PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

STRIPED BASS MANAGEMENT BOARD

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Rep. Dennis Abbott, NH (LA)
Paul Diodati, MA (AA), Chair
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Wilson Laney, USFWS
Steve Meyers, NOAA

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

Ex-Officio Members

Doug Grout, Technical Committee Chair

Staff

Vince O'Shea
Robert Beal
Nichola Meserve
Erika Robbins

Guests

Harry Mears, NMFS
Bruno Vasta, Solomans' Charter Captains Assn.
Jeff Marston, NH F&G
David Pecci, Striped Bass AP
Chip Gray, Striped Bass AP
Andrea Hoover, MD DNR
Bob Fjelstad, Striped Bass AP
Al Ristori, Striped Bass AP
C. Louis Bassano, Striped Bass AP
Arnold Leo, East Hampton Town Baymen's Assn.
Joe Fletcher, Fletcher's Boathouse, Striped Bass AP
Mike Murphy, FL FWCC
Leland Heath, Striped Bass AP
Edwin Cook, Striped Bass AP
Bill Donovan, Striped Bass AP
John McMurray, Striped Bass AP
Kyle Schick, PRFC, Striped Bass AP
Brian Hooker, NMFS
Kelly Place, Striped Bass AP
John German, LISLA
Bob Ross, NMFS
Matt Cieri, ME DMR
Chuck Casella, Striped Bass AP
Riley Williams, Striped Bass AP
Ed O'Brian, MDBA, Striped Bass AP
Beth Versak, MD DNR

CALL TO ORDER

CHAIRMAN PAUL DIODATI: Okay, I want to welcome you. This is the Atlantic Striped Bass Management Board meeting. I'm Paul Diodati, and I'm not your chairman. Mark Gibson is our chairman, and this would have been his first meeting, but Mark is not able to attend the meeting week. I'm sitting in for Mark.

APPROVAL OF AGENDA

CHAIRMAN PAUL DIODATI: We will have an election as part of this agenda for a vice-chair. I think you can see that we're scheduled to go right up until 1:15. We're going to work through lunch to get most of the Board's business done. Are there any changes by Board members to the agenda; any recommended change? If not, **by consent we will approve this agenda.**

APPROVAL OF PROCEEDINGS

CHAIRMAN PAUL DIODATI: Our proceedings from the October 31st meeting; any comments, changes, edits to the proceedings of the last meeting? **Seeing none, we'll approve the proceedings from October 31st.**

PUBLIC COMMENT

We always have opportunity for public comment; and as the meeting goes on, we'll allow public comment as it is appropriate. If anyone from the public would like to address the management board before we begin, they can do that now.

ELECTION OF VICE-CHAIR

Seeing no one, election of the vice-chair. Any nominations? I see Ritchie White has his hand up.

MR. G. RITCHIE WHITE: Thank you, Mr. Chairman. **I would like to nominate Jack Travelstead.**

CHAIRMAN DIODATI: Is there a second? Bill Adler. Any other nominations for vice-chair? Mr. Augustine.

MR. PATRICK AUGUSTINE: Motion to close the nominations and cast one vote.

CHAIRMAN DIODATI: So move. All in favor of Jack Travelstead for vice-chair of the Striped Bass Management Board, say aye; all opposed. Congratulations, Jack.

2007 STOCK ASSESSMENT

Next is the 2007 stock assessment. As I said earlier, most of this Board meeting will be committed to dealing with the updates on the stock assessment. We have a number of people here that will be giving presentations, so I'm going to turn this over to Nichola to begin or Doug. Okay, Doug.

MR. DOUGLAS GROUT: Thank you, Mr. Chair. I have here – from the technical committee we have a couple of people that are going to be making presentations. I'm going to start off with an introduction, an overview of it, and Gary Nelson will give a presentation dealing primarily with the statistical catch at age and a few exploratory models that we deal with.

Then Beth Versak is going to deal with the tagging committee aspects of the assessment. And, finally, I'll deal with the reference points and where we are in relationship to the reference points and give you an overview of the stock status at that point. So without further ado, we're going to jump right into this. There are some strengths to this assessment.

One, we have many resources put into the monitoring and management. We have eight state/federal tagging programs throughout the species range. The Angler Tagging Program from the American Littoral Society is also a source of our information. We have eleven fisheries-independent surveys used in the assessment. One of these has a 52-year time series. That's the Maryland Young-of-the Year Index.

There are 54 tuning indices used in the statistical catch-at-age model. Our recreational catch estimates are available since 1981. The commercial landings data are dated back to 1929, but a high-quality data is available since quotas were implemented in 1990. Biological data we collect from every state. There are length measurements from each state; seven states that have volunteer angler survey programs; and there are thousands of length measurements per year of sub-legal discards that come from these volunteer angler survey programs.

Age structures are collected annually from eight different states. In 2006 there were 2,800 commercial fish aged and 6,300 recreational fish aged. Our assessment also has challenges. We have multiple stocks that mix during coastal migrations, and this makes our assessment a little bit more difficult than a standard single stock assessment.

We have multiple size limits in different states and fisheries. The FMP has a preferred two-tiered size limit with 20 inches in the Chesapeake Bay and 28 inches in other areas. Because of conservation equivalency, we have different size limits in 13 different fisheries in 8 different states and jurisdictions.

Our aging has some difficulties because we have limited accuracy of aging with scales beyond age ten. Otoliths are more accurate, but they are difficult to attain in some fisheries. We also have the challenge of getting sufficient age samples in older fish in a species that can live up to 30 years old.

We have had incidents of mycobacteria in the Chesapeake Bay that's been causing an increasing in M. Here is a brief assessment history. In the early nineties we used annual tag-based estimates to develop estimates of survival and fishing mortality. There was also a forward-projecting model of age zero recruits based on the Maryland Juvenile Survey. This produced a relative index of spawning stock biomass.

Then in 1997 we put together the first VPA-based assessment, and then in 2000 we first used the Program MARK from Brownie et al on tagging data to estimate survival and F for the assessment. We found this was an improvement over our previous methods of using the tag-based data. Then in 2005, the last assessment we presented to you, we first used the catch equation method, and the purpose of this was to develop estimates of F without the assumption of a constant M value.

In this assessment we have two preferred assessment models to utilize information both the tagging programs as well as the catch-at-age data and the survey indices. The first one will be the forward-projecting statistical catch-at-age model, referred to as SCA. This is better than SCAM. We also will present information from the catch equation method. These are our two preferred models that the technical committee came up with.

We also have several supporting models that we ran for this assessment. ADAPT was also run; we also did some catch curves; and did a relative F analysis. These were done to provide support for the trends in F and abundance from the SCA and the CEM. We're also in the process of developing two new models for the peer review to review for future use.

One is the instantaneous rates catch-and-release model. This also allows for a variable estimate of M, and it uses tag release matrices for harvested and a separate one catch-and-release fish. Finally, we put together an age-structured statistical catch-at-age model incorporating the tag return data. We used the acronym SCATAG on that one. This combines both the statistical catch at age and the instantaneous rates catch-and-release model into a single model.

Again, these are models that are currently under development, and we brought this to the Peer Review Panel for their comments and suggestions. That's introduction, and now I'd like to turn this over to Dr. Nelson.

CHAIRMAN DIODATI: Let's hold it there, Doug, and see if there are any questions for Doug at this point. Seeing none, let's proceed.

DR. GARY NELSON: As Doug said, this year we developed a statistical catch-at-age model, forward-projecting statistical catch-at-age model to apply to all the striped bass data. All the inputs are similar to what we've used in the past. The matrices are catch-at-age matrix, but in the statistical catch at age it's actually broken up into total catches and also age proportions associated with those catches.

A lot of states use high-frequency distributions and age/length keys to develop their state catch at age, and they're all merged into one data set. We used all the fisheries-independent and fishery-dependent survey data that we've used in the past. This model also assumes a constant M of 0.15. Nothing has really changed except the structure of the model.

I'm just going to show you the data. This figure shows the commercial harvest in weight, which is in the blue, and numbers, which are in the pink. You can see that in 2006 there were over 3,000 metric tons of striped bass harvested, and that was about 1.04 million fish. It has been kind of variable since about 1998 or so.

If we look by state who is harvesting the largest numbers – these are numbers and not weight – it's Maryland by far in 2005 and 2006, because they also have a smaller size limit, so that's a lot of little fish. Now, if we break the harvest up into age classes, you can see here the Chesapeake Bay, which is Maryland, Potomac River and Virginia combined, most of the fish that they're catching being small, the age is around three to six. Then if you look at the coastal, which is in the darker bars, it seems to be a bi-modal where we have a peak around age six and also an age ten.

This slide just shows our estimates of commercial discards for 2005 and 2006, and the age proportions are in the graph. We estimated that in 2005 about 776,000 fish were discarded by the commercial fisheries along the coast and in 2006 only about 216,000. Most of the fish were around ages four to five; four, five or six, around there.

If we look at the numbers over time, the discards are in the dark bars and the landings or harvest are in the gray bars. You can see the trend. It's mostly, in the last few years, except maybe 2005, mostly the removals in the commercial fisheries are due to harvested fish and not too much discard.

The recreational harvest, we used the Marine Recreational Fisheries Statistics Survey, although I guess that name has changed, and you can see it's been steadily increasing. These are for the harvested fish, the weight is in blue and the numbers are in pink again, and you can see both have been steadily increasing since 1990 or so. In 2005 they harvested about 2.3 million fish and in 2006 about 2.8 million fish.

We used MRFSS estimates of total releases to estimate dead discards. We used a proportion of 0.08 and just multiply that 0.08 by the total number of releases. You can see these have been steadily increasing, and in 2006 there was a big jump and that's particularly due to the 2003 year class, which was a very large year class and small fish, so people caught a lot of those.

To look at the recreational harvest by state and year, the states with the largest landings were generally Maryland and Virginia; then New Jersey, Massachusetts and New York. This has been some change over time but not too much. That's the general order. If we look at dead releases, in 2006 it was Massachusetts by far, a lot of small fish, that 2003 year class.

The total dead releases in 2005 was about 1.5 million, and in 2006 it was about 2 million. So if we combine all the data in one graph, the dead discards or the releases in the recreational fishery are in the dark bar, and the harvest is in the gray. In 2005, combined removals by the recreational fishery totaled 3.8 million fish, and in 2006 it was 4.8 million fish.

If we just break those data up into age classes, if you look at 2005, you can see the 2003 year class coming in at age two and those mostly were dead releases. Also, the 2001 year class in the white bar was also a lot dead releases in 2005. And if you look at the darker bar, the 1996 year class is still evident in the harvest. Then in 2006 you can see that 2003 is still evident at age three and the dead discards. There are peaks due to the 2001 and 1996 year classes in the harvest.

If we compare all this information side by side, these graphs show the proportions that are removed by fishery components. The upper pie graph is for 2005; the lower is for 2006. The recreational discards, of the total removed, they made up 21 percent of the removals; and then the recreational harvest is about 41 percent. The commercial landings are only about 17.3 percent and the commercial discards – this is for 2005 – was only about 13.9 percent.

In 2006 the recreational harvest portion went up to – the percentage went up to 44.7 percent and the discards to34.4 percent, so about 79 percent of the removals are due to the recreational fisheries. If we look at total removals, commercial is in the yellow; recreational is on the right, and the recreational fishery is removing most of the fish, as we saw in the previous graph. That has been steadily increasing since about 2002.

And if we finally look at the total number of removals by age, in 2005, which are the black bars, it made mostly up of the 2001 year classes, the peak, but in 2006 it's the 2003 and 2001 year class. Since we managed using an average F on ages eight through eleven, this is a plot showing the catches of ages eight-plus, showing that it has been steadily increasing, and it may have leveled off in the last couple of years. I think it's about two or three million fish – no, two million fish? I don't have the exact numbers. That was in 2006. As Doug said, I counted thirteen indices, but I could have made a mistake. Go ahead.

CHAIRMAN DIODATI: Before you move on, Gary, you've covered a lot of information about the two fishing years, '05 and '06, are there any questions for Gary at this point. I do have one. Why was your estimate of commercial discards so much lower in '06 versus '05, and can you talk a little bit about that '03 year class. Relatively speaking, it's a dominant year class, and how big is it given the 50-year history?

DR. NELSON: Well, we'll start with the commercial discards. We estimate commercial discards using tag information that's recovered from all the commercial fisheries along with the recreational fisheries. We usually get a high number of tags recovered in commercial fisheries from the Chesapeake Bay, but

in 2006, for some reason, it didn't happen, so there was quite a considerable change in the ratio that we used that was estimated. There is just whatever stuff we got back.

The 2003 year classes looks like – I think I have a graph – it looks like it's one of the biggest that has been recorded according to the model. Actually, what was surprising, if you look at all the juvenile indices from the Hudson, Delaware and the Chesapeake, they all had a big spike in 2003, so they seem to have been – they coincided so it seems to add a big abundance of those age fish.

MR. ERIC SMITH: Back to why did the commercial discards drop; and, relatively speaking, the absence of tag returns in '06, would say '06 was atypical or was '05 atypical in the last 15 or 20 years?

DR. NELSON: We actually used – for a ratio we have three-year running average; so, when 2006 was included, it dropped it. It's atypical, it seems. 2004 and '05 seem to be close together.

CHAIRMAN DIODATI: That's fine, Gary, continue.

DR. NELSON: In the model we used all the survey indices we had available, but they were used in a slightly different way. We don't break them up into age-specific indices for those surveys that have age data. In the model we actually modeled the total index and then the age proportions associated with those surveys, so it's modeled slightly different than you would see in ADAPT.

But we used most of them, all the fisheries-independent survey information and also the fisheries dependent. If you've never seen the distribution of all the surveys, here it is. The Young of the Year and Age One surveys are in the pink, and then the Age Two-Plus Surveys are in the light blue. We have fisheries dependent for Age Two-Plus in Massachusetts, which is developed from the commercial.

We have Connecticut Recreational CPUE that is developed by Vic Crecco. They also have a fisheries-independent trawl survey in the waters. We used off the eastern tip of Long Island, New York has an Ocean Haul Survey for the large individuals. We used the National Marine Fisheries Service Trawl Survey, which I have outlined in the blue where they cover.

Then in New York you have the Hudson River, Young of the Year in the Hudson River and then Age One in Western Long Island. Then in the Delaware River there is an eletro-fishing survey that targets those spawning adults in the spring, and then they also have a Young of the Year Survey.

Then within the Chesapeake Bay there is a gill net survey and two young-of-the-years surveys, one done by Maryland and one done by Virginia. Maryland also does an Age One survey. Also, off the coast of New Jersey there is a trawl survey that is done. Those are all being incorporated.

As Doug mentioned, in the past we have used ADAPT, which is the backward-solving VPA. In some of the past assessments, the terminal year F has been very high and most of the technical committee members actually did not believe F was that high. One of the reasons we moved to a forward-projecting statistical catch at age model was to try and address the issues with the VPA.

Once we got all the data last year, we stuck the information into the ADAPT just to see what it would do, and the F we got on Age Ten was actually 2.2, and none of us on the committee believed that actually was occurring. There is no information that suggests that kind of fishing mortality is going on in that age, so the statistical catch-at-age model seemed to be the best approach.

We think what is happening is with the backward-solving something is going on within the data of the survey indices which are creating this backward-calculating issue. The current model is the statistical catch at age is forward-projecting. It has all the same structure as the ADAPT. We use Age One through Thirteen-Plus, except in the forward-projecting model, the statistical catch-at-age model we can actually use data back before the catch data, so we've incorporated all the survey information that we could.

We have the Maryland Survey Index that goes all the way back to 1970 now in the model, so it actually helps develop better estimates. As I mentioned before, we just don't model the catch at ages split up into the components. We have a separability assumption, meaning we estimate selectivity patterns, and we did that for four regulatory periods, following the changes in the management regimes for striped bass, and then all the surveys are linked to the different age-specific abundances in the model.

The final model configuration that we used was based on exploratory analysis and recommendations

by the TC. Just to show you some results, this is average F on ages eight through eleven, which we use as reference point. Also shown on the slide in the horizontal lines is the fishing mortality threshold in the upper horizontal line, and then the target. You can see our estimates from this model showed a steep drop with all the management changes back in the early eighties and a steady increase since about 2002 or so.

Our terminal F estimate from this model for 2006 was 0.31, so we're just slightly above the target. This graph just shows an estimate of the uncertainty around that F value, and it shows that there is very little probability that we're actually over the threshold. There is some considerable variation but there is a very small chance that we're actually over that threshold.

If we take this F and we divide it up into the different fishery components, meaning the recreational harvest, the dead releases, commercial harvest and commercial dead releases, you can see that each of these components for the different ages – the different components make up the F at different ages.

It seems that the recreational harvest is comprising most of the F on the older ages, and those for the younger ages are generally due to release mortality. If you look at the abundance, these are the model estimates, the total abundance of Age One-Plus is in the blue, and the Age Eight-Plus is in the pink, and it shows that up to about 1997 or so abundance increased, total abundance increased, and then it has kind of leveled off since then.

The average estimate between 1998 and 2006 is about 58 million fish. In the pink, which is the Eight-Plus, you can show a steady increase up to about 2004, and it seems to have declined a little bit. There are the recruitment estimates showing the different year classes. In this slide you can see that the 2003 was a pretty prominent and strong year class.

These recruitment estimates represent Age One for the whole coast and not within the Chesapeake Bay or Delaware Bay. This is a slide showing total biomass estimates. The total biomass is with the triangles up top, and the spawning stock biomass is shown below. The horizontal line is the spawning stock biomass threshold value, and you can see that our SSB values with the 95 percent confidence intervals are well above the threshold. It may be declining but it's still well above.

This just shows the uncertainty around that 2006 estimate, and the threshold is around 17.5 metric tons; and based on this graph, there is very little chance that we're actually over the threshold or under the threshold in the case of SSB.

CHAIRMAN DIODATI: Hold it there for a minute. Any questions for Gary? I have one. Gary, the '93 year class was almost as large as the '03, so is it possible to demonstrate how that '93 year class contributed to the adult population in later years?

DR. NELSON: The fecundity and stuff?

CHAIRMAN DIODATI: Well, more in terms of stock size because it does seem that both younger and older fish have been decreasing for the past three years in one of those graphs, and I'm wondering if the '03 year class is going to turn that around.

DR. NELSON: I've done some projections, but I don't have them here because we normally don't do them, but it definitely shows that will help increase – 2003 will help increase the stock a little bit. But '93 is now beyond the age at which we can actually tell what age it is. Go ahead, Doug.

MR. GROUT: A couple of things about that; one, I'll be showing you in a later graph that when we start aging these fish, the '93 is age 13 and over. Gary is right, it is difficult to age those things that old, but if you lump it as a 13-plus, you'll see in the graph that the age 12-plus and age 13-plus in recent years have increased as that '93 year class has entered the fishery.

But keep in mind, one, that still makes up a very, very small proportion of the total stock. Most of your numbers of fish are in smaller fish, as you would expect. But the numbers of age 12 and age 13-plus have increased since Amendment 6 was put in.

DR. WILSON LANEY: Thank you, Mr. Chairman. I guess I'll direct this at Gary or Doug. The fact sheet handout has – I guess it's a little bit different scale that shows the spawning stock biomass; and from that particular figure, it looks there has been sort of a steady decrease in the SSB since 2003.
Where there was peak, it has dropped up through 2006. Is there any cause for concern there that it's dropping that way? I guess I would relate that back to Doug's comments about the fact that the 12 and 13 year olds seem to be increasing. I guess those larger fish are more important from an SSB perspective, so I just wondered if there was any cause for concern that that has been dropping since about 2003.

DR. NELSON: Well, if we can cover the next slide, I'll qualify the estimates. There was some retrospective within the model. Well, the probability that – the basic pattern now in the retrospective is that F will probably drop with another year's worth of data, and the SSB will go up.

In this graph, up in the upper left-hand corner, is what we call the fully recruited F, which is generally on age nines and tens and above; and then age 8-plus abundance on the right; and below is the spawning stock biomass. So, there does appear to be a decreasing trend in SSB; however, the estimate will probably go up next year or whenever we do the next assessment.

MR. GROUT: If I could add to that quickly, do you have that slide with the age one abundance? If you look at our assessment, the SSB, the largest component of that is age seven. If you look at what happened since the 1996 year class, which in 2003 comprised the largest portion of SSB, and that's where our peak in SSB is, now the subsequent year classes there in '97, '98, and '99 are all average or close to average, they're much lower than that.

Now as you see when the 2000 and 2001 will be becoming age seven in our next assessments, and so because of that I agree that we're going to see an increase in SSB. I think what you're seeing in the decline in SSB is the subsequent year classes there from '97 to '99 were much weaker than what '96 was.

DR. NELSON: This is a graph showing average fishing mortality on the vertical axis and then again spawning stock biomass on the bottom axis. We like to think of the zones on this graph where if we go over the threshold in the upper right-hand corner, the fishing threshold, we have to do something about it.
Also, if we go below the spawning stock biomass threshold, which is on the vertical line, we also have to do something. If they're both over, then we've got to start panicking. We're in what we call the happy zone. We're around the target of fishing mortality. We're well above the threshold and targets for SSB, and so hopefully everyone is happy.
I won't go deeply into this, but we also did lots of sensitivity analyses. Being a new model, we looked at things about starting values and different values we could start with in the estimation, deleting surveys. This model is very insensitive to anything like deleting a survey from the model. It was very stable in its solution. When we did other things like change M, there weren't any unexpected changes within the model. So, we were happy with it.

We also put the data into the ADAPT model, as I mentioned before, but in order to get F estimates around the same values as the SCA model, we had to delete like half the indices. There is something going on using the backward-solving routine, and these indices are just screwing up the model for ADAPT, anyway.

So, even after we did that, you get comparable Fs. Gary Shepherd also tried another statistical catch-at-model called ASAP, and he had major problems trying to get that to estimate some parameters. But even though it was a messy model, it still got F values around what we're seeing with the SCA model. I most of the committee was happy with the model.

So just to summarize, the average F on ages 8-plus is actually 0.31 and not 0.32 as I put up here. It's just slightly above the target. Total population remains high, but there may be a declining abundance of 8-pluses. Also, the spawning stock biomass has been declining, but as Doug said, it's probably going to start increasing once those 2001 and 2003 year classes start coming in. Then, the model is pretty insensitive to any changes, so we were pretty happy with it. That's it.

CHAIRMAN DIODATI: Any questions for Gary? Jim.

MR. JAMES GILMORE: Thank you, Mr. Chairman. On that deleted survey issue, Gary, we didn't do the Ocean Haul Seine Survey this year for a couple of reasons. First, it was contractual, but, secondly, we're having problems with some interference with gill netting so we're thinking the data is probably not as it was in the past. So, if we don't do that as we go into the future, is that going to have significant effect or not?

DR. NELSON: No, not in this model it won't have a significant impact. I looked at that once I found out you guys weren't doing it this year, so it didn't really change anything.

CHAIRMAN DIODATI: Anymore questions? Thank you, Gary. Next.

MS. BETH VERSAK: Okay, I'm going to present the tag-based assessment and give you a brief background on the tagging programs. There are eight programs included in the analysis, and are all part of

the Fish and Wildlife Service Cooperative Coastwide Tagging Program. They're broken down into four producer areas, which operate in the spring on the spawning grounds, Maryland, Virginia, Delaware, and Hudson River; also four coastal programs, which tax mixed stocks in the fall, winter or early spring. All these programs have been operating since at least 1993.

The current tag-based assessment method that we're using is a form of Baranov's Catch Equation in which we solve for F. In the past we used F estimates from Program MARK, which were converted to Z and then a constant value of 0.15 for M was subtracted to get at F, but with this method we're able to get away from using an assumed value for M.

The inputs are exploitation rate; Z which actually comes from the F estimates from Program MARK, as we had done in the past, which is annual mortality, and then we subsequently estimate M by subtracting F from Z. So the exploitation rate that we use is a basic R over M, which we adjust for hook-and-release mortality and reporting rate.

We should have a current estimate of reporting rate later this. We did a tagging study in all the producer areas in 2007, so that estimate should be available later this summer. These exploitation rates are just annual estimates using recoveries from only the first year at large. Now, here is a graph showing the inputs. I've got the producer area averages and coastal area averages.

The producer areas are the lighter gray, which doesn't show up very well up there, but that's the top line. They peaked in the nineties and have been around 0.15 for the past six years. Here are the F estimates for these fully recruited fish, and you can see that they're fairly low using this method, and they've been below the target for the past six years, seven years.

The final coast-wide F for the fully recruited fish in 2006 was 0.16. These show a similar pattern for the SCA model in the eighties and nineties, but then the SCA F increased after '02 where these remain relatively flat and stable. Then we can also estimate M, and you can see they sort of show an increasing trend in the later years. The 2006 values for both producer area and coastal tagging programs were approximately twice our previously assumed value 0.15. Most of the estimates, especially the producer areas, have fairly wide confidence intervals.

This briefly shows you the results for the 18-inch fish. You can see these exploitation rates are pretty low; the producer areas slightly higher than coastal programs. They've been around 0.1 for the past six years or so. Here are F estimates for the 18-inch fish. They're relatively low. I think the coast-wide F for 2006 was 0.12.

These M estimates, the scale is a little bit different, but these are a little bit more than twice the assumed value in 2006. Here are stock estimates. Using the catch equation method, age 7-plus, which is the bottom line, that roughly corresponds to the greater than 28-inch fish. The 2006 estimate was 13 million fish. It sort of leveled in the last few years. The top line is age 3-plus, which shows a steady increasing trend, with a 2006 estimate of 48 million fish.

Here is the basic summary of the catch equation method results. For 2006, for the fully recruited fish the coast-wide F was 0.16, about 13 million fish. And moving to the Chesapeake Bay specific assessment, we used the same data from the spring tagging surveys for Maryland and Virginia, except we only used the male fish 18 to 28 inches to target the resident pre-migratory stock.

We used a different reporting rate from tagging studies that were done in the bay. We run Maryland and Virginia data separately and combine them into a final weighted average baywide F. The methodologies are the same as I already described. Here are the exploitation rates. They're all fairly low. Baywide for 2006 was 0.07. Here are the F estimates. They've been fairly stable throughout the time series.

The years with the really wide confidence intervals we think was a sample size issue. We had few fish tagged in that size range. In 2006, weighted average for the Chesapeake Bay was 0.14. When we look at the M estimates for the Chesapeake Bay, we get some rather nonsensical values, and they're pretty high. That's all I have for the catch equation method.

CHAIRMAN DIODATI: Questions for Beth or anyone? I'll ask one. The estimates of natural mortality, we didn't see those earlier on in the other assessment modeling. I guess that there is a potential that it's almost equivalent to our target F at this point or close to 0.3. So, I'll ask this to all of you; is there a point where natural mortality gets so high that we have to reconsider what is going on with total mortality in terms of our management targets?

DR. NELSON: Well, I can tell you I changed the M in SCA model to some of the averages here, and it made the retrospective even worse. Some of us on the committee do not believe that M is as high as these tag models are estimating.

CHAIRMAN DIODATI: Any questions?

MR. GROUT: We do have more.

CHAIRMAN DIODATI: But there is more coming. Jack.

MR. JACK TRAVELSTEAD: I guess it's a question for Gary or Doug. Does the assessment make use of any estimates of harvest in January or February in Virginia and North Carolina?

DR. NELSON: Yes, MRFSS now samples North Carolina Wave 1, so we have estimates from that state. They do not do that for Virginia, but we estimated the Wave 1 harvest and included it in the data.

MR. TRAVELSTEAD: Okay, so it is include even for Virginia, but it's an estimate?

DR. NELSON: Yes.

MR. GROUT: That's an estimate based on tag ratio returns.

MS. VERSAK: Okay, so now I'll move into the model that the tagging subcommittee is looking at for future use. It's the instantaneous rates catch-and-release model that allows for released fish to be directly incorporated into the estimation of F. This follows an age-independent approach that was presented by Jiang et al. We consider it a strong work in progress, and the Peer Review Panel agreed that we should be moving in this direction.

A few things that we need to look at are we need to examine our suite of models and possibly investigate a few more models. This model can also estimate M. Currently the models we're using just estimate one constant M over the entire period. Here are the results we get from this model for 28-inch fish; a similar pattern to the catch equation model.

They peak in the nineties and then have been relatively flat in the last few years. They're slightly lower than estimates from the catch equation with a 2006 coast-wide F of 0.13. Here are the M estimates that come out, and I've shown these broken down by programs, so the first four are the coastal program and the second four are the producer areas.

They're a little bit more reasonable than the catch equation, but again this is one constant M estimated over the whole time, so the producer area mean was 0.17 and the coastal mean was 0.12. Here are the results for the greater than equal to 18-inch fish. These are relatively low as well. The coast-wide effort for '06 was 0.09.

The M estimates, however, are slightly higher. The producer area mean for this size group was 0.26. Here are the stock size estimates; the same patterns but slightly higher numbers because the Fs are lower. For the age seven-plus fish, which is the bottom line, 16.6 million fish; and 61 million fish for age three-plus. That's all I have for the instantaneous rates.

CHAIRMAN DIODATI: Questions for Beth at this point? Go ahead, Roy.

MR. ROY MILLER: Beth, you said in the MARK estimates that M was not reliable; why would that be?

MS. VERSAK: In the catch equation method?

MR. MILLER: Yes.

DR. NELSON: It depends on who you talk to on the committee. There is one group that doesn't like it because it's so variable and even goes below zero, which you can't go below zero, but there is another group that likes it. I don't know what else to tell you.

MR. GROUT: You also could look at when they were doing just the Chesapeake Bay estimates versus with the catch equation methods. The M estimates there were all – in recent years were all above one, which is very unrealistic because you wouldn't have any fish left in the Chesapeake Bay with that kind of M.

MR. SMITH: Somewhat related to the response to Roy, and, Gary, this may be more directed at you because you're the one that triggered the question in my mind a moment ago. I take your point that virtually no one thinks that M can be as high as the CEM model, the catch equation model gives, and I can see why, you know, M 1.1 and 2 and so forth. Does the technical committee agree, though, that M appears to be rising regardless of which method you use?

DR. NELSON: There is indication within the Chesapeake Bay – I believe most people believe it

has increased a bit, but on the coast we're not sure because we haven't really seen an evidence of that either sampling. And again with the model, by changing M, it just made things worse, so there is no indication of it on the coast.

MR. WILLIAM GOLDSBOROUGH: Was there any speculation on the committee as to why M might have risen in the Chesapeake Bay?

DR. NELSON: The mycobacterium issue; lack of food would be the one of the reasons; what else, water quality, I guess, the anoxic zones and stuff going on with the bay.

EXECUTIVE DIRECTOR JOHN V. O'SHEA: Thanks, Mr. Chairman. On that list was there unaccounted for removals, any question about how – could that have been a factor as well?

DR. NELSON: The only removals that we don't account for are poaching. We try to take everything into account. The only other thing is Virginia, in Wave 1 we don't estimate releases, so there's probably a few things that we're missing, but I believe we're getting the bulk of everything.

CHAIRMAN DIODATI: I'll just ask one final question on this. The estimates of M are based on tag results; right? So, I did see you tried to account for a lot of things like fish that were tagged, caught, released alive and so forth, but I didn't see tag loss accounted for. Is that something that is accounted for?

MS. VERSAK: Yes, I guess those things are included in the survival estimates that come out of MARK, which are an input to the catch equation. Those are adjusted for tag reporting, and there is some – I think the individual programs, the numbers that go into the models are adjusted for tag loss or tagging mortality.

CHAIRMAN DIODATI: Okay, more assessment information.

DR. NELSON: As Doug mentioned earlier, we spent some time this last year trying to develop models to incorporate all the catch information and tag information into one model. The attempts that I made were models that we're calling the SCATAG. Essentially what I did was to take the statistical catch-at-age model and incorporate the model of Jiang that Beth just went over, which is the IRCR model that we had the peer review look at.

There are two models that I developed; one, assuming all fish 28 inches or greater were fully recruited so you just had the tagging matrices put into the model, the same ones that were used in the IRCR model. The problem with that is there are eight programs; and when you start breaking it up into two matrices, the data is so large that it overwhelms all the other catch data and survey information.

Another issue was that since we were looking over the whole time series of the striped bass since '82, we assumed that the 28-inch fish were fully recruited, which they weren't back in the eighties. So, for the SCATAG model we didn't go forward with this because I didn't think the way we set up with just 28-inch fish and greater was correct because of the issue of size regulations back in the eighties, and they're fully recruited back then.

But I've also developed an age-structured tagging mode which you can put the tag information into, but you have to break it up into age classes, which means for some programs the sample sizes are getting even smaller everytime you break it up, so for each age you would have to have two matrices.

So, there are a bunch of issues with the data. I didn't think the first model was good. I wanted to go with the age-structure model, but then we've got sample size issues. We've got still eight programs that we're trying to put into these models with all the other data and it's overwhelming, so there are a lot of issues that we need to address. So we just brought the first model to the peer review, and they agreed pretty much with what I had said.

But, we do believe that this is one way we could go in the future, and we'd need to make a lot of decisions on how to use the data that we have within the model. The models are developed; it's just a matter of sitting down some day with the technical committee and deciding how we're going to group the data and things like that.

I just wanted to compare the results. The SCA model results which I talked about earlier in the blue triangles, and then there are two results from the SCATAG model; one in which everything in the model is given equal weight, which means it stresses all the data equally; and then one where I turned the knob up to stress the catch data.
You can see that the SCA and SCATAG runs are pretty much the same up until about 2003 again, and this is just the way to best show the separate tag analyses of showing divergence between the SCA model and the tag data. It's still happening. It's just

because you get all the same information and it's just overwhelming all the other data that are in it because there is just so much of it. But, for the most part, they're both pretty close, and I'm hoping in the future to take this model further with more of an age-structured approach.

CHAIRMAN DIODATI: Okay, thanks, Gary. That will give us the best of all worlds, tagging information and catch at age, hopefully.

DR. NELSON: This is what we think is the best of all worlds of where we want to go, and I've started to do the research. It may take a few years to do it, but each producer area now, they have young-of-year surveys, age ones, spawning stock, catches from the different areas, and we have tagging data, so we can break all that information up into the different producer areas and then coast, and we could actually develop bay models that we estimate fishing mortality.

I think this is probably the way to go. It's very complicated. It's going to take a while, but personally this is where I see it going. A model like this is complicated because the dynamics of the fish are very complicated.

CHAIRMAN DIODATI: So this is the penalty of having too much information.

DR. NELSON: Yes, exactly. The SARC recommended doing something like this, but we've been talking about doing this for a while. I think after their urging, I believe this is where we should be going.

CHAIRMAN DIODATI: So this would be a proper segue into the assessment peer review?

MR. GROUT: We do have one more. Okay, you're all going to have to pay attention here because part of what Mike Murphy is going to present as one of the recommendations is to go from the static reference points that we have right now to reference points that are more related to the current assessment and to have reference points that will be more appropriate each year, so every year you might end up with a new reference point.

I'm going to give you a brief overview of how we came up with the reference points that you approved for Amendment 6. Then I'll give you a summary of comparison of the variety of methods we've shown and give you a bottom line of where we're at with this.

The first part is going to be the educational session or the refresher session. Our reference points, the fishing mortality rate threshold is a calculation of FMSY that we did, and I'll explain how that was done, and it's currently 0.41. The target fishing mortality rate, which was set by the management board, is 0.30, and there is an adjusted target F in Chesapeake Bay of 0.27, and I'll how we came to that value.

The female SSB threshold is 1,400 metric tons, and that essentially came from what the SSB was back in 1995 when we declared the stock recovered. The target was set at 17,500 metric tons. So how did we come up with the MSY calculations? This is a brief overview. First of all, we took stock recruitment parameters from a Shepherd Stock Recruitment Model. Then we used yield-per-recruit results from a Thompson/Bell yield-per-recruit model.

The Thompson/Bell, here are the inputs we used. We used 0.15 for M. A max age at the time we calculated it was 25 years. We now realize that they can be as old as 30 years. We used the maturity ojive from combined sexes, and the reason for this is because your males are sexually mature at age three, 100 percent sexually mature at age three, while your females don't become sexually mature until almost age eight, and not fully until age nine.

So we had to combine the two. The weight at age we use from the VPA input for ages up to age 13, and I emphasize in italics that we were using the weight at age from our VPA that was run in 2000. We have since had six more years of information. Then after age 13 we use growth equations. The sex ratio is assumed to be 50/50.

The partial recruitment that we had to enter, again, is from the VPA that we ran in 2000. It's not based on the statistical catch at age because when Amendment 6 was passed, we didn't have a statistical catch-at-age model. They're fully recruited at age nine according to that. The Shepherd Stock Recruitment Model, again, was fitted to the 2000 VPA. What you do is you compare annual spawning stock biomass from the VPA with age one abundance to get that curve.

You'll see this is what the curve was back using the '82 to 2000 data. It's a slightly dome-shaped one. Again, we've had six more years worth of information that we have and we have a new model that we're proposing to use so this could change a little bit and thus change your reference points.

Target F, again, is an exploitation rate of 24 percent or an F of 0.30. Again, you folks set that at your management board meeting. The reason you did this was to provide a higher long-term yield to the fishery and to provide adequate protection to ensure spawning potential is not adversely affected.

In the Chesapeake Bay the reason they have a lower target F is because the FMP calls for a size limit of 20 inches in the Chesapeake Bay. The Chesapeake Bay jurisdictions requested an 18-inch minimum size limit via conservation equivalency, so to compensate for that lower size limit a lower target F was calculated using Crecco/Rugulo's equivalent SSB/R, SSB over R assessment.

The SSB reference points, again, 14,000 metric tons came from what the 2000 run of the VPA said that the 1995 female SSB level was. That was the year that the Board declared and we all declared that striped bass were recovered, so we're saying that we don't want go below that level again. The target was set at 125 percent of the SSB.

All right, here are our results. I have on here in blue are the F estimates from the SCA; and in the gray, which unfortunately doesn't come out that great, is the catch equation method. As you can see, if we compare the two, they're roughly similar up until 2002 at which point the catch equation remains level in their fishing mortality rates while the SCA says F has been increasing.

One of the things that we've discussed at great length at the technical committee meeting was the retrospective pattern that Gary showed you on the estimates of F from SCA. It showed that there is a potential that when you add more years of data to the SCA, that that final estimate of 0.31 is probably going to be lower, and that's why we feel very – there was a consensus on the technical committee that we are below the target value.

Combining that retrospective pattern along with what we get out of the tagging data, we felt confident that we are below the target. I threw in the next slide just to show a variety of other supporting – model runs from different other models that we used showed very similar results throughout. Anything that involved tagging show that pattern of leveling off of F after 2000 while anything that was an age-based assessment showed an increase since 2000 in your F.

Again, there were retrospective patterns to all three of those models that are the catch-at-age based models, the ADAPT, the SCA, and the ASAP. In the Chesapeake Bay, again, this is from the catch equation method. You can see you're below your target of 0.27 throughout the time series.

Estimates of SSB, here you have in the dark solid blue is your statistical catch-at-age model pattern which Gary showed you before, and, of course, even with the uncertainty around it, the variance around it is still way above your target and your threshold. ADAPT showed a similar pattern once we took out all the tuning indices to get it to run with reasonable estimates, and Gary's preliminary runs of SCATAG actually showed an increase in SSB.

Again, this is showing you that even with the variance levels around Gary's SSB, the statistical catch-at-age SSB is well above your target and threshold and that your total biomass has leveled off. Oftentimes we give you an age eight-plus abundance. Because the tagging data is run on 28 inch and above estimates which we assume is an age seven-plus, I'm comparing both the statistical catch-at-age year, which is in the dark blue, and the catch equation method abundance, which is in the light blue.

Again, very similar trends there, although there is more of a drop-off in age seven-plus abundance in the statistical catch at age than there was in the catch equation method. Again, this is something that given that we're going to have the 2000 year class and the 2001 and 2003 year classes, which are all strong year classes coming into the fishery in 2007, I expect that this age seven-plus abundance will probably start to increase in subsequent years.

One of your objectives in Amendment 6 is to increase the abundance of age fifteen-plus fish, we can't give you give that data because our aging capability only allows us to lump age thirteen-plus. So what I've tried to do here is a proxy showing you that since Amendment 6, age twelve-plus and thirteen-plus abundance has continued to increase.

And, again, because these are very old fish, these estimates are a lot more uncertain than the younger abundance estimates. Gary showed you this. Your recruitment has been stable since 1990 with several strong year classes. In fact, 2003 looks like it's a record year class. That's all I have. Excuse me, I have one more thing, and that's the conclusion slide.

All right, conclusions: Total abundance has leveled off at a high level. Abundance of older fish is increasing. Recruitment; the 2003 year class appears to be the strongest in the time series. 2004 and 2005 year classes, our average is slightly below average. This is a point which we'll take up a little bit later,

but we did find evidence of recruitment failure in the Hudson.

From 2004 to 2006 is the management plan trigger because there were three consecutive years of young-of-the-year indices that were below the 75th percentile. However, the preliminary 2007 JAI from the Hudson River that we have been provided has show it to be the highest value in their time series, so keep that in mind when we take up some of the next agenda items.

SSB is decreasing slightly since 2003, but is above the target and threshold; and as a result our conclusion is the stock is not overfished, and the fishing mortality rate is below the threshold and target and overfishing is not occurring. That's all we have. Are there any questions?

MR. TERRY STOCKWELL: Thank you, Mr. Chair. Doug, you mentioned that the abundance of older fish was increasing; is that across the range or localized?

MR. GROUT: No, that's the entire population.

CHAIRMAN DIODATI: More questions for Doug or any of our three assessment biologists? Doug, did you say that you were going to recommend in the future that we consider a fluctuating reference point that corresponds with other parameters in the assessment?

MR. GROUT: That is one of the suggestions that is coming out of the peer review.

CHARMAN DIODATI: Okay, so we're going to hear more about that?

MR. GROUT: Yes.

PEER REVIEW PANEL REPORT

CHAIRMAN DIODATI: Okay, any other questions? Seeing none, I think we can move to the peer review portion of this meeting. Why don't you start, Mike, with a little introduction about your involvement in the peer review.

MR. MICHAEL MURPHY: Yes, I'm Mike Murphy; I work with the Florida Fish and Wildlife Conservation Commission. Some time in September it came up that they needed a chair for the Striped Bass SARC that was to occur in November, and I graciously accepted that mainly because quite often when you serve on any of these review panels, you generally learn more than you actually give out in advice.

I am here to report on the Summary Report for the 46th Northeast SARC that was held in the Northeast Fisheries Science Center up at Woods Hole in late November. Along with myself on the panel were three Center for Independent Experts highly qualified scientists; two from the United Kingdom, CEFAS, their federal fisheries agency, that was Chris Darby and Tingley; and a scientist from CSIRO in Australia, Neal Klaer.

We were assisted, of course, by the assessment team that just has just given you the overview of the assessment and by the National Marine Fisheries Service staff. Jim Weinberg is the SAW/SARC coordinator, and Paul Rago and Gary Shepherd are experts in striped bass population dynamics who also assisted in the review. The Atlantic States Marine Fisheries Commission staff that helped quite a bit were Nicola Meserve and Genny Nesslage.

I'm going to skip right to the general findings and then we'll go a little bit into the term of reference highlights. The general findings by the panel were that the assessment team successfully met all of their terms of reference. It was a well-documented and clearly presented report, and the panel appreciated the rapid responses that the assessment team scientists provided us when suggestions for changes or sensitivity analyses were requested.

The panel noted that there was extensive data available for the assessment, and this data appeared to be correctly compiled and used in the assessment, and the analyses were all made in accordance with good scientific practice. The SARC agreed in the end with the assessment team's stock status determination, and that is that striped bass are not currently overfished and overfishing is not occurring.

Now, I'll quickly mention individual terms of references, specifically highlighting some of the comments and suggestions the panel had for improving future assessments. Term of Reference One was to characterize the commercial and recreational catch, including landings and discards. The commercial harvest compilation was quite complex with many different monitoring programs.

The estimation of both commercial and recreational dead discards required a lot ancillary data and assumptions. The panel felt that while this was done to the best of the available data, that uncertainty in these estimation procedures should be determined and brought forward in the analyses.

The age composition of the catch, as Doug has mentioned and as the assessment team have noted, is probably biased for those ages ten and older fish because scales generally underestimate the ages of these fish. There was a concern that as the stock expands into older ages, that these ages may not be correctly modeled; that is that the age-specific vulnerability of these fishes may not be correctly specified in the analyses.

Later on you'll see there are recommendations to try to collect some of that information. There was also a brief discussion of the Marine Recreational Fisheries Statistics Survey. Generally that survey was found to be quite adequate, especially in recent years. However, it was noted that it did miss some inland freshwater harvest.

Of course, issues were brought up about generic weaknesses that have been pointed out in survey; for instance, covering private access anglers, night fishing and so forth, things that are being worked on and improved in that survey. But, in general, the panel felt that the sampling intensity, especially in recent years, was adequate. In the end the term of reference one, as I said, was considered met.

Term of Reference Two is the fishery-independent and fishery-dependent indices. These were to be characterized as that was part of the term of reference. First of all, there is clearly a diverse range of indices are available. Most fishery-dependent indices tend to show increasing trends. The fishery-independent surveys appear to be both more variable between years and between surveys than the fishery-dependent surveys.

The regional sub-stock differences are especially apparent in recruitment indices, and the committee thought that rejected surveys in the calibration studies that had been held before the meetings may simply reflect the differences seen in the recruitment in the sub-stocks of the overall striped population.

The panel noted that there have been many technical reviews of the indices, especially in recent years. They appreciated that fact. The amount of information either regionally or by different ages is quite high for striped bass. There should be as much standardization in the surveys as is possible in the field. The panel recommended the use of statistical approaches to unify findings within and across the stocks.

The panel noted, though, that were two possible choices as to how to use these indices. One would be to combine the indices, our priority, if a single-stock stock assessment was to be chosen as is currently used and continues into the future; or, another option would be to include the spatial structure apparent in striped mass to make better use of the variety of indices and use that in a multi-stock assessment. That was a recommendation.

Finally, this term of reference was considered met, and so we go on to Term of Reference Three which is – I'll paraphrase this because it's a little longer – was to evaluate the statistical catch-at-age model and its estimates of F, stock abundance and so forth and the uncertainty of these for striped bass.

The panel felt that was a very well-presented analysis. It offered an improved framework – the analysis did – from the ADAPT previous virtual population analysis. Things like no need to define the terminal year selectivity or not having the requirement of assuming that the catch at age is known without error were certainly improvements, and the flexibility of this model was noted.

Misspecification, however, was most obvious in the plus groups where there was a poor fit to the catch at age for – I think it was the age 13-plus group – 13 plus-plus group in the analysis. The panel thought that this may be a selectivity issue related to the aging bias, and, really, this supports the recommendation to try to get more ages from those older fish and try to tease apart that age structure.

The retrospective pattern in F was observed; though as noted by at least one of the CIE members, generally in a forward-projecting model the historic Fs may not necessarily be more accurate than the more recent Fs. Individual components contributing to stock mortality should be estimated separately; that is, that separate fishery entity should be used in the model, commercial, recreational, headboat, any characteristics of those fisheries that are suspected of being different.

The model fits the two ages well and does not fit the fine-scale dynamics of the surveys. This is possibly a weighting issue and may be the smoothing effect of having multiple stocks included in the model. This needs to be investigated. Also, there was a need for improved diagnostics to judge the model fit.

As you were talking about actually estimating benchmarks within the model, there would be a need to estimate a spawner/recruit relationship in the

model and then to estimate the biomass benchmark or fishing mortality benchmarks within the model. Since management is by region, the panel felt that the assessment should be, too. The model provides the most directly comparable estimates of population metrics needed to compare against the current management benchmarks. The panel felt that this term of reference was met.

The next term of reference was Term of Reference Four, which was to evaluate the Baranov Catch Equation Model method and associated model components applied to striped bass tagging data. The panel had reservations about the validity of the tag-based fishing mortality estimates and how it compared to the benchmark fully recruited Fs listed as the reference points.

It was uncertain which ages were included in the tag sample, their levels of vulnerability or if the annual Fs derived from the model averaging procedure were comparable to the benchmarks. The reporting rate is an important component of tagging programs, and the reporting rate was unlikely to be constant over time or a reporting rate of 0.43 is shared between the commercial and the recreational fishery in the analysis and probably was different and changed over time, as I mentioned.

The panel observed stable recruitment and increasing catches. As we've seen this morning, that should have essentially shown an increasing fishing mortality, but the tagging data generally showed a flatter declining fishing mortality and increasing M. This led the panel to have less faith in that analysis.

Some of the high estimates of M seemed implausible, and you've talked about that a little this morning, especially in the Chesapeake Bay where instantaneous rates of 0.6 and 1.0 were seen. Last, in general the review panel had reservations about the estimated F relative to the benchmark. This analysis was not the preferred analysis for determining the status of the stock, in the panel's eyes.

The next term of reference was Term of Reference Five. This was a review of the instantaneous rates tag return model, which was a more complicated tagging model than the catch equation method that had some advantages of estimating some of the necessary parameters to estimate fishing mortality within the model rather than ad hoc outside of the model.

The panel was again concerned, however, about the unpredictable selection of various sub-models of F and how these were averaged across programs. It seemed to the panel members that whichever program had the largest sample size was fit most closely in the analysis, and this would not necessarily be how you would want it. It would be more in proportion to the amount of stock that's represented by a particular tagging program.

Different natural mortality rates could be explained by various assumptions that were not met in the analysis. For example, there could have been differences in the tagging program due to the different sizes of the fish tag, the time of year or environmental effects during the tagging process.

The coast-wide estimate of instantaneous natural mortality was 0.15, as Beth pointed out, but the output F is substantially lower in recent years than the SCA model, and the cause of this remains unresolved. Finally, the panel felt that this was a fruitful approach but possibly overestimated the information content of the data with additional sets of F having to be estimated that's the release mortality. In the future a goal of estimating year-specific M put a lot of emphasis on the need for an extraordinary amount of data to estimate all those parameters.

Okay, we'll go on to Term of Reference Six, which was the review of the statistical catch-at-age model with the instantaneous rates catch/release model. Currently this was an early stage of development when we looked at it. It looked like a worthwhile progression for assessing this stock. The more recent stock dynamics were consistent from this model – as estimated from this model were consistent with the instantaneous rates catch/release model.

The two components estimates of F may not be defined the same way between the statistical catch at age and the instantaneous catch rates model – instantaneous rates catch/release model. As Gary had mentioned in his wrap-up of his explanation of that model, there was a recommendation to maybe change the length of tagged animals into their corresponding ages and look at age-specific fishing mortalities.

Another possibility was to incorporate some kind of proportionality between the Fs because the panel felt that these Fs that were estimated each year by these two models weren't necessarily directly equivalent but may be giving information on trends that would be useful together. As currently configured, the model might suffer from the issue that the selectivity may not be flat-topped as is assumed in the model.

The panel noted that there was a lack of much change in fishing mortality when the catch at age and surveys

were weighted much more heavily in the model than the tagging estimates. Generally what Gary had mentioned is that there was an overwhelming effect by the amount of tagging data in the model, so an important area of research is to look at how to appropriately weight those two sources of data when this combined analysis is determined.

Lastly, it looks like there is a need for more work, and, really, the success of this depends on the ability of the IRCR model to estimate M accurately and somehow to determine how to mesh the estimates of fishing mortality together.

And, finally, the last term of reference, Term of Reference Seven was to evaluate the current biological reference points of Atlantic striped bass. The purpose of this term of reference was to review the methods used to determine the current biological reference points and to get the review committee's opinion on whether they were developed appropriately and whether those approaches should be continued.

The panel noted that the current management-based approach has been very effective in promoting stock recovery and wanted to point that out, certainly. As for reference points, there should be a link between the threshold and target so that when one is changed, the other one is changed. Apparently that hasn't happened in the past.

The statistical catch at age generated F the panel found was better suited for comparison with the current reference points. The panel also noted that the problem with the current reference points and their inclusion of the biased ages – that means the ages 13-plus, I would say when they're grouped together is not biased but the lack of information on the age structure in that plus group suggests a possible solution to something like looking at a constrained age approach; why not look at the F on age seven where you know that those are actually age sevens and not a conglomeration of unknown ages?

That's one way to look at it. The assumption of a one-to-one sex ratio in the catch needs to be evaluated. When we're talking about the female spawning stock biomass, that could be especially important, noting the differences between sexes for striped bass. The reference points should be estimated within the model. It would be possible to estimate the fishing mortality at MSY with a spawner/recruit relationship included in the SCA model.

The 1995 stock biomass could still be used as a reference point for recovery if that's what you chose, but it should be used as a ratio so that the 1995 biomass estimated within the updated model would be the new overfished definition. I think that was our comments for all of the terms of reference. We had a list of recommendations that I'm just going to put up here. I'm not going to go through them for the sake of time.

The review committee also had these recommendations that they felt would provide the needed data for the assessment in the future and improve the assessment model or provide managers with more relevant management information. That wraps up my quick summary of the review.

CHAIRMAN DIODATI: Thank you, Mike. Any questions for Mike or for actually any of the assessment victims that are up here? Roy.

MR. MILLER: I have one for the bulk of the assessment victims. I'm going to ask them to speculate a little bit, if I may. If a jurisdiction like the Delaware Estuary Jurisdiction were to submit a proposal to vary the minimum length, say, for recreational fishing – based on what I've heard today, I've heard some remarks that would lead one to conclude that perhaps the tag-based estimates of F are not as robust as the forward-projection model.

Would you speculate that a proposal submitted on behalf of the Delaware jurisdictions to alter the minimum length, based on tag-based estimates of F, is inappropriate or appropriate to consider at this juncture? Thank you.

MR. GROUT: If you want a straightforward answer, I would there would be people on the technical committee that would support that and people on the technical committee that would not support that.

CHAIRMAN DIODATI: You get a 50/50 chance, Roy. Any other questions? Go ahead, A.C.

MR. A.C. CARPENTER: It's not a question as much as it is a worry of mine that the assessment people started out saying that we had too many size limits and too many regulations in to many areas, and it seems to me the answer to Roy's question is it will mean one more model because everytime we look we get a new model that is being developed to try to answer this. So, are you all trying to get even with us?

CHAIRMAN DIODATI: No other questions, I'll just say that given how extensive these fisheries are and the amount of information that you've compiled, you've done an extraordinary job, all of you, and we appreciate that. I'm sure on behalf of the Board, it's okay to thank to your for that work. You did an excellent job. Go ahead, Roy.

MR. MILLER: Mr. Chairman, to follow up on what A.C. said, let me just point out that the Delaware jurisdictions have been locked in since the passage of Amendment 6 to basically a coastal regime to govern their recreational fisheries with a minimum size at 28 inches. I don't think any of us in the Delaware jurisdictions ever thought that this would go on ad infinitum; that the Delaware jurisdictions would forever be locked into a minimum size at 28 inches.

We're merely exploring, Mr. Chairman, the possibility of making a jurisdiction-specific submission. Basically, we're not fishing on the male component of the stock that is proposed in the Delaware Estuary. That component is pretty much invulnerable to recreational fishing in our jurisdiction. The only component of the stock we're able to fish on legally is the female component.

I don't think it's inappropriate at some point in the future to consider some changes as to how we manage these individual – I hesitate to use the term "producer-area stocks"; I'll use something else – individual components that contribute to the overall fish stock that we all fish on. Thank you.

CHAIRMAN DIODATI: Okay, I think, Roy, you're really talking specifically to one of our agenda items which are possible changes to the future management program, so we could visit that and other potential issues. But just to complete the stock assessment presentation, are there anymore questions from the Board? I don't see any. I'll quickly go to the audience if there are one or two questions that you might have that are very specific to all this information that has been provided this morning.

APPROVAL OF STOCK ASSESSMENT FOR MANAGEMENT USE

Seeing none, do we have a general consensus for approval that the stock assessment information that's been provided is useful for our management of this resource? I'm seeing around the table all nods of agreement. I don't think we have to take a vote on that; that's fine. Now I think we could get to the next issue, which is one that I think Roy is talking about, and that is are we at the point, given that we've done this major peer review. Eric, you have something?

MR. SMITH: If I may, Mr. Chairman, I was biding my time on one small point. I did not want it to get in the way of approval of an assessment that I think is a good one and a peer review that I think is a good one and very useful for us for management. Having said that, I noticed, as I reviewed the documents – and I think it's a function of the fact that we used the normal Northeast Region SAW/SARC process – if you note the front end of the documents has the boilerplate on how the assessment is done and how the reference points are viewed, and it struck me that we're fortunate here that no matter how we looked at this, whatever model was used, we're not overfished and overfishing is not occurring, and that's great news, smiley face.

However, had we been in the mode where we weren't on quite so much the good side of those reference points, this assessment – the boilerplate at the front end had a lot of overtones that are Magnuson related, and this is not a Magnuson-driven plan.

The one that struck me is when I looked in the report and realized that in the definitions of the ten-year rebuilding strategy and so forth, it's not a problem for now so I didn't want to muddy up the works, but we should be very careful in the future as we get our stock assessed. I think the peer review did a great job because they actually focused just on what our reference points are and what the models suggested based on our reference points. But in the future that might not always be so and we don't want to get dragged into a vortex that then we have to extricate ourselves from. Thanks.

POTENTIAL CHANGES TO THE MANAGEMENT PROGRAM

CHAIRMAN DIODATI: Thank you, Eric. Okay, so with that, is there going to be any discussion about potential changes to the management program? I assume that this item has been added for potential consideration of new addenda or even a new amendment. What is open here; what is available to the Board here for discussion?

MR. ROBERT E. BEAL: Thank you, Mr. Chairman. This is kind of a standard agenda item after we get a new benchmark assessment and peer review. Now that we have this new chunk of information, is there a decision that the Board wants to make with regard to future management. If you look at the action plan for

this year, there is note of a potential addendum if resources are available.

So if this Board chose to move forward with an addendum, we would have to keep resources in mind as we developed the scope of that addendum, and then we can decide what the most appropriate way or efficient way to move forward with that would be.

CHAIRMAN DIODATI: Okay, so even at the next Board meeting we'll be open to discussion about possible changes to the management plan. We don't have to discuss it all today, but we can begin our discussion today and carry it into the next meeting. Eric.

MR. SMITH: Thank you. To follow up, I wanted to offer – I thought Roy was on the right track with the nature of his comment. It struck me, when I was thinking about Gary's presentation, in the best of all worlds, even the model that suggest F is higher – in other words, the SCA. I hate that acronym – the catch-at-age model suggests a higher F than the catch equation method, but the retrospective pattern, if that comes through as they think it will, F even from the statistical catch-at-age model would be lower, and to me that translates to opportunity for society to fish for more fish than we are now as long as we approach it judiciously.

No one wants to go over the line and have to backpedal, and I think that's the natural resistance to change we're all going to have because we're happy with where we've been for the last 12 years and having a well-managed stock that's not overfished and overfishing is not occurring.

As we evolve into this discussion over the next six or eight months, looking at '09 and what we want to have in our workplan for the future, I'm an advocate, as I said in herring earlier today, of providing opportunities to the public where we can and as long as long as we're still properly conserving the resource. So, I want us to look forward to can we increase the bag limit, can we reduce the minimum length judiciously and not just say, "Great news, we're not overfished; let's go on to the next species." Thank you.

MR. GROUT: If I could just make a comment on that, as you go forward in thinking about this, if you decide to go in that direction, some of the recommendations of the peer review panel – and these are things that have been discussed at the technical committee – is that the peer review panel is suggesting that having those static reference points and using a different model, a different series is not appropriate; that it would be better – you would have better reference points if you incorporated what – we have approved the SCA model here for use in this particular assessment.

If you incorporated the information from that model into calculating your current reference points, that mean that F may go down, it may mean your reference points may change so that you're actually closer to the threshold and target than what is shown here or it could be that it's going to be wider. We don't know quite yet.

The other thing that they said – and this relates to the catch equation method – that catch equation method is not – because it uses different selectivity patterns, in the statistical catch at age, we're saying that ages eight to eleven are fully recruited. The tagging data, we're saying 28 inches and above is the F that were measured, but in that there is – not all of the 28-inch fish may be fully recruited.

So, the peer review panel is saying that isn't an appropriate model to compare to your current reference points. So, just keep that in mind before you start moving forward to potentially relaxing regulations in some form. You may get your next assessment – if you let us change the reference points to be more reflective of what model we're using, you may find that it may not be as judicious to do that as you do now.

CHAIRMAN DIODATI: Thanks, Doug. Go ahead, Wilson.

DR. LANEY: Well, just as a followup to Doug's observation, then, Doug, how long will it be before the technical committee takes a look at those recommendations and generates a new series of reference points so we can see where we are or where we would be?

MR. GROUT: That would depend on the direction that the Board gave us, I would say. If the Board wanted us to look at that, I mean it could be done this year. We have a peer-reviewed assessment that you folks have approved right now that is saying, at least from the peer review, that the statistical catch at age is the preferred model method because it matches up better with your reference points.

TURN-OF-THE-CRANK ASSESSMENT

We are currently on an annual assessment basis. You gave us a year off to work on this assessment, and

we're actually going to be recommending that you go to biennial assessments. So, the next time you'd actually have a turn-of-the-crank wouldn't be until, say, 2009 or 2010. But, we could start working on what the reference points are, if we were to go in that direction, probably this summer and show you what it would be.

CHAIRMAN DIODATI: Any other comments here? It strikes me that we're going to have different types of proposals here. Connecticut's thoughts might not correspond to Delaware and Delaware might not correspond to Massachusetts. The plan is somewhat dynamic. There is some opportunity for adaptive management approaches, so maybe the better approach, rather than have an open discussion about this, is for those that are looking for programmatic changes in the near future, to put together something in writing so that staff could evaluate in what context the plan could accommodate that the way it is.

First of all, do we have the adaptive management flexibility to deal with it; does it require an addendum. If we go in that direction, I think we might want to know what are the risks to failing to continue with this sustainable fishery that we seem to have enjoyed for 12 years? I think we all want to consider that before we go into a new management direction.

With that, I think we can just move on, and I encourage you to put your thoughts in writing. Roy, I think you have a definite proposal that you'd like to see that might not be accommodated by the current amendment, so we can deal with that once we see it in writing. Bob.

MR. BEAL: Just a quick question; are you asking for the states and jurisdictions to put together full proposals or just sort of conceptual ideas of approaches that they may want to consider in the future and then staff can look back at the fishery management plan and provide the information you were addressing?

CHAIRMAN DIODATI: I would suggest proposals that are more conceptual, kind of like a planning document, this is what I'd like, what does it require, that sort of thing so we can evaluate it that way. It's a unique opportunity not to be forced into doing a new amendment because we're overfishing. That's usually what we're involved in, and that's not the case here. Roy.

MR. MILLER: Just a clarification, Mr. Chairman. It sounds like what you're suggesting is that if a jurisdiction wants to submit an alternative proposal, they virtually do the work that a plan review team might accomplish; is that what you're suggesting?

CHAIRMAN DIODATI: I'm not suggesting that you do that extent of a job. I think what you need to do is to put your proposal down in writing conceptually so that staff could evaluate it to see what would be required in our planning process to accommodate it. You know, there might be an opportunity for some of the things that we're talking about, to accomplish them without doing even another addendum. Did you want to add anything else, Bob? John; this looks like trouble.

MR. JOHN I. NELSON, JR.: Thanks, Mr. Chairman. I have been sharpening my hooks, and I think I might have a little time to go out there in a few months.

CHAIRMAN DIODATI: Yes, I understand that.

MR. NELSON: So, don't do anything about modifying the abundance out there. It's just there was a little confusion in my mind, Paul. I was nodding at what you had suggested as far as the peer review report and everything, but as I thought about it, normally we say we accept the report. Was that your intention, that we have accepted the peer review report?

CHAIRMAN DIODATI: Yes.

MR. NELSON: Okay, I wasn't clear that is what your verbiage was saying.

CHAIRMAN DIODATI: Okay, we did accept the peer review report and the current stock assessment is appropriate for management use. That was my intention.

MR. NELSON: And then just as a follow up, this discussion as far as the reference points and how we may or may not modify them based on what is recommended in the report is something that we're going to do?

CHAIRMAN DIODATI: If there are proposals that would require a change to our current planning process, like a new addendum or perhaps a new amendment, then that's where I suspect we would be changing things or looking at things like more dynamic reference points. It wasn't clear to me from the assessment presentation what benefit that would be to our managing the resource.

Although I understand that mathematically it make more sense to do that, I'm not sure if there is any

benefit in going from the static reference points that we've been using to a more dynamic or fluctuated one.

MR. NELSON: If I could, Mr. Chairman, then to follow up on that, I think Wilson and Doug had mentioned that maybe it would be helpful to have them go through the exercise of showing us under current circumstances, well, okay, if we use the new approach, what would our reference point be and what does it mean to all of us?

I think that would be helpful if we got some new proposal in that we could assess it by what we currently have and what it would mean for using a new approach. You know, I would suggest that we do that.

CHAIRMAN DIODATI: Task them?

MR. NELSON: Yes.

CHAIRMAN DIODATI: Is there general agreement with the rest of the Board to task the technical committee with that assignment? Yes, I think you have that, Doug. Anything else, John?

MR. NELSON: I'm always happy to task Doug with something else.

MR. GROUT: It won't be me.

TECHNICAL COMMITTEE RECOMMENDATION REGARDING HUDSON RIVER JUVENILE ABUNDANCE INDICES

CHAIRMAN DIODATI: In an attempt to try to move this along, I think, Doug, you're next up in terms of a committee recommendation regarding the Hudson River Juvenile Abundance Index. You also had raised a point just a little earlier about going to every other year. Was that on the stock assessment; what was that about? Was that going on the stock assessment or is that something we want to bring up under other business?

MR. GROUT: It was related to the next stock assessment; when is the next turn-of-the-crank going to be? Do you want me to elaborate on it?

CHAIRMAN DIODATI: Should we talk about that under other business at this point and maybe continue with this agenda. I would think the next full turn-of-the-crank would be not next year but the year after.

MR. GROUT: That's our recommendation from the technical committee's standpoint, to go to a biennial assessment as opposed to annual assessments that we've been dealing with for the past 15 or 20 years.

CHAIRMAN DIODATI: So next year we kind of get the temperature of things, maybe a more succinct assessment, and then the following year we get the turn-of-the-crank. Does everyone understand and agree with that? Bob.

MR. BEAL: Just to make sure that everybody is on the same page; the next turn-of-the-crank would be due to be reported to the management board in 2010 with data that went through 2009; is that the numbers we're working with?

CHAIRMAN DIODATI: I believe so, that would be January of 2010.

MR. GROUT: It can be that way although if you look, our data currently goes through 2006, so if you were going to go every other year, you'd be reporting in the fall of 2009 on information through 2008, but if you want to skip another year, I don't have any problem with that.

CHAIRMAN DIODATI: Well, what was the committee's recommendation before we –

MR. GROUT: Every other year, which 2009 would be the next report to you on 2008 information, including 2008 information.

CHAIRMAN DIODATI: Is everybody happy with that recommendation? I see nods of agreement, so that is what we'll go with, Doug. Okay, Doug, you can go on to Item 6, the Hudson River.

MR. GROUT: Thank you, Mr. Chairman. In Amendment 6 you set up a trigger that if any of the juvenile abundance indices dropped below the 75th percentile for three consecutive years, that there should be some examination or recommendation from the technical committee on potential future management measures to try and address that.

I sent a memo to the Board, and this was approved by the technical committee, because in the Hudson River, during 2004, 2005 and 2006, all the values were below 75th percentile. Our recommendation is that no management action is necessary for two reasons. First of all, we've received from New York the preliminary estimate of the 2007 Hudson River JAI, and that's going to be 34.01. That is the highest value in the 28-year time series that they have.

In addition, you've just seen an assessment that you've accepted that states that the status of the stocks are that overfishing is not occurring and the stocks are not overfished. Based on that, we feel comfortable from the technical committee saying that there is no action that you need to take related to the Hudson River "recruitment failure".

CHAIRMAN DIODATI: Doug, first a question. I seem to recall that the JAIs from the Hudson were always more stable than some of the other young-of-the-year indices. Even during periods of extreme decline of the resource, the historical decline, I think the JAIs in the Hudson were always relatively stable, indicating there probably wasn't any failure there. Is there any speculation as to why we saw this failure the past three years?

MR. GROUT: Not that I'm aware of. There are some things that I don't know if New York wants to address that, but go ahead, that might be the best way to handle it.

MR. GILMORE: Mr. Chairman, I think the biggest issue was the – one of concerns was the contractor was changed, I guess, a couple of years ago. It went over to SUNY Stony Brook, and it seemed like there was some different things that were done when they took it over. So, for lack of a better explanation, that seems the most viable one.

CHAIRMAN DIODATI: So the survey methodology changed under a new contract. Well, okay, does the Board want to accept the recommendation of the committee, which is basically to bypass this and we wait and see as we become more optimistic with this high year class? Okay, there is a lot of nodding, Doug, so we're not going to act on that. Number 7 on the agenda, we should have a fact sheet that Nichola is going to talk about.

MANAGEMENT, STOCK STATUS AND FISHERY TRENDS FACT SHEET

MS. NICHOLA MESERVE: Thank you, Mr. Chairman. At the last Board meeting, this Board briefly discussed the President's Executive Order on striped bass and game fish in the EEX. The Board asked staff to put together a fact sheet, and this is on the briefing CD. It is just two pages. It covers the management of striped bass, the stock status from the 2007 assessment that was just presented, and also some trends in the fishery. At this point staff is just looking for any suggestions to improve the fact sheet, and those could be submitted to me after the meeting, and it would sent out as a final draft. Thank you.

MR. R. WHITE: Thank you, Mr. Chairman, an excellent job. I guess the only recommendation I would make is under stock status I'd put in large, bold print "not overfished; overfishing not occurring", to kind of emphasize that, so that stands out.

CHAIRMAN DIODATI: Has everyone else had an opportunity to take a look at it or could we do that over the next couple of days? Everyone that has seen it seems to like it, but what is the intent for the document? What would be the next thing; is this is a web posting or mailing or what are you going to do with this thing?

MR. BEAL: Just as background, this is responding to requests from – I think it was made at the Policy Board at the annual meeting. I think Dr. Daniel from North Carolina was the one that started this. He has looked it over, incidentally, and said he liked it.

I think this was during the discussion of the executive order, and some of the states just wanted a small fact sheet that they could use when and if discussions at the state level came up on issues such as having striped bass become a recreational-only species and those sorts of things. It's really up to the managers. Staff put it together just to be able to help out the states and have a consistent focus in front of folks.

CHAIRMAN DIODATI: Okay, so all members of all of our delegations have the same information in our pocket, so to speak, which is very handy. John, did you want to say something about that?

MR. NELSON: Yes, thanks, Mr. Chairman. I, too, think it's an excellent couple of pages of information to hand out to folks. I would just note under the stock status again, we have a footnote for it, for one, referencing the stock assessment report, which says it has not been finalized or approved for management means. I think we just to need modify that.

CHAIRMAN DIODATI: Good point. Okay, any other comments or questions? Roy and then Eric.

MR. MILLER: Mr. Chairman, I just recommend, if this pleases the Board, that this particular document be made available on the ASMFC Website for everyone to see.

MR. SMITH: Thank you, a small point. Most of these figures show things that are annual and even

broken down harvest versus discard recreational and commercial harvest and commercial discards. In the bullets at the top of Page 2, under Fishery Trends, I wonder if it wouldn't be better if we just averaged dead discards in each, recreational and commercial, only because the point we talked before, there is some uncertainty about the '06 commercial discard rate.

You might get a better sense of reality if you averaged the 775,000 fish and the 200,000 and gave yourself a mean, and you did it in both fisheries, erasing some of that uncertainty not having to explain it. Granted, people can get at the individual year-specific numbers just by looking at the figures, but then the bullet doesn't – I mean, I look at the bullet under commercial dead discards, and I have the same question that I asked of Gary before; how come it dropped by two-thirds? Well, it probably really didn't, but it raises that question. So, just that point. Thank you.

MR. GIL POPE: Thank you, Mr. Chairman. A couple of years ago I had a question as to why it went from 3 percent to the 10 percent, and I never really got a good answer for that. In other words, at one point it was very point, and then in one year, when we got the pie back, all of a sudden the pie didn't say 3 percent anymore; it said 10 percent. I asked the question then two or three years ago and nobody really seemed to know the answer, but to me it's like coming back to where maybe it should have been. Thank you.

MR. CARPENTER: I would like to ask for a footnote on the 20-inch size limit that's referred to for the Chesapeake Bay; that the actual is 18 inches through conservation equivalency measures, just so that people don't get confused and forget that we are fishing at 18 inches.

CHAIRMAN DIODATI: More suggested changes to this document? Vince.

EXECUTIVE DIRECTOR O'SHEA: Thanks, Mr. Chairman. You know, given the couple of comments here and now the fact that you've made a decision to put it on the website, I figure it would be wise to –

CHAIRMAN DIODATI: I was going to revisit that.

EXECUTIVE DIRECTOR O'SHEA: Oh, okay.

CHAIRMAN DIODATI: That was a comment that was made; I don't think there was any general agreement yet.

EXCUTIVE DIRECTOR O'SHEA: Then depending on what you do with that, then I might follow up.

CHAIRMAN DIODATI: Okay, any other comments to improve the document or anything of substance to the document? If we could all just look at it over the next couple of days and get those kind of comments that haven't been already made to Nichola, a revised version will be given to you soon.

Roy's suggestion to post this on the web, I guess we'll have a little discussion about that. We don't need a motion or handle it that way, but is that something that the Board wishes to do or does that create more work for staff as it fields questions from the public about it? There is a lot of assessment information available. Eric.

MR. SMITH: Having seen the dynamic of the discussions since Roy made that comment, it made me stop and think of how the viewer from outside would look at that when it got on the website. I think you'd need a lot more explanation to understand what these two pages really mean, and this might be one that's more useful to use when we need to in response to a question to explain what the whole management status of the stock is.

You'd almost need another half page of preamble to really give a sense to the uninitiated person just bouncing around a website to know what this all means. I would be reluctant to use the website approach without some more –

CHAIRMAN DIODATI: Yes, likewise, it would be my personal preference to maintain this as a commissioner's cheat sheet, so to speak. Given that the volume of assessment information that we saw is quite large and a lot of that is available on the website, I think that's always the best way to deal with the public and not be that brief. Any other comments on that? I think we're going to let it go that way. Okay, we have an update on the cooperative winter tagging cruise, Wilson.

COOPERATIVE WINTER TAGGING CRUISE UPDATE

DR. LANEY: Since we just literally got off the ship just about, we thought we'd take just a very brief moment of your time and give you an update on the result of the 21st Cooperative Winter Tagging Cruise. If you recall, this is one of the eight tagging programs to which Doug and Beth referred earlier.

This one is done off the coast of North Carolina and Virginia and has been done annually since 1988. You see up at the top there a host of partners, all of whom participate in the cruise, and I'll cover that in a second. First acknowledgements, this cruise would not be possible without a tremendous number of partners who supported both through provision of staff and from shore.

In particular, the principal ones through the years have been Maryland DNR. They had two staff on the ship this year. NOAA, of course, the ship itself and the crew, for the most part for this particular cruise we've used the NOAA Ship Oregon II, which is based out Pascagoula, Mississippi, for 15 of those 21 years. We've used some other vessels but the Oregon II has been our mainstay.
North Carolina DMF, of course, has been a strong partner. They had four staff persons on the ship this year. Of course, the Fish and Wildlife Service, Region 5, provides all the tags. Edenton National Fish Hatchery stores all of our gear and annually helps us to mobilize and demobilize it. Of course, my office and the Maryland Fishery Resources Office provide staff.

This year, for the first time, we had a U.S. Geological Survey scientist on board from Dr. Ken Sulack's Sturgeon Quest Program, which is based out of Gainesville, Florida. Mike Randall was with us. And, finally, and certainly last but not least, the Virginia Marine Resources Commission, Jack Travelstead, and the Marine Patrol, who this year literally bailed us out by getting additional sturgeon pit tags.

We caught so many sturgeon this year, as you'll see in a minute, that we actually ran out of pit tags, and Jack and his staff were very instrumental in resupplying us. Okay, the scientific party members this year, there were 13 of us on the ship. In the interest time I won't read all those names, but if you're interested we'll get you a copy of the summary report later.

This is the Oregon II. It's a 170-foot side trawler that normally pulls two 65-foot high-opening bottom trawls. This year we did have a little problem with the trawl winch that prevented us from towing both nets for much of the cruise. If you take that into perspective, our numbers will look all that much better given that we could only exercise half the effort for most of the trip.

Okay, striped bass is job one. For those of you who know – and this is Steven Taylor – I like to have my scientific party members happy and they are happy when they can grab and hug large stripers, and this was one. It wasn't our longest fish, but it probably was our heaviest fish. This year we captured 1,040 striped bass; we tagged and released 1,033 of those. There were six recaptures.

Mixed stock, once again, comes to the fore, fish that had been previously tagged in New Jersey, several from the Hudson River, and I might note a couple of these, we had tagged on previous cruises; one tagged three years before and one tagged two years before. We only had one mortality this year. We had one fish that got gilled in the wings.

A majority of the fish were over 28 inches in length. We haven't had time to do the length frequency yet, but we will have that information in the future. Atlantic sturgeon, this year was a banner year for Atlantic sturgeon. This one that you're looking at in this photo is the largest one that we caught. It's almost six feet long and probably weighed – the weight estimates varied. I think it weighed a hundred pounds.

My scientists were telling me my eyes were too big and it was probably less than that, but nevertheless it was the biggest sturgeon that we've ever caught on a trip. We caught 73 this year, which is the highest number that we've ever caught in a single year. We got eleven in one tow. We caught 25 during one six-hour watch. We had four recaptures, and this is very interesting to me.

One was your and Chris' fish that was originally tagged May the 16th in Burwell Bay and the James River. We had another one that was tagged in the Edisto River in South Carolina in July of 2003, so that fish has been out there a while. Then we had a couple of others; one that had been tagged in the ocean off Rockaway Point, New York, and then one other one tagged in the Eastern Bay.

So, previous genetic work that we published just last year indicates that we're getting fish out there literally from pretty much the entire range of Atlantic sturgeon, all the way from Canada down to Georgia, and our tag results now seem to be confirming that. We did sample a whole bunch of other species.

I'll just mention this because most of these are species that are under ASMFC management. We collected alocines. East Carolina University is doing some work on those. We collected quite a few

species for the North Carolina Division of Marine Fisheries to meet their aging targets. We continue to tag horseshoe crabs.

We continue to measure skates. We're providing that information to the New England Council. We continue to measure monkfish. Smooth dogfish is the subject of a lot of interest. I guess there is a fishery management plan that will be in preparation on that species so we collected those data.

We continued to do spiny dogfish work. We didn't tag them this year, but we did measure quite a few of those and determined their sex ration. We retained several other species for NCDMF as well, and we tagged our first thrasher shark this year. For some reason, during the last three or four years, we have begun to catch juvenile thrasher sharks, and NOAA is very interested in getting information on those, as is our own Coastal Shark Technical Committee, so we have tags for those now, and we tagged the first one this year.

What is next? Well, you all authorized the production of a 20-year summary report, so we'll be putting that together during this calendar year. We hope to have that done by the end of the year. We are already planning for the 2009 cruise. The good news from my perspective is that I understand NOAA is planning to keep the Oregon II around for a good many more years now because it is a shallow-draft vessel and it has a tremendous amount of fishing power.

It's the perfect vessel for us in doing this cruise, so I hope she will be around for a while longer. We're talking to East Carolina about putting sonic transmitters out in spiny dogfish. They're actually talking to Sea Grant and to some other possible funding sources about establishing a VR-2 receiver array off the coast of North Carolina to try and begin to get a handle on spiny dogfish stock identification and movement. We're talking about putting transmitters out in those next year.

We've also been talking for a good many years about putting sonic transmitters out there in some of these Atlantic sturgeon so we can try and really home in on where they're coming from. Now, just as a little preview of what is coming in the 20-year report, I did a presentation actually at the AFS meeting last year.

One of the things that we're going to do in the 20-year report – we also did this for the current stock assessment – is to start taking a look at the distribution of the fish on the wintering grounds. So what I'm going to do for you now is flip real quickly through the first 20 years of the cruise and pay attention to the brown circles.

These are raw numbers, so this is just fish per tow. They're not adjusted to catch-per-unit effort or anything. The plus signs that you see there are tows that came up with no fish. So what you will see, as we look at this 20-year period here, is how the fish have been distributed on the wintering grounds off Virginia and North Carolina.

This is the last year that we had the data mapped for, which is 2007, and you'll notice in 2007 there were very few fish off the coast of North Carolina. Most of them were either up inside the bay, where we don't trawl, or north of the Chesapeake Bay Entrance Channel, and that's pretty much the same pattern we found this year.

There were a lot more fish off of Southeastern Virginia. The reason for that big gap in the middle there, between all the cross-marks that you can see, is because that's where the entrance channel is for the bay. There is also a large military restricted zone off of Southeastern Virginia there where we're not allowed to trawl because of unexploded ordnance and things like that.

We've already dealt with unexploded ordnance on one previous cruise, and we'd prefer not to have to deal with that again. That's the reason for the gap. Anyway, Mr. Chairman, that's my report. There will be a whole lot more coming in the 20-year summary report and not just about striped bass but about summer flounder and spiny dogfish and all the other species we work with as well. I'll be happy to answer any questions. Thank you.

CHAIRMAN DIODATI: Good job, Wilson.

DR. LANEY: One thing, Paul, I forgot to show you. The last slide here is where the recaptures have come from. What you saw in those previous 20 slides was where we caught the fish. This is where they've been caught back.

I only put one year in here because it basically looks the same from year to year, and that is we get recaptures back from where people fish on striped bass, which is what you would expect. While we did have one year when we got one return from Nova Scotia up in Canada, but pretty much it's North Carolina through Maine every year for the recaptures. Thank you.

MR. WILLIAM A. ADLER: Thank you, Mr. Chairman, just a couple of questions. I'm certainly glad to see the sturgeon aren't extinct. You had a slide there where you said horseshoe crab you had – I think it was like 106-8, and I didn't understand what that was. Lastly, does this information get fed into the stock assessment for that particular species?

DR. LANEY: The answer to the first question, Bill, is that 106 is how many horseshoe crabs that we caught, and the eight is how many we tagged. We only tag the sexually mature ones because if you tag them before they're sexually mature, they can't shed their shell and they die. So that's what those numbers are.

The answer to the second question is, yes, to the extent that the data are used, certainly the tag-return data are used, as you heard Doug and Beth talk about in the striped bass stock assessment. Dr. Paul Rago is getting the spiny dogfish length frequency data, and I'm not sure to what extent he uses them in that assessment, but they are available to him.

Then the aging that the North Carolina Division of Marine Fisheries uses goes into the stock assessment, I presume, for all those species. We make every effort we can to let people know that these data exist and that they are publicly at public expense and that they are available for use by anyone who has a legitimate need to use them.

MR. ADLER: Okay, because you were very surprised with the sturgeon catch, and I was hoping that would go into the sturgeon stock assessment. Thank you.

DR. LANEY: Let me speak to that point, Bill. It is my supposition – and that's all it is because we haven't done any sort of analysis yet – that I think that the fact that the sturgeon numbers went up so high this year, hopefully, is a reflection of an improving stock. I hope that is the case, but our work is not designed to be a survey. It is strictly a tagging cruise. We are out there to catch as many fish as we can and tag them.

So we don't have a preset number of stations that you could use as an index to population size. Now, we've talked about that. Gary Nelson and Doug and I have talked about whether or not we might be able to use the striped bass numbers in some sort of an index in addition to the marked recapture data themselves that might serve as an index of size for stripers.

You might be able to do the same thing for Atlantic sturgeon, I don't know. We will have to examine the data set a whole lot more thoroughly before we decide to do something like that. What I think it's more a reflection of is that this year, for the first time, because of the interest in Atlantic sturgeon, we targeted Atlantic sturgeon.

In the past we've been targeting striped bass primarily so we caught Atlantic sturgeon incidental to catching striped bass. If we caught a sturgeon, we didn't turn the boat around and go back through the same area. This year we said, "Hey, why not, we caught 11 in one tow," so that, you know, even for somebody like me is sort of an indication, well, if there's 11 there, there might be a few more in the area.

So we did turn the ship around and we towed back through the same area, and we caught 25 on one watch. So, for some reason they seem to like this particular spot. We hit it again on our way back south and we caught a whole bunch more of them. Now that we know where they are, we may be able to improve our numbers and target them a little bit more effectively in future years.

I will say once again we've had requests in the past for sturgeon mortalities. Well, I'm pleased to report we've had no sturgeon mortalities. We do very short tow times. We're working in very cold water; and to my knowledge, we haven't killed a single one in 21 years of running this program.

EXECUTIVE DIRECTOR O'SHEA: Thanks, Mr. Chairman, and thanks, Dr. Laney, for this great report. I know we didn't have time to mention everybody that was on the cruise, so I'll make time to mention the fact that Nichola from the ASMFC, Patrick Campfield from ASMFC, and Kate Fleming from ACCSP were the three staffers from D.C. that were on the cruise. I thank them very much for stepping up and serving so well under Dr. Laney's leadership. Thank you, Mr. Chairman.

DR. LANEY: And I'll weigh in and just say that this presentation is largely the work of Nichola Meserve. Also, Nichola and Jennifer Cudny and Luke Whitman, I guess, were my three primary data people on the cruise this year. That's the reason we can crank these numbers out and get them out to you as fast as we can because of all their hard work.

Well, like I said, I could not do the cruise without the tremendous number of people that support it annually. It's a growing example, I think, of a state,

federal and NCO partnership, because we have had folks from the Nature Conservancy out there before. We have had the Canadian DFO out there. We've had the South Atlantic Council out there.

So, just about everyone who is involved in fishery management of striped bass has been out there, and you're welcome to come. Just submit your application, let me know you want to go, and we'll get you out there.

OTHER BUSINESS

CHAIRMAN DIODATI: Great job, Wilson, thank you. Okay, we're in the part of the agenda that says other business, and I know that we have some AP nominations to discuss. Do you want to begin with that, Nichola.

NOMINATION TO THE ADVISORY PANEL

MS. MESERVE: I will also add that the cruise is a lot of work, but it's also a lot of fun, so it was a pleasure. On the AP, Dave Gittens from Maine stepped down, and so Rodney "Chip" Gray has been nominated to replace him as a recreational fisherman. I will also note that the AP is meeting this afternoon in the Roosevelt Room. It is open to the public and anyone else can join us if they would like.

CHAIRMAN DIODATI: Okay, Terry, would you like to make a motion to approve Rodney's nomination?

MR. TERRY STOCKWELL: So move, Mr. Chair.

CHAIRMAN DIODATI: Seconded by Mr. Nelson. **If there is no discussion, we'll just, by consensus, approve Rodney's appointment to the AP.** Are there any other AP nominations? Is there more other business? Yes, Doug.

MR. GROUT: Just one other thing. I think you all need to give our stock assessment committee and our tagging committee, their chairs and all the people that contributed to the stock assessment, a round of applause because they put in a lot of work.

Even though we obviously have our difference of opinion on the panels, it makes our stock assessment stronger because we're always criticizing each other and making sure that what we're presenting is high quality. I would like to give a round of applause for both Dr. Gary Nelson and Beth Versak, because it wouldn't have happened without them. (Applause)

CHAIRMAN DIODATI: Any other business? Vince.

EXECUTIVE DIRECTOR O'SHEA: Thanks, Mr. Chairman. Since this will be the largest board meeting today, Mr. Chairman, we have a new science director that came on board at the beginning of December. That's Patrick Marchman, and I'll ask him to just stand up a second so you all see him.

We're pleased to have him on board, and, of course, he replaced Megan Caldwell or he's going to try to replace Megan Caldwell, I should say. He's off to a great start and we're just delighted. He had excellent credentials. We had a strong group to pick from, and we're very happy. So, hopefully, he'll get around to seeing you this week. We're excited Patrick is here. Thank you, Mr. Chairman. (Applause)

ADJOURN

CHAIRMAN DIODATI: Welcome, Patrick. If there is no other business, I will note that this is Commissioner Nelson's last Striped Bass Management Board meeting. You've always been such a big help to Massachusetts. Okay, if there is no other business, do we have a motion to adjourn? So, a motion to adjourn; seconded; so approved. Thank you.

(Whereupon, the meeting was adjourned at 1:05 o'clock p.m., February 4, 2008.)