into an area of reallocation; if you're not going to catch it, let us. I think that would be a separate discussion.

DR. DANIEL: That is definitely not where I was headed.

CHAIRMAN SIMPSON: Okay, in that case I think we have had quite a bit of discussion on this. Tom, do you want the last word?

MR. FOTE: Yes; I think if Assemblyman Albano, who is the legislative appointee to the Atlantic States

Marine Fisheries Commission, wants that information, Adam can take that back, and we're willing to supply that information to the Atlantic States.

I don't think a letter is necessary because then you're basically imposing – I think the request should come from the assemblyman who says could you provide me information on why we're doing it and then we write a response to his letter. It takes the commission out of the purpose of writing a letter from the commission, and then it is more the commissioners are asking for a letter of why this should be done. I think it puts the commission in a better light.

CHAIRMAN SIMPSON: So you're suggesting an alternative to this motion could be there is one available and we could provide information to Adam and presumably write to the individual he represents –

MR. FOTE: Right.

CHAIRMAN SIMPSON: – and that might be maybe a more tactful way to send a message?

MR. FOTE: I think so.

MR. NOWALSKY: I don't know what additional information you're going to provide. I can tell you I have sat in on meetings with the legislator I represent discussing this matter, presenting the information that says the current best scientific information we have says a model says New Jersey can harvest X number of crabs and we're choosing not to. I don't know what additional information we're going to provide at that point, but again the only thing you're going to do is support the legislation. That's the only place you can support it.

CHAIRMAN SIMPSON: Okay, I think at this point we will take a moment to caucus and we will vote this up or down. There is one more agenda item that Doug had and we will finish up with horseshoe crabs. Let's take a minute to caucus.

(Whereupon, a caucus was held.)

CHAIRMAN SIMPSON: Okay, it looks like everyone is ready. All those in favor please raise your hand. I see five in favor. Opposed, same sign. I see six opposed. Any abstentions; 3 abstentions. Any null votes; none. **The motion fails five, six, three, zero.** Pat.

MR. AUGUSTINE: It is really amazing, Mr. Chairman, that we go through this effort of assessing what the issues are and the problems are; and then when the time for vote it, we sweep them under the table. The issue still remains; we have a bait shortage problem. We have horseshoe crabs within the fishery that two ARMs say they should be available.

Whether a state chooses to harvest them or not is not the issue. It is having a negative impact upon another state who is a member of this commission. It is a horseshoe crab stock not segregated into little pieces; it is a stock. It is either overfished or underfished. It seems as though the actions of certain member states, whether it is good, bad or indifferent, have an effect on other states. It is all economics. What do we need to do in New York?

Do we go ahead and say, okay, we'll shut down the horseshoe crab fishery? They're selling for three and four dollars apiece. From I understand in the report in Commercial Fishermen, they're being bought for as much as five dollars apiece. We just shoveled another problem under the table. I would go back and like to reiterate what Mr. Travelstead said.

This could be an information letter that would indicate what the negative effect is upon other states and what is happening to the stock. In all fairness up and down the coast, we're just going to see a continued decline in our horseshoe crab population while others have the protection of a moratorium based on shorebird information that has been proven to be what it is. The real question is have the shorebird populations come back in the last five years? The answer is no, so I think we need to do something, Mr. Chairman, and I will make a motion to adjourn.

OTHER BUSINESS

CHAIRMAN SIMPSON: Okay, we have one more agenda item. If I recall the New York comments earlier, you're voluntarily reducing your quota in half, so you do have a little bit of latitude to do something on your own. I had Doug for the additional agenda item on a report on your fishery-independent survey.

MR. DOUGLAS GROUT: In the interest of transparency, I am having to, because of budget cuts, eliminate our horseshoe crab fisheries-independent survey beginning this year. We're not required to do it under the plan, but we have been doing it for eleven or twelve years. You will see that in our compliance report that we're no longer conducting it.

CHAIRMAN SIMPSON: Okay, is there anything else for the board today? Jaime.

DR. GEIGER: Just one quick comment; I have mentioned this before, but fish health issues between inter- and intra-state transfer and importation are becoming more and more important. At some point in time I think this commission would be well served to put a subcommittee together of fish health specialists from the states and the federal agencies.

This is going to be an issue that is going to continue to come up every time whether you transfer materials between and among states or import materials in and out of states. I think this commission needs to take a little more attention to fish health transfer protocols at some point in time. I honestly think the commission is the best place to look at this issue from a regional fisheries management perspective. Thank you, Mr. Chairman.

CHAIRMAN SIMPSON: Bob, is that something that we could maybe take up at the Policy Board?

EXECUTIVE DIRECTOR BEAL: Yes.

CHAIRMAN SIMPSON: Okay, so can just plan to do that?

EXECUTIVE DIRECTOR BEAL: Yes, we will add to the Policy Board under other business today and see how far folks want to take it today, if maybe it is a larger discussion at a future meeting.

ADJOURNMENT

CHAIRMAN SIMPSON: If there is nothing else for the Horseshoe Crab Board, Pat, you can adjourn us.

MR. AUGUSTINE: Move to adjourn, Mr. Chairman.

(Whereupon, the meeting was adjourned at 12:00 o'clock noon, February 20, 2013.)

**2013 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR**

HORSESHOE CRAB
(Limulus polyphemus)

2012 Fishing Year



Horseshoe Crab Plan Review Team:
Sheila Eyler, U.S. Fish and Wildlife Service
Stewart Michels, Delaware Department of Natural Resources and Environmental Control
Marin Hawk, Chair, Atlantic States Marine Fisheries Commission

May 2013

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DRAFT

I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	December 1998
<u>Amendments</u>	None
<u>Addenda</u>	Addendum I (April 2000) Addendum II (May 2001) Addendum III (May 2004) Addendum IV (June 2006) Addendum V (September 2008) Addendum VI (August 2010) Addendum VII (February 2012)
<u>Management Unit:</u>	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
<u>States With Declared Interest:</u>	New Hampshire - Florida
<u>Active Boards/Committees:</u>	Horseshoe Crab Management Board, Advisory Panel, Technical Committee, and Plan Review Team; Shorebird Advisory Panel; Delaware Bay Ecosystem Technical Committee

a) Goals and Objectives

The Interstate Fishery Management Plan for Horseshoe Crabs (FMP) established the following goals and objectives.

2.0. Goals and Objectives

The goal of this Plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of the coastal ecosystem, while providing for continued use over time. Specifically, the goal includes management of horseshoe crab populations for continued use by:

- 1) current and future generations of the fishing and non-fishing public (including the biomedical industry, scientific and educational research);*
- 2) migrating shorebirds; and,*
- 3) other dependent fish and wildlife, including federally listed (threatened) sea turtles.*

To achieve this goal, the following objectives must be met:

- (a) prevent overfishing and establish a sustainable population;*
- (b) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit;*
- (c) establish the appropriate target mortality rates that prevent overfishing and maintain adequate spawning stocks to supply the needs of migratory shorebirds;*
- (d) coordinate and promote cooperative interstate research, monitoring, and law enforcement;*

- (e) identify and protect, to the extent practicable, critical habitats and environmental factors that limit long-term productivity of horseshoe crabs;*
- (f) adopt and promote standards of environmental quality necessary for the long-term maintenance and productivity of horseshoe crabs throughout their range; and,*
- (g) establish standards and procedures for implementing the Plan and criteria for determining compliance with Plan provisions.*

b) Fishery Management Plan Summary

The framework for managing horseshoe crabs along the Atlantic coast was approved in October 1998 with the adoption of the Interstate Fishery Management Plan for Horseshoe Crabs (FMP). The goal of this plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of coastal ecosystems, while providing for continued use over time.

In 2000, the Horseshoe Crab Management Board approved Addendum I to the FMP. Addendum I established a state-by-state cap on horseshoe crab bait landings at 25 percent below the reference period landings (RPL's), and *de minimis* criteria for those states with a limited horseshoe crab fishery. Those states with more restrictive harvest levels (Maryland and New Jersey) were encouraged to maintain those restrictions to provide further protection to the Delaware Bay horseshoe crab population, recognizing its importance to migratory shorebirds. Addendum I also recommended that the National Marine Fisheries Service (NMFS) prohibit the harvest of horseshoe crabs in federal waters (3-200 miles offshore) within a 30 nautical mile radius of the mouth of Delaware Bay, as well as prohibit the transfer of horseshoe crabs in federal waters. A horseshoe crab reserve was established on March 7, 2001 by NMFS in the area recommended by ASMFC.

In 2001, the Horseshoe Crab Management Board approved Addendum II to the FMP. The purpose of Addendum II was to provide for the voluntary transfer of harvest quotas between states to alleviate concerns over potential bait shortages on a biologically responsible basis. Voluntary quota transfers require Technical Committee review and Management Board approval.

In 2004, the Board approved Addendum III to the FMP. The addendum sought to further the conservation of horseshoe crab and migratory shorebird populations in and around the Delaware Bay. It reduced harvest quotas and implemented seasonal bait harvest closures in New Jersey, Delaware, and Maryland, and revised monitoring components for all jurisdictions.

Addendum IV was approved in 2006. It further limited bait harvest in New Jersey and Delaware to 100,000 crabs (male only) and required a delayed harvest in Maryland and Virginia. Addendum V, adopted in 2008, extends the provisions of Addendum IV through October 31, 2010. In early 2010, the Board initiated Draft Addendum VI to consider management options that will follow expiration of Addendum V. The Board voted in August 2010 to extend the Addendum V provisions, via Addendum VI, through April 30, 2013. The Board also chose to include language, allowing them to replace Addendum VI with another Addendum during that time, in anticipation of implementing the ARM framework.

The Board approved Addendum VII in February 2012. This addendum implemented the ARM Framework for use during the 2013 fishing season. The Framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimized harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS).

II. Status of the Stock and Assessment Advice

No definitions for overfishing or overfished status have been adopted by the Management Board. However, the majority of evidence in the most recent stock assessment, the 2009 Benchmark Horseshoe Crab Stock Assessment (available at <http://www.asmfc.org/horseshoeCrab.htm>), indicates abundance has increased in the Southeast and Delaware Bay Regions. In the Delaware Bay Region, increasing trends were most evident in juvenile indices, followed by indices of adult males. Over the time series of the survey, no trend in the abundance of female crabs is evident. In contrast, declining abundance was evident in the New York and New England regions. Declines in the New England Region had been evident in the 2004 assessment; however, declines in the New York Region noted in the 2009 stock assessment represent a downturn from the 2004 assessment. Decreased harvest quotas in Delaware Bay have potentially redirected harvest to nearby regions. Current harvest within the New England and New York Regions may not be sustainable. Continued precautionary management is therefore recommended coastwide to anticipate effects of redirecting harvest from Delaware Bay to outlying populations. A stock assessment update is currently being conducted (2013).

The Stock Assessment was externally peer reviewed by a panel of experts. The panel included their comments and recommendations in the 2009 Horseshoe Crab Terms of Reference and Advisory Report, available at <http://www.asmfc.org/horseshoeCrab.htm>.

The PRT and TC will continue to monitor any harvest increases in regions outside of Delaware Bay, which are coincident with harvest reductions within Delaware Bay. An overarching conclusion of recent coastwide assessments has been that management should be regional or embayment specific. Current harvest levels of the Delaware Bay population appear consistent with population growth. However, it is unclear whether harvest of crabs in the outlying regions is sustainable.

III. Status of the Fishery

Bait Fishery

For most states, the bait fishery is open year round. However, because of seasonal horseshoe crab movements (to the beaches in the spring; deeper waters and offshore in the winter), the fishery operates at different times. State waters of New Jersey and Delaware are closed to horseshoe crab harvest and landing from January 1st through June 7th each year, and other state horseshoe crab fisheries are regulated with various seasonal/area closures.

Reported coastwide bait landings in 2012 remained well below the coastwide quota (Table 1, Figure 1). Bait landings increased 11.9% from the previous year, due to increased landings in Massachusetts, New York, and Virginia. Except for Delaware, which will account for its 255 crab overage in 2013, there were no overages.

Table 1: Reported commercial horseshoe crab bait landings by jurisdiction.

Jurisdiction	RPL	Addendum IV Quota	State Quota 2012	2008	2009	2010	2011	2012
ME	13,500	13,500	-	0	0	0	0	-
NH	350	350	350	0	41	0	0	0
MA	440,503	330,377	165,000	103,963	98,332	54,782	67,087	106,821
RI	26,053	26,053/19,540	14,348	15,549	18,729	12,502	12,632	19,306
CT	64,919	48,689	48,689	32,565	27,065	30,036	24,466	18,958
NY	488,362	366,272	150,000	148,719	123,653	124,808	146,995	167,723
NJ	604,049	100,000	0	0	0	0	0	0
PA	-	0	-	-	-	-	-	-
DE	482,401	100,000	100,000	102,113	102,659	61,751	95,663	100,255
MD	613,225	170,653	170,653	163,495	165,434	165,344	167,053	169,087
PRFC	-	0	-	0	0	0	0	0
DC	-	0	-	0	0	0	0	0
VA	203,326	152,495	130,933	68,338	248,327	145,357	121,650	124,048
NC	24,036	24,036	24,036	26,191	33,025	9,938	27,076	22,902
SC	-	0	-	0	0	0	0	0
GA	29,312	29,312	29,312	0	0	0	0	0
FL	9,455	9,455	9,455	50	0	993	0	0
TOTAL	2,999,491	1,345,139		660,983	817,265	605,511	662,622	729,100

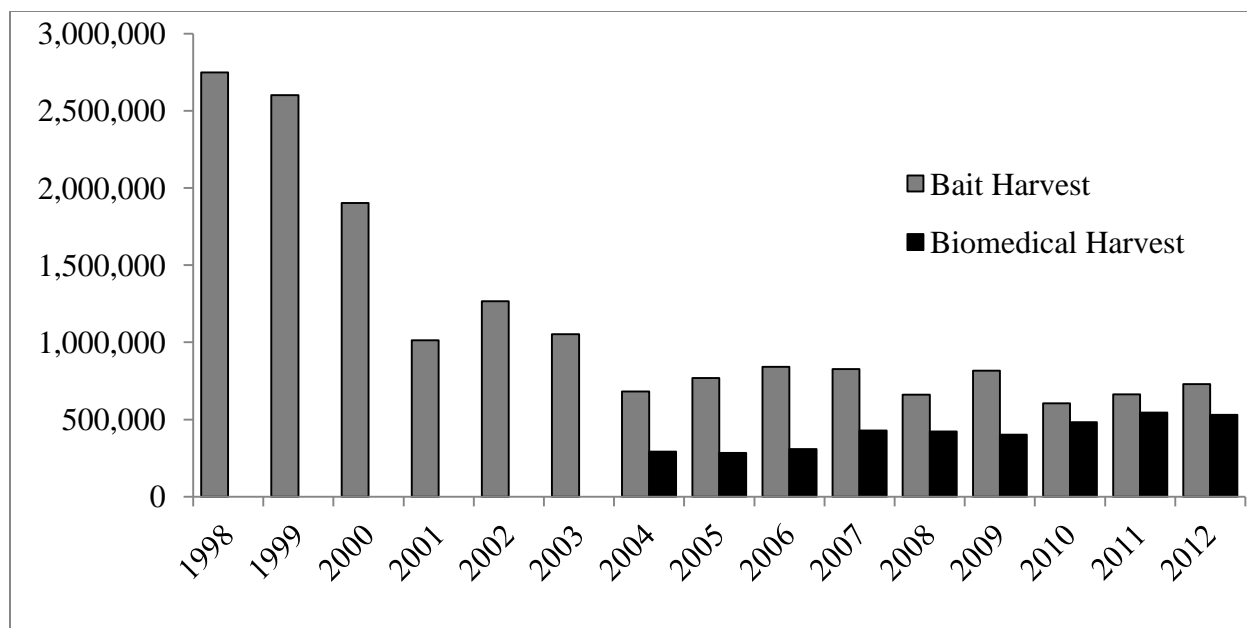


Figure 1: Number of horseshoe crabs harvested in the bait and biomedical industry, 1998-2012 (Biomedical harvest includes rejected crabs but not crabs counted as bait).

Reported coastwide landings since 1998 show more male than female horseshoe crabs were harvested annually. Several states presently have sex-specific restrictions in place to limit the harvest of females. The American eel pot fishery prefers egg-laden female horseshoe crabs as bait, while the whelk (conch) pot fishery is less dependent on females. Unclassified landings have generally accounted for around 10% of the reported landings since 2000, although 2008 had a slightly higher proportion of unclassified landings (14%). In 2012, unclassified landings accounted for approximately 11.7% of total bait landings.

The hand, trawl, and dredge fisheries typically account for over 85% of the reported commercial horseshoe crab bait landings, however, in 2012, these gears accounted for slightly less with 84.3% of commercial landings. Other methods that account for the remainder of the harvest include gill nets, pound nets, and traps.

The dominance of the hand fishery was reflected in the seasonal distribution of landings. Most of the monthly reported coastwide harvest since 1998 came during May and June as crabs come ashore to spawn and, thus, were readily available to the fishery. There is typically a secondary mode in monthly landings during the late summer or fall. This secondary peak coincides with an increased demand for horseshoe crabs in the conch pot fishery, and these crabs are generally harvested by dredge or trawl.

Whelk Fishery

The Atlantic States Marine Fisheries Commission does not manage whelk, but there is concern with the recent increase in catch and effort in the whelk fishery on the Atlantic Coast and the potential impacts of these trends on the horseshoe crab fishery. Coastwide landings of all four whelk species have increased 62% since 2005 (Figure 2). The status of each state's whelk fishery (as reported in their compliance reports) is below.

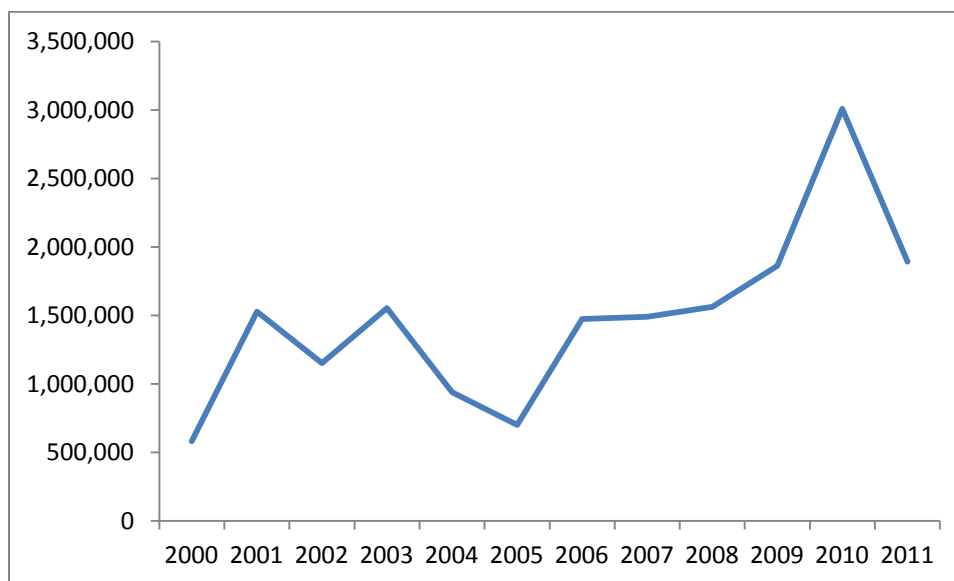


Figure 2: Coastwide landings of all four species of whelk in live pounds from 2000-2011. Source: ACCSP Data Warehouse, 2013.

Massachusetts

Since 2006, annual whelk landings in Massachusetts have increased dramatically from around 2 million pounds to over 2.5 million pounds in some years. Effort has also increased during that time period. This increase in effort is not due to latent permit holders becoming active, but rather already active permit holders fishing longer and harder. In 2011 only 55.5% of the potential pots permitted were actively fished. With the ex-vessel price of conch doubling in last 5 years, there is a substantial financial incentive for latent permit holders to start fishing.

At the current minimum shell width for channeled whelk of 2 ¾", none of the females in Massachusetts coastal waters are sexually mature. The life history characteristics of channeled whelk, specifically the slow maturation, slow growth rate and lack of a dispersal mode for larvae, make them especially prone to depletion. There is no evidence to suggest that the fate of channeled whelk in Massachusetts will be any different if the high harvest rates of sexually immature whelk continue. This is supported by the dramatically declining trend of channeled whelk relative abundance in the MADMF trawl survey as well as anecdotal reports from commercial fishermen who report that portion of Buzzards Bay and Nantucket Sound are already devoid of whelk.

Rhode Island

Rhode Island has monitored its whelk fishery since 2006. Landings have increased 150% from around 300,000 pounds in 2006 to almost 750,000 pounds in 2011.

New York

Permits that require NY fishermen to submit their landings via vessel trip reports have only been required to include all species they fish for since 2010. Therefore, prior to 2010 whelk landings were only reported voluntarily on vessel trip reports. Any trends in landings may be a result of

increased reporting. However, market prices for whelk are at all time highs and wholesaler ads have appeared in local papers promising top price for any sized whelk or horseshoe crab for the past 2 years. Some sea sampling partners who no longer consider lobster to be economically viable have converted their lobster traps to whelk pots. Vessel trip reports since 2010 indicate many other lobstermen have also switched to whelk.

Delaware

In 2007, Delaware's size limit for whelks increased from 5" to 5 ¼" by regulation. Each ensuing year, the size limit was increased ¼" until reaching 6" in 2010. This 6" size limit was based on a number of factors. Delaware Division of Fish and Wildlife (DDFW) research revealed biological traits that were highly sensitive to overfishing, namely slow growth, low reproductive potential, and extended age to maturity and recruitment into the fishery. By 2006, Delaware saw a "boom and bust" profile unfolding; a huge explosion in landings occurred in 2001, followed by falling fishery CPUE and landings every year after 2003. At the time, data suggested that only 12% of the spawning biomass was being conserved at the 5" size limit under the current high harvest levels. Lastly, the number of eligible dredge licenses was about to double in 2006, necessitating action by the DDFW to prevent overfishing.

Fishery effort has dropped considerably since that harvest peak in the early 2000s due to declining stock abundance. Lower prices for whelk and high fuel prices also contributed to this trend.

Biomedical Fishery

The horseshoe crab is an important resource for research and manufacture of materials used for human health. There are four companies along the Atlantic Coast that process horseshoe crab blood for use in manufacturing Limulus Amebocyte Lysate (LAL): Associates of Cape Cod, Massachusetts; Lonza (formerly Cambrex Bioscience) and Wako Chemicals, Virginia; and Charles River Endosafe, South Carolina. There is one company that bleeds horseshoe crabs but does not manufacture LAL: Limuli Labs, New Jersey. Addendum III requires states where horseshoe crabs are collected for biomedical use to collect and report harvest data and characterize mortality.

The Plan Review Team annually calculates total coastwide harvest and estimates mortality. It was reported that 611,827 crabs (including crabs harvested as bait) coastwide were brought to biomedical companies for bleeding in 2012 (see Table 2 below). This represents a 13% increase over the average of the previous five years but a slight decrease from 2011. Of this total, 81,030 crabs were reported as harvested for bait and counted against state quotas, representing a 3% decrease over the average of the previous five years (Table 2: row C). These crabs were not included in the mortality estimates (Rows D, F, and G) below. It was reported for 2012 that 530,797 crabs were harvested for biomedical purposes only. Males accounted for 58% of total biomedical harvest; females comprised 34%; 8% of the harvest was unknown. Crabs were rejected prior to bleeding due to mortality, injuries, slow movement, and size. Based on state reports for 2012, approximately 7.3% of crabs (or 44,832 crabs) harvested and brought to bleeding facilities were rejected. Approximately 1.3% of crabs, collected solely for biomedical purposes, suffered mortality from harvest up to the point of release.

The Technical Committee has reviewed, multiple times, the available literature for estimating crab mortality during and after the bleeding process. It had previously concluded that using an estimate of 15% mortality is reasonable; most recently, in June 2011, the TC recommended using a range of values (5-30%) for estimating mortality, in order to include the known variances in conditions and situations that can occur over the geographical and temporal range of collecting and bleeding the horseshoe crabs. Total estimated mortality of biomedical crabs for 2012 was 79,786 crabs (at 15% post-release estimated mortality), with a range of 31,189 to 152,681 crabs (5-30% post-release estimated mortality).

Table 2: Numbers of horseshoe crabs harvested, bled and estimated mortality for the biomedical industry.

		2007	2008	2009	2010	2011	2012
A	Number of crabs brought to biomedical facilities (bait and biomedical crabs)	500,251	511,478	512,552	548,751	628,476	611,827
B	Number of biomedical-only crabs harvested (not counted against state bait quotas)	428,872	423,614	402,202	482,704	545,164	530,797
C	Number of bait crabs bled	71,379	87,864	110,350	66,047	83,312	81,030
D	Reported mortality of biomedical-only from harvest to release	3,599	2,973	6,298	9,665	6,917	6,891
E	Number of biomedical-only crabs bled	398,844	402,080	362,291	438,417	492,734	485,965
F	Estimated mortality of bled biomedical-only crabs post-release (15% est. mortality)	59,833	60,312	54,344	65,763	73,910	72,895
G	Total estimated mortality on biomedical crabs not counted against state bait quotas (15% est. mortality)	63,432	63,285	60,642	75,428	80,827	79,786

The 1998 FMP establishes a mortality threshold of 57,500 crabs, where if exceeded the Board is required to consider action. Based on an estimated total mortality of 79,786 crabs for 2012, this threshold has been exceeded. The PRT notes that estimated mortality from biomedical use is approximately 10.1% of the total horseshoe crab mortality (bait and biomedical) coastwide for 2012, down from 11.1% in 2011. The reported biomedical use of horseshoe crabs has increased 85% since the biomedical landings have been tracked (2004). Given the increased demand for LAL product and the continued increase in biomedical harvest and mortality, the PRT recommends the Board continue efforts to reduce mortality in the biomedical industry through development and implementation of Best Management Practices and other state efforts.

IV. Status of Research and Monitoring

The Horseshoe Crab FMP set forth an ambitious research and monitoring strategy in 1999 and again in 2004 to facilitate future management decisions. Despite limited time and funding there are many accomplishments since 1999. These accomplishments were largely made possible by forming partnerships between state, federal and private organizations, and the support of over a hundred public volunteers.

Addendum III Monitoring Program

Addendum III requires affected states to carry out three monitoring components. All states who do not qualify for *de minimis* status report monthly harvest numbers and subsample of portion of the catch for gender and harvest method. In addition, those states with annual landings above 5% of the coastwide harvest report all landings by sex and harvest method. Although states with annual landings between 1 and 5% of annual coastwide harvest are not required to report landings by gender, the PRT recommends all states require gender reporting for horseshoe crab harvest.

States with biomedical fisheries landings are required to monitor and report harvest numbers and mortality associated with the transportation and bleeding of the crabs. States must identify spawning and nursery habitat along their coasts. All states have completed this requirement and a few continue active monitoring programs.

Virginia Tech Research Projects

The VT benthic survey was conducted for its tenth year in a row for the Delaware Bay region. The survey was unable to sample in the NY Apex in 2011 and 2012, although the area was covered in 2010.

Major findings through the 2012 survey include: 1) relative abundance of immature horseshoe crabs in the coastal Delaware Bay area did not change significantly from 2011, although 2010-2011 relative abundance was significantly lower than in 2009; 2) this difference is apparently due to large numbers of small immature crabs in the peripheral region associated with later sampling in 2009; 3) relative abundances of mature females and males in the coastal Delaware Bay area have not changed significantly since 2002; and 4) relative abundances of horseshoe crabs in the lower Delaware Bay and coastal Delaware Bay area did not significantly differ.

The total annual cost of the survey is \$200,000 and full funding was not achieved for 2012. Members of the horseshoe crab and whelk industry from the Chesapeake Bay Packing, LLC and Bernie's Conchs, LLC, collectively pledged \$10,000 to support the Horseshoe Crab Trawl Survey. An additional \$500 was contributed by Parenteral Drug Association, a pharma/biopharmaceutical scientific organization. Lonza Walkersville, Inc., a biomedical company, donated \$25,000 to support the Horseshoe Crab Trawl Survey. Funding for the survey in 2013 has still not been found, and a long-term funding solution is not solidified. The PRT stresses the importance of the survey, as it is expected to provide the most reliable estimates of horseshoe crab population abundance. Even more importantly, the PRT stresses the need for the abundance data as inputs into the newly-approved ARM Framework for management under Addendum VII.

Spawning Surveys

The redesigned spawning survey was completed for the fourteenth year in 2012; however, results for 2012 are not yet available. For 2011, no trend was detected in the baywide index of female spawning activity for the time series (1999 – 2011). There was a significant increase in the index of male spawning activity over the time series. Most spawning activity was observed in May in 2011. Sex ratios observed in the surveys have increasingly favored males, which is consistent with the sex-specific trends in spawning activity. The range of observed spawning sex ratio in 2011 was 3.1:1 to 5.2:1.

Egg Studies

Delaware includes a report on their egg sampling efforts in their annual compliance report. Results from Delaware indicated an average surface egg density of 35,008 eggs/m² for 2012, a significant decrease compared to 2010 and 2011 but similar to other years since 2005.

Though the survey has been conducted on a baywide basis since 2005, the results have not been reported regularly. Survey researchers from both sides of the Delaware Bay have met to discuss reporting details and responsibilities. Concerns were raised over the large discrepancies in mean egg abundance found on Delaware beaches versus New Jersey beaches. Although the large differences in mean egg abundance between the two sides may be real, researchers conducted side-by-side sampling in 2008 to ensure these differences were not the result of sampling and/or counting procedures. The draft report of this study, summarizing data from 2005-09, concluded that the side-by-side differences, while not statistically significant, did raise concerns about the consistently higher counts by Delaware samplers (35%) than by New Jersey samplers. Delaware has requested an evaluation of the horseshoe crab egg survey monitoring requirement to examine the need, utility, and requirement for continuance of the survey given survey costs and applicability of the survey as a model input.

Tagging Studies

The USFWS continues to maintain a toll-free telephone number as well as a website for reporting horseshoe crab tag returns and assists interested parties in obtaining tags. Tagging work continues to be conducted by biomedical companies and other parties involved in outreach and spawning surveys. As noted in past PRT and other reports, the tagging efforts would benefit by establishing clearly defined objectives and insuring better coordination among researchers. To increase quality of tagging data being collected and supplied to the USFWS in Annapolis, the Horseshoe Crab Technical Committee developed guidelines for the program specifying desired distribution of tags along the coast, data requirements for tagging and resighting, effort requirements for resighting, as well as required information for applying and receiving tags. An application based on these requirements was completed in 2012. The program guidelines will give the USFWS and the managers a better understanding of taggers' objectives and data that are more applicable to existing management questions. The PRT recommends all tagging programs, approved by the state, coordinate with the USFWS tagging program, in order to ensure a consistent coastwide program for providing management input.

Since 1999, over 226,000 crabs have been tagged and released through the USFWS tagging program along the Atlantic coast. Over 11% of tagged crabs have been recaptured and reported.

Crabs have been tagged and released from every state on the Atlantic Coast from Georgia to Massachusetts. In the early years of the program, tagging was centered around Delaware Bay; however, in recent years, more tagging has occurred in the Long Island Sound and the New Hampshire Coast as well as tagging programs in South Carolina and Georgia. The Technical Committee noted that recapture rates inside and outside Delaware Bay are likely not directly comparable due to increased re-sighting effort and spawning concentration in Delaware Bay compared to other areas along the coast. There may be data in the USFWS tagging database to determine differences in effort and recapture rates.

Adaptive Resource Management Modeling

The ARM Work Group is a subset of the ASMFC Horseshoe Crab (HSC) and the former USFWS Shorebird (SHBD) Technical Committees. The ARM Work Group is chaired by David Smith (USGS-Leetown), with lead modeler Conor McGowan (Auburn University).

The Work Group developed models to estimate horseshoe crab harvest levels that will support the energetic needs of the red knot population passing through Delaware Bay. A peer review of the ARM framework/model in 2009 concluded it is a useful tool for management and recommended improvements as it continues refinement. The Management Board sees value in this tool and adopted its use in management through Addendum VII. Although data will be available for implementation of the ARM harvest output for the 2013 fishing season, continued implementation of the ARM Framework is uncertain due to funding challenges for the Virginia Tech Trawl Survey, the source of horseshoe crab abundance data for the model.

V. Status of Management Measures and Issues

ASMFC

Initial state-by-state harvest quotas were established through Addendum I. Addendum III outlined the monitoring requirements and recommendations for the states. Addendum IV set harvest closures and quotas, and other restrictions for New Jersey, Delaware, Maryland, and Virginia, which were continued in Addendums V and VI.

The Board approved Addendum VII, implementation of the ARM Framework, in February 2012 for implementation in 2013. Addendum VII includes an allocation mechanism to divide the Delaware Bay optimized harvest output from the ARM Framework among the four Delaware Bay states (New Jersey, Delaware, Maryland, and Virginia east of the COLREGS). Season closures and restrictions, present within Addendum VI, remain in effect as part of Addendum VII.

Included in this report are state-by-state charts outlining compliance and monitoring measures. The PRT recommends all jurisdictions were in compliance with the FMP and subsequent Addenda in 2012.

NEW HAMPSHIRE		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis</i> status	<i>De minimis</i> status granted.	<i>De minimis</i> requested and meets criteria.
- Ability to close fishery if <i>de minimis</i> threshold is reached	Yes	Yes
- Daily possession limit <25 for <i>de minimis</i> state	Yes – 10/day	Yes – 10/day
- HSC landing permit	Permit required, but not limited to historical participation.	Permit required, but not limited to historical participation.
Bait Harvest Restrictions and Landings		
- ASMFC Quota	350	350
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	Not Required	Not Required
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Yes, by state personnel, Great Bay Watch and volunteers	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Not Applicable	Not Applicable
Monitoring Component B₃ Implement spawning survey	As part of Component A ₃ , NH conducts a limited spawning survey	Yes
Monitoring Component B₄ Tagging program	No	No

Note: In New Hampshire, six permits were open for horseshoe crab harvesting in 2012. NH has continued its spawning and nursery survey since 2001.

MASSACHUSETTS		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	330,377 (165,000)	330,377 (165,000)
- Other Restrictions	Bait: 400 crab daily limit through Jan 1- June 30; 600 crab daily limit after June 30- Dec 31; limited entry; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area	Bait: 400 crab daily limit through Jan 1- June 30; 600 crab daily limit after June 30- Dec 31; limited entry; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area
- Landings	106,821	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes, plus weekly dealer reporting through SAFIS	Yes, plus weekly dealer reporting through SAFIS
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	Supports it, but lacks resources to expand state trawl survey	State trawl survey
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes, began in 2008 and adapted from DE Bay survey	Yes
Monitoring Component B₄ Tagging program	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay

RHODE ISLAND		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	26,053 (12,345)	26,053 (12,545)
- Other Restrictions	None	None
- Landings	19,306	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes, though exempt, with weekly call in and monthly on paper.	Yes, though exempt, with weekly call in and monthly on paper.
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes, details within Massachusetts' reports	Captured in Massachusetts' reports
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes, since 2000 (methods unspecified)	Yes
Monitoring Component B₄ Tagging program	RI DEM 2001-2004 only Outside, independent groups currently	No

Note: Rhode Island did not characterize their commercial catch for 2012. The PRT requests that this requirement is completed for the 2013 fishing year and included in the Rhode Island compliance report.

CONNECTICUT		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota	48,689	48,689
- Other Restrictions	Limited entry program, possession limits, and seasonal and areas closures	Limited entry program, possession limits, and seasonal and area closures
- Landings	18,958	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No – exempt under Addendum III because landings are < 5% of coastwide total	No – exempt under Addendum III because landings are < 5% of coastwide total
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes, since 1999 (methods differ from DE Bay survey)	Yes
Monitoring Component B₄ Tagging program	Yes, in collaboration with local universities	Yes

NEW YORK		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	366,272 (150,000)	366,272 (150,000)
- Other Restrictions	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures
- Landings	167,723	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes (weekly April – July)	Yes
- Characterize commercial bait fishery	No	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	No	Dependent on survey funding
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes – adapted from DE Bay survey	Yes
Monitoring Component B₄ Tagging program	Yes, since 2007	Yes

Note: New York exceeded the state's horseshoe crab quota of 150,000, but was well within the Commission's quota. There is a lag of two weeks between when the harvest occurs and when the data is received. New York is actively promoting ACCSP electronic reporting to its fishermen.

NEW JERSEY		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Qualified for <i>de minimis</i>	Qualifies but not requesting <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary state quota)	100,000 [male only] (0)	162,136 [male only] (0)
- Other Restrictions	Bait harvest moratorium	Bait harvest moratorium
- Landings	0	--
Monitoring Component A₁		
- Mandatory monthly reporting	N/A	N/A
- Characterize commercial bait fishery	N/A	N/A
Monitoring Component A₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	Yes	Yes
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes – since 1999	Yes
Monitoring Component B₄ Tagging program	No	No
Monitoring Component B₅ Egg abundance survey	Yes	Yes
Monitoring Component B₆ Shorebird monitoring program	Yes	Yes

Note: A bill was introduced in 2013 (A2653 or S2376) to lift the moratorium on horseshoe crab harvest.

DELAWARE		
	2012 Compliance Report	2012 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	100,000 [male only]	162,136 [male only] (161,881)
- Other Restrictions	Closed season (January 1 – June 7)	Closed season (January 1 – June 7)
- Landings	100,255 males	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes (weekly reports & monthly logbooks)	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Yes – updates once every 5 years or as needed	Yes – updates once every 5 years or as needed
Monitoring Component B₁ Coastwide benthic trawl survey	Yes	Yes
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes	Yes
Monitoring Component B₄ Tagging program	No state program but has assisted in the past with various Delaware Bay horseshoe crab tagging initiatives	No
Monitoring Component B₅ Egg abundance survey	Yes	Yes
Monitoring Component B₆ Shorebird monitoring program	Yes	Yes

Note: Delaware requested a review of the utility of the Delaware Bay Egg Survey (egg abundance survey). The review is ongoing and should be completed by the Summer 2013 Board meeting.

MARYLAND		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota	170,653	255,980 (male only)
- Other Restrictions	Delayed harvest and closed season/area combinations	Delayed harvest and closed season/area combinations
- Landings	169,087	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes (weekly reports for permit holders; monthly for non-permit holders)	Yes (weekly reports for permit holders; monthly for non-permit holders)
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	Yes	Yes
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	Yes (Counts)	Yes
Monitoring Component B₄ Tagging program	Yes – through biomedical harvest	Yes – through biomedical harvest

POTOMAC RIVER FISHERIES COMMISSION		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis</i> status	<i>De minimis</i> status granted.	<i>De minimis</i> requested and meets criteria.
- Ability to close fishery if <i>de minimis</i> threshold is reached	No horseshoe crab fishery	No horseshoe crab fishery
- Daily possession limit <25 for <i>de minimis</i> state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	0
Monitoring Component A₁		
- Mandatory monthly reporting	Yes - weekly	Yes - weekly
- Characterize commercial bait fishery	Not Applicable	Not Applicable
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Not Applicable	Not Applicable
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Not Applicable	Not Applicable
Monitoring Component B₃ Implement spawning survey	Not Applicable	Not Applicable
Monitoring Component B₄ Tagging program	Not Applicable	Not Applicable

DISTRICT OF COLUMBIA – NO REPORT SUBMITTED		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>		
- Ability to close fishery if <i>de minimis</i> threshold is reached		
- Daily possession limit <25 for <i>de minimis</i> state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions		
- Landings		
Monitoring Component A₁		
- Mandatory monthly reporting		
- Characterize commercial bait fishery		
Monitoring Component A₂		
- Biomedical harvest reporting		
- Required information for biomedical use of crabs		
Monitoring Component A₃ Identify spawning and nursery habitat		
Monitoring Component B₁ Coastwide benthic trawl survey		
Monitoring Component B₂ Continue existing benthic sampling programs		
Monitoring Component B₃ Implement spawning survey		
Monitoring Component B₄ Tagging program		

Note: DC was added to the HSC Management Board to close a landings loophole that existed in the late 1990s. Since then DC has adopted regulations that prohibit landings of horseshoe crabs, thereby closing the loophole. In order to free DC of the requirement to submit compliance reports, the PRT recommends DC request removal from the HSC Board. Pennsylvania was in this same situation and was removed from the Board in 2006.

VIRGINIA		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	152,495 (130,933)	172,828 (81,331 male-only east of COLREGS line)
- Other Restrictions	Closed season (January 1 – June 7) for federal waters. Harvest east of COLREGS line must comprise 2 to 1 male to female ratio and make up no more than 40% of total landings.	Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only.
- Landings	124,048	--
Monitoring Component A ₁		
- Mandatory monthly reporting	Yes – daily call in required for HCEL permit holders	Yes – daily call in required for HCEL permit holders
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A ₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A₃ Identify spawning and nursery habitat	Yes – completed	No
Monitoring Component B₁ Coastwide benthic trawl survey	Yes	Yes
Monitoring Component B₂ Continue existing benthic sampling programs	No	No
Monitoring Component B₃ Implement spawning survey	No	No
Monitoring Component B₄ Tagging program	No	No

Note: Virginia's delayed receipt of the NMFS landings from federal waters continues to be a great concern of the PRT. On-going adjustments to prior VA landings continue to confound the PRT's ability to adequately judge bait quota compliance. Landings reported in VA's most recent compliance report indicate that unaccounted late landings ultimately resulted in a 95,832 crab overage in 2009. Carrying this overage forward and accounting for the latest adjustments to the VA reported landings (contained in the 2012 VA compliance report), the PRT recommends that VA's 2013 bait quota be set at no more than 143,426. However, this fails to account for any 2012 federal waters landings data gathered by NMFS. In addition, Virginia's landings east of the COLREGS line are over by 81,968 crabs, which exceeds the east of COLREGS quota for 2013 by 637 crabs.

NORTH CAROLINA		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	Did not qualify for <i>de minimis</i>	Does not qualify for <i>de minimis</i>
Bait Harvest Restrictions and Landings		
- ASMFC Quota	24,036	24,036
- Other Restrictions	Trip limit of 0 crabs until April 1, 2012. Trip limit of 50 crabs after April 1, 2012 Proclamation authority to adjust trip limits, seasons, etc.	Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc.
- Landings	22,902	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes – trip level reporting each month	Yes – trip level reporting each month
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Little information available Survey discontinued after 2002 and 2003 due to low levels of crabs recorded	Not specified
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	No	No
Monitoring Component B₄ Tagging program	No	No

SOUTH CAROLINA		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis</i> status	<i>De minimis</i> status granted.	<i>De minimis</i> requested and meets criteria.
- Ability to close fishery if <i>de minimis</i> threshold is reached	No horseshoe crab bait fishery	No horseshoe crab bait fishery
- Daily possession limit <25 for <i>de minimis</i> state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes (Biomedical)	Yes (Biomedical)
- Characterize commercial bait fishery	Yes (Biomedical)	Yes (Biomedical)
Monitoring Component A₂		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A₃ Identify spawning and nursery habitat	Completed	No
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	No	No
Monitoring Component B₄ Tagging program	No	No

GEORGIA		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis status</i>	<i>De minimis</i> status granted.	<i>De minimis</i> requested and meets criteria.
- Ability to close fishery if <i>de minimis</i> threshold is reached	Yes	Yes
- Daily possession limit <25 for <i>de minimis</i> state	25/person; 75/vessel with 3 licensees	25/person; 75/vessel with 3 licensees
- HSC landing permit	Must have commercial shrimp, crab, or whelk license	Must have commercial shrimp, crab, or whelk license
Bait Harvest Restrictions and Landings		
- ASMFC Quota	29,312	29,312
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No bait landings	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Completed	Not Applicable
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B₃ Implement spawning survey	No	No
Monitoring Component B₄ Tagging program	No	No

FLORIDA		
	2012 Compliance Report	2013 Management Proposal
<i>De minimis</i> status	<i>De minimis</i> status granted.	<i>De minimis</i> requested and meets criteria.
- Ability to close fishery if <i>de minimis</i> threshold is reached	Yes	Yes
- Daily possession limit <25 for <i>de minimis</i> state	25/person w/ valid saltwater products license; 100/person with marine life endorsement	25/person w/ valid saltwater products license; 100/person with marine life endorsement
- HSC landing permit	See above	See above
Bait Harvest Restrictions and Landings		
- ASMFC Quota	9,455	9,455
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A₁		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No	Yes
Monitoring Component A₂		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A₃ Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B₁ Coastwide benthic trawl survey	No	No
Monitoring Component B₂ Continue existing benthic sampling programs	No	No
Monitoring Component B₃ Implement spawning survey	No	Yes
Monitoring Component B₄ Tagging program	No	Yes

Note: Florida reported an additional 1,208 crabs harvested along the east coast for ‘marine life’ use in 2012.

Asian Horseshoe Crabs

Bait shortages and the resulting high prices for Atlantic horseshoe crabs have resulted in the importation of Asian horseshoe crabs (*Tachypleus gigas*, *Carcinoscorpius rotundicata* and/or *Tachypleus tridentatus*). Concerns regarding the introduction of non-native parasites and pathogens, as well as concern regarding the potential human health risks associated with the neurotoxin tetrodotoxin (known to be present in *C. rotundicauda*), prompted the Commission to recommend that member states take measures to ban the importation and use of Asian horseshoe crabs (Resolution 13-01).

Alternative Baits

The University of Delaware concluded their alternative bait research, culminating in a Sea Grant publication detailing their findings. The publication will be available online at www.deseagrant.org in late May. The specific chemical cue that makes horseshoe crabs particularly appealing to American eel and whelk could not be isolated from horseshoe crab tissue. However, the research developed an alginate matrix that can be used to reduce the amount of horseshoe crab tissue necessary to effectively catch eel and whelk to as little as 1/24th of a adult horseshoe crab when used in combination with Asian shore crabs (*Hemigrapsus sanguineus*) and bait savings devices. The publication provides an easy-to-follow recipe for producing the bait matrix with off the shelf (FDA approved) ingredients and allows users to modify the bait to meet their specific needs or take advantage of other locally available bait resources.

Law Enforcement Committee

Most states reported no issues with horseshoe crab law enforcement during 2012. Virginia has had issues with harvesting over the daily limit due to the time that the limit is reset (midnight). Since horseshoe crab harvest often happens at night, fishermen harvest the limit before midnight, and then are able to harvest the limit again after midnight. This has created problems for law enforcement because an official would need to see this occur two nights in a row before they could take action.

Shorebird

The US Fish and Wildlife Service formed the Shorebird Technical Committee in 2001 with the purpose of providing technical advice to the Board on how horseshoe crab management action might affect shorebird populations. This Committee was comprised of shorebird experts and a representative of the Horseshoe Crab Technical Committee and Stock Assessment Subcommittee. The group produced a peer-reviewed report that synthesized current literature and data on the status of shorebirds in the Delaware Bay and to determine their energetic dependency on horseshoe crab eggs. The report's findings led to the initiation of Addendum III. In 2010 the Board decided to form the Shorebird Advisory Panel, as well as the Delaware Bay Ecosystem Technical Committee, to split the roles of value-based and technical input.

The USFWS received petitions in 2004 and 2005 to emergency list the red knot under the Endangered Species Act. In fall 2005, it determined that emergency listing was not warranted at the time. As part of a court settlement, the USFWS agreed to initiate proposed listings of over 200 species, including the red knot. Consideration for listing the red knot will occur throughout 2013, with a listing decision expected in the fall.

The state of New Jersey upgraded the state listing of the red knot from threatened to endangered in 2012 based on recent analysis using the Delphi Technique, a method for expert opinion to consider species population and trends, productivity, survival and mortality factors, habitat requirements, and threats to populations and habitats, and come to consensus.

VI. Research Needs/PRT Recommendations

De Minimis

States may apply for *de minimis* status if, for the last two years, their combined average horseshoe crab bait landings (by numbers) constitute less than one percent of coastwide horseshoe crab bait landings for the same two-year period. States may petition the Board at any time for *de minimis* status, if their fishery falls below the threshold level. Once *de minimis* status is granted, designated States must submit annual reports to the Board justifying the continuance of *de minimis* status.

States that qualify for *de minimis* status are not required to implement any horseshoe crab harvest restriction measures, but are required to implement components A, B, E and F of the monitoring program (Section 3.5 of the FMP). Since *de minimis* states are exempt from a harvest cap, there is potential for horseshoe crab landings to shift to *de minimis* states and become substantial, before adequate action can be taken. To control shifts in horseshoe crab landings, *de minimis* states are encouraged to implement one of the following management measures:

1. Close their respective horseshoe crab bait fishery when landings exceed the *de minimis* threshold;
2. Establish a state horseshoe crab landing permit, making it only available to individuals with a history of landing horseshoe crabs in that state; or
3. Establish a maximum daily harvest limit of up to 25 horseshoe crabs per person per day. States which implement this measure can be relieved of mandatory monthly reporting, but must report all horseshoe crabs harvests on an annual basis.

New Hampshire, Potomac River Fisheries Commission, South Carolina, Georgia, and Florida were granted *de minimis* status for the 2012 fishing year. Pennsylvania was removed from the Horseshoe Crab Management Board in 2007, and Maine was removed from the Board in 2011. New Hampshire, South Carolina, Georgia, Florida and the Potomac River Fisheries Commission are requesting *de minimis* status for the 2013 fishing season and meet the FMP requirements for achieving this status (Table 1). The PRT recommends granting all of these states *de minimis* status.

Funding for Research and Monitoring Activities

The PRT strongly recommends the continuation of the VT benthic trawl survey in order to provide the critical information for stock assessments and the ARM model. The survey is a necessity to continue ARM implementation. This effort provides a statistically reliable estimate of horseshoe crab relative abundance at a relatively low cost. Congressional funding seems unlikely, and the PRT recommends seeking funding from multiple avenues, including state and federal governments, as well as industry stakeholders and non-governmental organizations.

Tagging

All entities that currently have tagging programs are encouraged to continue. The PRT recommends using USFWS tags and reporting all data to the repository in the USFWS office in Annapolis.

Biomedical Industry

According to the FMP, the Board must consider potential restrictions on biomedical harvest because estimated mortality exceeded 57,500 horseshoe crabs in 2012. The PRT recommends that the development and implementation of best management practices for biomedical harvest becomes a high priority item especially given the increasing trend in biomedical harvest and mortality.

DRAFT

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