

**PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SHAD AND RIVER HERRING MANAGEMENT BOARD**

**Crowne Plaza Hotel - Old Town
Alexandria, Virginia
May 1, 2012**

Approved August 2012

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INDEX OF MOTIONS

1. **Approval of Agenda by Consent** (Page 1)
2. **Approval of Proceedings of February 7, 2012** by Consent (Page 1)
3. **Move to accept the 2012 River Herring Stock Assessment and Peer Review Reports for management purposes** (Page 11). Motion by Pat Augustine; second by Terry Stockwell.. Motion carried (Page 11).
4. **Move to accept the working group's recommendations as presented relative to Amendment 5 and forward them to the Policy Board for further approval** (Page 16). Motion by Pat Augustine; second by Bill Adler. Motion carried (Page 17).
5. **Move to approve the American Shad Sustainable Fishery Management Plans for Maryland, recovery; North Carolina; and South Carolina amendment** (Page 18). Motion by Pat Augustine; second by Bill Adler. Motion carried (Page 18).
6. **Move to adjourn by Consent** (Page 19).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	John Clark, DE, Administrative proxy
Steve Train, ME (GA)	Bernie Pankowski, DE, proxy for Sen. Venables (LA)
Doug Grout, NH (AA)	Roy Miller, DE (GA)
G. Ritchie White, NH (GA)	Tom O'Connell, MD (AA)
Mike Armstrong, MA, proxy for P. Diodati (AA)	Russell Dize, MD, proxy for Sen. Colburn (LA)
Bill Adler, MA (GA)	Bill Goldsborough, MD (GA)
Rep. Sarah Peake, MA (LA)	Jack Travelstead, VA (AA)
Mark Gibson, RI, proxy for B. Ballou (AA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Bill McElroy, RI (GA)	Michelle Duval, NC, proxy for L. Daniel (AA)
David Simpson, CT (AA)	Mike Johnson, NC, proxy for Rep. Wainwright (LA)
Lance Stewart, CT (GA)	Mel Bell, SC, proxy for R. Boyles (LA)
James Gilmore, NY (AA)	Malcolm Rhodes, SC (GA)
Brian Culhane, NY, proxy for Sen. Johnson (LA)	Spud Woodward, GA (AA)
Pat Augustine, NY (GA)	Aaron Podey, FL (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	John Duren, GA (GA)
Tom Fote, NJ (GA)	Daniel Ryan, D.C.
Adam Nowalsky, NJ, proxy for Asm. Albano (LA)	Jaime Geiger, USFWS
Gene Kray, PA, proxy for Rep. Schroder (LA)	A.C. Carpenter, PRFC
David Saveikis, DE (AA)	Steve Meyers, NMFS

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

Ex-Officio Members

Pam Lyons Gromen, Advisory Panel Chair	Larry Miller, Technical Committee Chair
John Sweka, Stock Assmnt. Subcommittee Chair	

Staff

Vince O'Shea	Katie Drew
Bob Beal	Chris Vonderweidt
Kate Taylor	

Guests

Jeff Kaelin, Lund's Fisheries	Rob O'Reilly, VA DMR
Raymond Kane, CHOIR	Helen Takade-Himacher, EDF
Darren Saletta, MCSBA	Mary Beth Charles, NFWF
Kyle Molton, Ofc. of Rep. Pingree, ME	Tom McCloy, NJ DFW
Theresa Labriola, Pew Environ. Group	Bob Sadzinski, MD DNR
Janice Plante, Commercial Fisheries News	Karen, Capossela, MD DNR
Ellen Cosby, PRFC	Kim Damon-Randall, NMFS
Joe Grist, VMRC	Charles Lynch, NOAA
Mari-Beth DeLucia, The Nature Conservancy	Karin Limberg, SUNY Forestry, Syracuse
Peter Burns, NMFS	Kristin Cevoli, Herring Alliance/PEG
Peter Moore, MARACOOS/SFC	Patrick Paquette, Hyannis, MA

The Shad and River Herring Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crowne Plaza Hotel, Alexandria, Virginia, May 1, 2012, and was called to order at 3:45 o'clock p.m. by Chairman Michelle Duval.

CALL TO ORDER

CHAIRMAN MICHELLE DUVAL: We're going to go ahead and get started; we've got a pretty full agenda.

APPROVAL OF AGENDA

CHAIRMAN DUVAL: The first item is approval of the agenda. Are there any other items to add to the agenda? Seeing none, the agenda stands approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN DUVAL: The next item is approval of our proceedings from our February 7, 2012, meeting. Are there any changes to those proceedings? Seeing none, those proceedings stand approved.

PUBLIC COMMENT

CHAIRMAN DUVAL: This is a point in our agenda where we take comments from the public on items that are not on the agenda. We did not have anyone sign up for public comment, but are there any members of the public who wish to address the board at this point regarding items not on the our agenda? Seeing none, we will actually move into our very first item, which is the 2012 River Herring Stock Assessment. I'm going to turn it over to Dr. Sweka for the presentation of that assessment.

2012 RIVER HERRING STOCK ASSESSMENT REPORT

REPORT REVIEW

DR. JOHN SWEKA: First, I just want to recognize all the folks on the Stock Assessment Committee that have helped with this assessment. It has been literally several years in the making; a lot of meetings, a lot of work, and I just want to thank everybody. For the river herring stock assessment, just an outline of what we want to cover this afternoon; I want to give an overview of the state and regional data sets that we used in our assessment.

Coast-wide comparisons and trend analyses made up a bulk of the river herring assessment. These include total landings, incidental catch, biological data, total

mortality estimates; and then we were able to have enough data to run a few stock assessment models; and finally our conclusions from our assessment.

For river herring we had a total of 57 systems along the Atlantic Coast that have river herring. We looked at nine different fishery-independent and fishery-dependent data categories, which included harvest, age, length, weight, repeat spawner information and fishery-independent adult and juvenile abundance indices and fishery-dependent catch-per-unit effort indices.

This big table up here, which is obviously very hard to read, but we put it up here just to illustrate the fact that there are a lot of holes in the data on all the systems coastwide. 54 percent of the cells in this table are blank because we don't have data. Only 26 percent of them have complete or what we consider good data. Most of the places that we do have good data, they occur in the New England area.

For river herring management, ideally we would like to manage stocks on an individual river system basis, much like Pacific salmon are managed. However, this is difficult because the majority of the life history of river herring is spent in the marine environment and stocks are largely mixed in the marine environment.

This complex life history complicates coast-wide scale assessments. The data quantity and quality varies greatly along the coast and among states. The primary reason for this is just historically river herring have had a low management priority. We'll move on now to reported landings. The data sources for reported landings included the Bulletin of the U.S. Fish Commission, U.S. Fish Commission Annual Reports, state reports, Northwest Atlantic Fisheries Organization Reports.

We were able to have a time series of reported landings dating back to 1887 up until 2010. These reported landings mainly occur from in-river fisheries. One thing to keep in mind is the reporting requirements are variable over space and time. Oftentimes river herring are not identified as the species level.

Just a graph of the reported landings, and you can see the peak in reported landings occurred in the late sixties early seventies with about 65 million pounds of river herring being reported. Earlier in the time series we have a lot of blank years. These obviously don't mean that river herring were not harvested in those years.

It's just that we don't have documented reports in that time period. Chances are also for many of these earlier years these are underestimates of landings. I also would like to point out that in recent years, over the last decade, the landings of river herring have decreased more than 93 percent from what their peak was in the late sixties.

This graph shows the relative contribution of foreign fleets in U.S. landings, in the NAFO landings. You can see back around 1969 or '70, that's when the peak in landings occurred, and a large portion of them were due to foreign fleets. Moving on to total incidental catch estimates, these are catches in other fisheries in the ocean. We could find total incidental catch as the total catch of discarded plus retained catch.

These total incidental catch estimates were estimated by fleet and they were stratified by the region fished, which was New England and the Mid-Atlantic area; time of the year and quarter; gear. For example, we had 13 different groups of gear such as bottom trawls, paired midwater trawls, single midwater trawls, gill nets, longlines, et cetera, and also mesh for the bottom trawl and gill net fisheries.

The timeframe that we had enough information to come up with total incidental catch estimates for the midwater trawl fleets was just from 2005-2010 and all other fleets from 1989-2010. The reason why the time series is rather short is because improvements have been made in the observer program to have better coverage and methods for estimating total catch.

In the estimates of total incidental catch, we used a combined ratio method, and it was analyzed at the trip level. This graph just shows the relatively short time series of total annual incidental catch estimates that we have by species for alewife and blueback herring. We see in 1996 there was a peak in both species, and they have kind of fluctuated through time.

In 2005, that's when the midwater trawl fleets were included into our total incidental catch estimates. One thing I would like to point out, and you can see in the lower left-hand corner of this figure the coefficients of variation on these estimates are quite high. We didn't put any error bars on this graph because it would kind of swamp out the trends that you see in the point estimates. There is a lot of uncertainty in these total incidental catch estimates.

Also within the observer program, the observers collect biological data in the form of lengths of river herring that are caught in these fisheries. One thing we did was to compare the length distributions of fish caught in these ocean fisheries with the length frequencies of river herring as they return to rivers; for example on this graph from New Hampshire.

The red line represents the size distribution of river herring that would see in inland fisheries. What you notice immediately is that there is a broader length distribution captured in the ocean fleets compared to what is seen inland. Basically this indicates to us that the ocean fleets are fishing on juvenile river herring, and some segment of the population doesn't have a chance to return to spawn.

Total incidental catch in other ocean fisheries averaged 459 metric tons between 2005 and 2010. The one large source of uncertainty is the reporting rates on these ocean fisheries. Unknown reporting rates make a direct comparison to reported landings problematic. There is some overlap between what is caught in these ocean fisheries and what is actually reported in landings, so the two aren't directly comparable.

Incidental catch also includes a herring not known category, which range from 7 to 328 metric tons between 2005 and 2010. The proportion of river herring within this herring not known category is also largely unknown. Getting into coast-wide comparisons and trend analyses, we looked at trends and a lot of different data sets.

I won't go into specifics on the actual methods used. In this talk I'll just give the overall summaries. For commercial CPUE, we had data from eleven river systems and their estuaries, and these were primarily gill nets and pound net fisheries. These ranged from the Hudson River in New York down through the Santee-Cooper river system in South Carolina.

For alewife three out of the four time series showed historic declines and some increases in recent years. For blueback herring, on the other hand, two out of the three time series have declined or showing declines in recent years. Combined species, some of these fishery-dependent indices don't separate blueback from alewife and just keep them combined in into one river herring category. Three out of the four of those have declined through time.

Run size estimates; several rivers mainly up in the New England area have estimates of run counts. We do have a gap here in the Mid-Atlantic Region

between Connecticut and North Carolina where we don't have run counts. Then in the south we have North Carolina from the Chowan River and the Santee River in South Carolina.

Run sizes for alewife and blueback herring and also the combined species have showed historic and recent declines in abundance primarily between 1999 and 2007. Alewife in combined species run sizes in eight of nine New England rivers that have long time series, going back to 1984, showed historic declines in the mid-1990's or after 1999 and 2000, but some of the rivers have shown an increase in the past two to three years.

Blueback run sizes in two New England rivers have declined through time, and these declines started as early as 1985. Population sizes in the Chowan River, North Carolina, have declined precipitously after 1985 and the abundance remains low in the past few years as well. Young-of-the-Year Fishery Independent Surveys; these were primarily seine surveys conducted up and down the coast.

You can see a number of states conduct these surveys and a number of rivers were included. For recent years, from 2000-2007, for alewife we had three indices that were declining, three indices showed no trends, and one index was actually increasing. For blueback it was kind of split. Four rivers showed no trend and four rivers declined.

We also noted in comparison of the trends of these various surveys, that there were similar patterns among the surveys within a region. For example, if a stronger than average year class occurred, it likely occurred in more than one river within a region. Young of the Year, juvenile and adult fisheries-independent surveys, these groups of surveys were kind of a catchall for surveys that didn't fit into some of our other categories.

They included large seine, gill net and electro-fishing surveys from Rhode Island, Virginia and Florida. The indices for alewife and blueback herring in these surveys generally showed declines after 1995 for the Rappahannock River in Virginia, after 2001 for the St. Johns River in Florida and after 2004 for the James River in Virginia and the Rhode Island Pond Survey.

We had numerous trawl surveys that are conducted up and down the coast within state waters as well as the Northeast Fisheries Science Center Bottom Trawl Survey, which is really our only coast-wide survey

that supplies data for river herring. From these trawl surveys we found a lot of mixed results.

For alewife we have an increasing trend in four of the surveys, flat or no trends in three surveys and a decreasing trend in one survey. For blueback herring we saw increasing trends in two surveys, flat or no trend in four surveys and a decreasing trend in two surveys. The trawl surveys were quite variable with some trawl indices increasing, some decreasing and some showing no clear trend.

One thing that we did note was that trawl surveys in the southern regions tend to have decreasing trends more frequently than those in northern regions. This could possibly be due to distributional changes occurring to river herring in the face of climate change. We also analyzed fishery-independent and fishery-dependent length data coming from rivers up and down the coast as well as the Northeast Fisheries Science Center Bottom Trawl Survey.

Overall mean length of male and female alewife and blueback herring have declined over time by 13 to 45 millimeters in total length in seven out of the thirteen rivers that were examined. Statistically significant declines were most evident in rivers that have longer time series of data; for example, here the Hudson River in New York and the Chowan River in North Carolina. We also had fisheries-independent and dependent age data available from a few rivers.

One thing we noted with the age data was that we looked at maximum age that was observed through time. Alewife maximum age has declined by one to two ages in Massachusetts, Rhode Island, Maryland and North Carolina. Trends in Maine and New Hampshire have been stable or actually increasing.

Blueback maximum age has declined by one to four ages in Massachusetts, Maryland, North Carolina; and again trends in New Hampshire have been stable or actually increasing. Again, this also kind of speaks to that north/south difference in abundance and demographics for river herring.

Length at age; we have seen significant declines in mean length for one or more ages. For alewife these occurred in Maine, New Hampshire, Rhode Island, Maryland and North Carolina; and for blueback herring in New Hampshire, Maryland and North Carolina. The graphs here on the bottom of this slide illustrate the changes in length at age for alewife from the Chowan River.

You can see the different symbols on the graph represent different age classes and you can see there is a general trend through time from the 1970's up through 2010. We also looked at repeat spawner information, which is information that can be easily gained from the analysis of scales. Repeat spawner information again came from several rivers along the coast.

Data were available from 12 rivers, but a few rivers had any length of a time series in repeat spawner information. We did observe declining trends in the Gilbert Stuart River from Rhode Island for combined species of alewife and blueback and the Nanticoke River for blueback herring only. However, we observed little or no trends in remaining rivers along the coast.

We were able to come up with a couple empirical estimates of in-river exploitation rates. These came from the Damariscotta River and Union River in Maine and the Mattapoissett, Monument and Nemasket Rivers in Massachusetts. What we see through time is the exploitation could be very high back in the 1980's and has declined in recent years.

For the Massachusetts rivers you see some zeros for exploitation in recent years and that's because of a moratorium on their fishery, so obviously exploitation has declined; but also in Maine even without a moratorium exploitation is not as high now as what it once was. Total mortality estimates were also obtained from age data, and these are the rivers that we could come up with total mortality estimates for.

The mortality estimates were developed from the age structure and we used the Chapman-Robson method to estimate total mortality because this method is the least biased estimator of mortality from ages. We did restrict our estimates of mortality to data sets that had at least three age classes present, so we may have actually neglected some of the data sets that showed a truncation in age distribution with increasing mortality because we restricted it to only those systems that had at least three ages present.

We used a spawning potential ratio, SPR, to come up with total mortality benchmarks. What this is, is the mortality rate that reduces spawning stock biomass to a specified percent of the virgin spawning stock biomass. Usually you look at 20 or 40 percent and it's similar to F 20 percent or F 40 percent that's often used in other assessments. This method to come up with these benchmarks is very sensitive to estimates of natural mortality.

Because of the uncertainty in river herring natural mortality, we considered both a low and a high value for natural mortality. The low value of 0.3 was basically derived from determining what the natural mortality would have to be to see the maximum ages that have been observed in historic data.

The high end of natural mortality of 0.7 was used because this is more in line with what has been used in other assessments for blueback and alewife. For purposes here I'll just show the results from M of 0.7. Total mortality was high for all stocks that we did examine. The most recent three-year average of observed total mortality were above the Z 20 benchmark for 12 of the 18 stocks, and the three-year average of observed Z values were between the Z 40 and Z 20 benchmarks for the remaining six stocks.

Basically all of our stocks that we examined were above the Z 40 benchmark. Moving on to a couple of the stock assessment models that we were able to conduct, we were able to do a statistical catch-at-age model for three rivers. These are the Monument River in Massachusetts, Nanticoke River in Maryland and Chowan River in North Carolina.

It wasn't by design; it just happened to be fortuitous that at least these couple statistical catch-at-age models that we could run did encompass the range of river herring along the coast. I won't go into the details of the results from the statistical catch-at-age models, but the results do agree with our status determination and from the results that we observed in our trend analyses.

Basically that was declining abundance, exploitation has declined which was likely an artifact of increasing regulations on the fisheries, and decreases in age structures. We did apply a coast-wide model, which is known as a Depletion-Based Stock Reduction Analysis, or DBSRA. This sort of model was developed on the west coast to generate management parameters; for example, maximum sustainable yield for data-poor species such as river herring. We also used it for American eel, too.

This model only requires a time series of catch, assumptions about the biology of the species and the current status of the stock. Basically what the DBSRA Model does is it uses a time series of catch data, an assumption of where we believe that we currently are in relation to the carrying capacity; so, for example, if we assume that we're currently at 10 percent carrying capacity today; and an underlying surplus production model.

The model assumes that we start with a virgin stock and determines what K had to have been at the beginning of the time series in order to sustain the observed catch without the population going extinct. It can be used to determine exploitation at MSY. The results were relatively robust to different assumptions, but the estimates of exploitation at MSY were extremely and weren't considered realistic.

We did many sensitivity runs and we kept coming up with the same estimate of K or virgin stock biomass, but this low estimate of exploitation at MSY has us concerned. The stock assessment committee did have concerns about the model structure and assumptions going into it, but this methodology, this model does show some promise for the future and we recommend further development and refinement of some of the assumptions and testing of the assumptions.

Moving on to our conclusions and stock status, river herring have declined coastwide, and this evident through declining commercial landings following the 1960's, declining commercial catch-per-unit effort data, declining run counts in many rivers and declines in average length and size at age in many rivers, indicating increasing mortality.

Also, the statistical catch-at-age models that were conducted for a select group of rivers and the depletion-based stock reduction model also all point to declining abundance through time. Fisheries-independent indices were quite variable. Some of them went up; some of them went down; some of them showed no trends. Most likely the reason why they didn't provide a strong signal as to whether the stocks were increasing or decreasing is because most fisheries-independent surveys started after the decline in commercial landings.

It is likely that what we're currently observing is relatively small amounts of inter-annual variation after the big decline in river herring occurred in the late sixties and early seventies. We did see regional patterns north versus south that may be due to climate change. The trawl surveys in the southern areas tended to be stable or show a declining trend whereas some of the ones in the northern region were stable or showing an increasing trend.

Low-level stocks are sensitive to both abiotic and biotic perturbations and truncated age structure reduces population resiliency. Ultimately recovery of river herring stocks will need to address multiple factors such as the fish passage, predation, water

quality, climate change, et cetera. It will need to address these factors in addition to regulation of harvest of river herring.

The coast-wide meta-complex of river herring along the U.S. Coast is depleted due to near historic lows. We used the term "depleted" rather than "overfished" because this indicates that we had sufficient evidence for declines in abundance due to a number of factors, but the relative importance of these factors in reducing river herring stocks could not be determined.

In all, 52 in-river stocks had data available that we analyzed. Historically we considered 22 of them depleted, one stock was actually increasing, and 28 stocks we just couldn't come up with a status determination on. In the most recent years we have two stocks that are increasing, four decreasing, nine stable and 38 lack data to make a determination for their relative trends in recent years.

As I said, overfished and overfishing status could not be determined for the coast-wide stock complex. Hopefully in the future as we continue with development and collection of data and the statistical catch-at-age models we may be able to make these determinations, but again we would have to also recognize other sources of mortality out there in addition to fishing.

Management actions to reduce total mortality are needed for river herring. This is a large table which appears in the executive summary of the report just summarizing the trends in various data sources coming from the various rivers along the coast. The last column there illustrates the status relative to historic levels considering back to the 1970's or earlier and recent trends. We see a lot of unknowns and a lot of depletes in that last column; and as we move down south, again a lot of unknowns and a lot of depletes. At this time I guess we'll open it up for questions.

CHAIRMAN DUVAL: Thanks, John. Are there questions? Doug.

MR. DOUGLAS GROUT: Thank you, John; that's quite a stock assessment. It's very extremely detailed and you took a lot of information. I really appreciate the efforts of the stock assessment committee and the technical committee in putting this together finally. I was hoping to come out with some kind of a biological-based catch cap that we could hang our hats on, but clearly it seems like from your best

scientific opinion there really wasn't the data to be able to do that.

I did want to focus on that one table in the executive summary, Table 1, and just ask a couple of questions. I have to admit I talked to Kate about this one issue. When we get into the recent trends here, I was struck by the fact that you related the New Hampshire Lamprey River as unknown in the past ten years.

That's probably one of our best monitored rivers and the four of the five highest runs in the entire 40-year time series came during that ten years. I was wondering why it was unknown; and then as I looked up above to the Exeter River and saw an increasing trend, it seemed to me that those two might be flipped because we have very poor fish passage efficiency at that ladder.

The only reason I'm pointing this out and hoping this might be changed is I suspect since the river herring are currently going through a status review that it would be very important – I am sure they're going to draw from this information that we have this accurate. I, first of all, wonder if you and the stock assessment committee could look a little closer at that just to make sure you hadn't flipped the two.

DR. SWEKA: Yes, definitely we will look at that. Perhaps we did swap the two. It's a lot of rivers to look at and we'll double-check definitely.

DR. KATIE DREW: Right, and I think the other thing we're talking about is unknown also reflects systems where either there are conflicting signals from the data; so, for example, with the Lamprey you are above the Z benchmark, which indicates your total mortality is too high and the run counts have been variable in the most recent couple of years.

Some years you're dropping off and some years you're increasing so it can make it hard to determine a trend. We can absolutely go back and look at that and talk again with the New Hampshire technical committee to see if that is not also a clerical mistake.

MR. GROUT: Okay, the follow-up question and sort of the bigger thing on this is the classifications in these two things, both the relative historic levels which was 1970's and prior and then the status of the recent ten years; did you have subjective or objective criteria to determine whether they were unknown increasing or decreasing or depleted or increasing?

DR. SWEKA: Largely, I'll have to admit it was fairly subjective. It was just the examination of all

the data that was available for a particular river and just in consultation with the technical committee representation, given what we had what the general feeling for that particular river.

MR. GROUT: And then the final question I have is what was it about the Union River, if anybody can remember, that was the only one that got the classification about increasing since historic levels; what was it that you saw in the historic levels compared to the recent levels that gave it that criteria compared to any other river?

DR. SWEKA: If I remember right, it's the run counts in the Union River have gone up, and that's largely due to just stocking above fish passage barriers. By collecting fish and then stocking them into better spawning habitat, run sizes have increased.

DR. DREW: And Maine might clarify this as well, but I believe it's actually a special case where there was essentially no historical run of river herring there, and it has been introduced and sustained in the river itself. Considering that the historical level was nothing, it has in fact increased, which is not the case in most other systems.

MR. GROUT: And in the cases in New Hampshire, prior to the late 1960's we had no fish ladders in any of these runs, so every one of them went from zero getting up into freshwater into some cases as much as sustainable levels in the tens of thousands now. To me that would meet the same criteria unless there is other criteria unless there is other criteria that you were using.

DR. DREW: Well, I think it's not just a question of the runs in the 1960's not having anything above the dam or anything like that but also historical evidence of were they in the watershed to begin with. I know a lot of the dams have gone in since the peak that we were considering it to or they're more recent than some of the dams in the Maine system, which have been in place since the 19th Century. It's true the runs have increased since the dam passage has been allowed, but it's still depleted compared to the historical unfished population.

MR. GROUT: Okay, I'd like to see the evidence that we had for what the runs were back in the sixties.

CHAIRMAN DUVAL: Other questions for Dr. Sweka? Pat.

MR. PATRICK KELIHER: I just want to carry forward with what Doug is talking about because if we're talking about runs that were based on historic

or pre-dam, the amount of available habitat in those systems is extremely different now with impoundments than they were then. Has that been taken into account when you've looked at your projections as far as historic to current? A lot of these runs are liable to be – the Maine systems were probably predominantly blueback runs and now they've changed over to alewife runs.

DR. SWEKA: I guess we have kind of indirectly taken that into account for the decrease in available habitat just for the dams and just knowing there are less river herring coming out of the rivers than once were because of the dams. We didn't use any quantitative methods to assess the reduction in the amount of available habitat or access to habitat. That is something that could be done and should be done for further assessments to really try to get a handle on how much habitat loss we have experienced and possibly by removing dams or increase fish passage what the potential still may be there.

DR. EUGENE KRAY: In your looking at the status of the stock, have you noticed any trend or increase in the bait fishery for river herring? I know there are quite a number of charter captains down in the Cape May area who have access – either they themselves go up into the rivers and catch river herring and keep it for live bait. They call them striped bass candy. Have you noticed any increase – and this wasn't true maybe ten years ago so within the past ten years have you noticed any kind of a trend like that?

DR. SWEKA: Unfortunately we don't have good information on that component of the catch. For instance, the MRFSS recreational fishery information doesn't collect information up into the rivers, so that was a big data source that we really couldn't utilize at all in the assessment. To answer your question, no, we really don't have any idea.

MR. PATRICK AUGUSTINE: We'd like to report lots of schools of what appear to be blackback herring today – they might have been alewife – in the river out back when we were down there at lunchtime. We're talking about schools of them. I was standing in water that deep and they were on my boots and actually swimming on the shore, but they don't count. I'm sorry I missed the part; did you talk about New York and why was New York left out? I don't recall.

DR. SWEKA: New York was included.

REPRESENTATIVE SARAH K. PEAKE: He must have seen the same schools that I saw on my

lunchtime walk, but I wasn't catching any. Going back to one of the early slides that you have where you have the size differential between – I think you called them the inland river herring versus those at sea and how the inland size is bigger, and it seems as though there would be a greater take of juveniles maybe as a bycatch of the midwater trawls. Have you run any assessment on that and what is the impact of that observation that you've made?

DR. SWEKA: We haven't included that in any formal analysis or stock models. This was more just observational just to assess – you know, just to try to get a better handle on what portion of the populations are being harvested in these other ocean fisheries, but we haven't actually used this information in additional models. We did include in our SPR benchmarks for Z 20 and Z 40 – we did include a fishing mortality in there on all ages to account for this, but this wasn't included in any of the statistical catch-at-age models.

DR. DREW: And related to that, with the Z benchmarks, if you're fishing on the juveniles you're constrained to a lower total fishing mortality than if you're fishing exclusively on the adult spawning stock population, so our Z benchmarks account for that additional source of mortality on the juveniles, and they're lower than they would be if we only allowed a fishery on the adult spawning stock biomass.

CHAIRMAN DUVAL: Good comments and questions. Dr. Laney, I did see that you had your hand up and we'll let Wilson have the last word on this.

DR. WILSON LANEY: A question for John; one other north/south difference in the runs – at least this is my perception so you New Englanders correct me if I'm wrong – is that you have far more community-based management approaches in terms of managing the runs in New England. I was wondering whether the stock assessment subcommittee considered whether the indications that you got that were more stable to increasing runs in the New England relative to the age structure, anyway, could have been a factor of that local management approach as opposed to a more generic kind of management approach in the southeast where as far as I know we have few, if any, runs that are community managed like the ones in the northeast.

DR. SWEKA: I really don't have any answer to that, Wilson, as to what the reason might be. I think possibly it may be more related to ocean conditions

and possible climate change effects rather than localized management, but that's somewhat speculation.

DR. LANEY: A followup, Madam Chairman; yes, and I agree about the ocean effects, but there are some studies out there that suggest that community-based management is a more robust approach for cases like this where you are able to identify individual runs. Where you have the local community involved, there is a greater sense of stewardship where people have some sense of ownership of the resource. I would be interested in the future in knowing how many of the runs for which we have data are community based or managed based on the community as opposed to just the responsibility of the appropriate state agency. I think that would be an interesting statistic to pull out.

CHAIRMAN DUVAL: Thanks, Wilson, and we're going to move along to the next piece of this agenda item right now, but I want to thank Dr. Sweka one more time and all the stock assessment subcommittee members for all their efforts on this. I'm going to turn it over Dr. Limburg now for her second at bat to deliver the peer review report.

PEER REVIEW PANEL REPORT

DR. KARIN E. LIMBURG: A couple of comments; first of all, I chaired the 2007 peer review of the stock assessment for American shad, and I have to say that I think this is a very significant advance in just five years. I think the sophistication of the analysis has really increased quite a lot, and I just want everybody to appreciate that. I certainly do.

The second comment is just considering baselines, what do you take as your reference point? One of the things that came up in the shad stock assessment was that where most people consider a baseline for restoration, something around the levels of the 1940's or fifties or possibly sixties, the fact of the matter is that there were a series of baselines that sort of got forgotten about, if you will, in terms of the abundance of shad.

The same thing is true, of course, for river herring, the blueback and the alewife, and probably some time in the next six months an article is going to come out in Bioscience by Carolyn Hall and Adrian Jordon that is an analysis of reconstructing the abundance of alewife in some rivers in Maine. The abundances that they're reconstructing show that prior to extensive European descendants' exploitations, we're

talking in the hundreds of millions in Maine in these runs.

If you then extrapolate that across the range, it had to have been runs in the billions across the range. I'm just putting that out there as just a thought to keep in mind. In addition we know that we've lost a lot of diversity, too. We have historic accounts – I alluded them in the peer review – of observations of fish that we just – in runs, the diversity runs that we just don't see now.

Having said that, let's go on to the fun stuff. The peer review team – some of this mirrors what showed for eel this morning and also I'm going to repeat a little bit of what John just went through, but our team consisted of Bob O'Boyle and John Weidemann as stock assessment modelers. Ken Oliveira and I are more ecologists. I think the team was pretty well balanced that way.

Our terms of reference that we had to look at were again to look at the data collection and analysis. One thing that was different from the eel assessment peer review was to look at the work that was done on bycatch. This was actually brought up in the 2007 Shad Review as a priority to be looked at, and so five years later here we are with this now. Evaluating the models that were used; look at the uncertainty analysis; evaluate the stock status and the recommendations and see if we could prioritize them and add our own; and you've heard this before, that this data search was very comprehensive across all of these different systems. All of the alocine herrings have extremely broad ranges.

I can tell you that it does look like the alewife and blueback herring form what you could call sort of a species complex. I'm going to mention at the end of this a project I'm involved with where we're trying to look at that in a little bit more detail. You've seen this mega-graph before. It's just pointing out once again the broad net that was used to try to collect the information and yet there are still many, many gaps.

I do encourage you if you're from a state with gaps to go back home and tell people to fill those gaps in. Okay, a few comments on the data assessment; you heard a lot about the trend analyses. One of the things that was commented on by the panel was that the regional trend analysis could have benefited from the use of generalized linear models for exploring uncertainties, so that was one item.

Obviously longer time series are beneficial, but I think that the data do show that there are indicators at

any rate now, but more data being collected will give us a better sense. One thing we biologists felt was important also is that age determination in shad and river herring is done currently by agencies by using scale analysis, and that has been pretty much shown to not be very effective when you're aging fish that are older than three years old.

That is going to then bias some of your population parameter estimates like mortality estimates, and so it can undermine these other analyses. Here we have on the left a picture of some otoliths and on the right a picture of some scales that I took the other day from blueback herring, and I'm just telling you now try to move away from scales.

Although this picture looks really nasty, it is of an otolith of an 11-year-old alewife, and you would not be able to tell that from its scales. We do encourage assessment work to be done with otoliths. Moving on to bycatch, this graph here I developed just to kind of combine both the alewife and the blueback herring bycatches; comparing that to all of the inland harvest data over this period of time from 1989 to 2010.

I think the point that I'd like to bring home is that six of these twenty-two years of observation that were pulled together by the stock assessment subcommittee show that the bycatch exceeded or approached – you know, here in 2003 it's kind of approaching the inland catch, but it certainly exceeds it in these other years, so six and twenty-two is something like 30 percent, I guess, almost 30 percent, 27 percent of those observations.

And then of the last ten years or so of data, four of those events have occurred. I think what we're seeing is as this complex is perhaps getting smaller we're seeing that the odds of exceeding the inland catch is growing, but, of course, also the fisheries are being closed with moratoria, too. That's another thing to think about.

You saw this graph already; the point being that immature fish are being captured at sea and that is being taken account of in mortality assessments, but it is an issue to be concerned about. I think the panel feels that this does need to be addressed. Moving on to look at the methods and models that were used to estimate some of the key biological parameters and reference points, you heard a lot about these already, so I'll go quickly.

The panel itself prefers age-based estimates over the estimations of mortality using repeat spawner checks. Both scale-based aging and scale-based spawner

check mortality estimations both have their problems, but I think with improved age estimation you'll probably have more robust mortality estimates with age.

The spawner-recruit package was used to develop some reference points and we considered that to be appropriate. For exploitation rates, you did hear about these also that they were estimated for five New England rivers and also estimated coastwide. We felt that these were a good start but need some more verification.

For population models, you heard about these statistical catch-at-age models already. One of the things that John didn't mention was sort of fortuitously the northern catch-at-age model was developed for alewife and the one in the south was developed for blueback herring and the one in the Nanticoke was developed for both species, so these are kind of good at bracketing things, but they're moving in a good direction.

We also appreciated very much the way that the depletion-based stock reduction analysis was used in this case as a heuristic tool. It was used to really explore the assumptions and basically look at some of the possible causes of what we see today. Going on and evaluating uncertainty, as I mentioned before, we thought that a more statistical approach in terms of abundance estimations could be undertaken in the future. We recommend some of the things that they did in the eel assessment to be applied here.

I already mentioned the uncertainty in mortality rate estimations. I believe it was John did these ARIMA models and used them to smooth the trend data, but one of the things that one of our panelists was concerned about was that it appeared as if there was a strong dependence in this analysis on the first data point; so perhaps a statistical detail but one that could be important when you're looking at trends and trying to determine whether changes are being made.

This is an uncertain herring in this picture here. These we think had good characterization of the uncertainty, but there was some concern about the distribution of the key parameter in the depletion-based stock reduction assessment and that this could be the cause of some issues that they had in estimating exploitation rates.

We were also asked to look at the recommended estimates of biomass abundance, et cetera, choice of reference points. They are really works in progress at this point from the models, and so nothing was

recommended. Some of the reference points were calculated you hear about before and their sensitivity to the choice of natural mortality, and so we did make a recommendation on the side of precaution in this case as a reference point.

Determining the stock status, the stock assessment subcommittee acknowledged that this model couldn't produce reliable estimates of stock status, but the statistical catch-at-age models all showed the steep declines and that, together with the biological indices, also showed some warning signals that John described to you.

Where it was possible the subcommittee compared Z to Z reference points, and I will note that in this most recent period of the assessment the actual estimated Z mortality rates exceeded this conservative rate in all cases and was also higher than the less conservative higher exploitation rate, if you will, mortality rate in most cases. Based on this weight of the evidence approach, the subcommittee concluded that the coast-wide meta-complex is at or near historic lows, so you've heard all of this already.

You've heard that of the 52 rivers that were assessed, 22 depleted stocks, one has increasing stocks, and 28 are unknown. One thing to note was that there was not really consensus on the Connecticut River, but all but one member of the technical committee concluded that it was depleted and the panel agreed with that based on what we saw.

Also as noted before, there is a possible northward shift in both species. It looks like there is some evidence for that, so again climate change is probably having an effect. Again, a long list of recommendations was developed. I'm just going to show a few here that we want to know, as was asked before, what are the impacts of bycatch and who is getting caught in the bycatch, if you will? Where are they coming from and where are these fish coming from?

We want to determine which stocks are vulnerable to mixed stock fisheries. One of the things that I think is generally agreed upon as a priority – even Kathy Hattala, my old friend who is a scale-reading diehard agrees that we should probably hold age-determination workshops using otoliths.

Monitor the success of river restoration efforts and improve modeling where it is poor. I also wanted to mention that some of the work is actually underway and you shouldn't ignore the work that's being done

here and there and just putting in a plug for some work that some of my students have been doing.

Sarah Turner, who used to work for Mike Armstrong over there, is now a student with me and looking at using the chemistry of earstones otoliths to try to parse out where the fish come from. At the moment we're almost finished with our work in New York State, and basically this kind of canonical plot just shows you that there are groupings that you can identify. That's the point of this here; that the like colors are like fish basically, so we can discriminate these things.

We're working together with Eric Ponca Box of Duke University, who is moving to UC-Santa Cruz, but we're working on a combined approach looking at the genetics. His group looks at genetics of fish and we look at the chemistry of otoliths, and we're trying to combine these two approaches to look at the provenance of river herring up and down the coast, so it's a very large project. It's in progress at the moment.

I did want to mention also habitat. Inland habitat is, of course, important, too, and I just wanted to mention that we shouldn't ignore it. Work from another one of my students, Rita Monteiro, is showing that in young-of-year fishes in, if you will, sort of captive situations where they are in coastal ponds and they can't get out until the fall rains, that as urbanization increases you do see declines in their quality, so their growth rates and their condition rates are declining. We're in revision with this work.

I just wanted to point out here that this is an otolith from one of these fish from a very urbanized watershed, and this little sort of ring here is very low growth rates. I actually counted the daily increments in this otolith and this band right here actually is this kind reduced growth rate. I'm not going to go into all the science research here, but this plot of manganese to calcium indicates to me that this system underwent hypoxia, and I'm kind of guessing that is probably an oxygen squeeze that's stressing out these fish here.

These are the kinds of things that I think we also need to be paying attention to. Overall, the panel approves the assessment and we applaud this work. As I said in the beginning, it's a big leap over where the committee was doing the shad assessment five years ago. We encourage the ASMFC to follow the recommendations of the subcommittee and hold the next assessment in five years for trend and ten years for the benchmark.

I also want to make a plug for data networks for people. There many, many groups that are interested now in shad and herring and diadromous fishes in general, and I think we should make sure that we talk to each other and we have ways of connecting our data sources, too. That's where I'm going to end.

CHAIRMAN DUVAL: Thank you very much, Dr. Limburg. Are there questions for Karin regarding the peer review report?

DR. LIMBURG: It's late in the day. We don't want these to be the last alewives, by the way.

CHAIRMAN DUVAL: I don't think any of us do either. We have one more report from the technical committee. Larry, are you ready for that?

TECHNICAL COMMITTEE REPORT

MR. LARRY MILLER: The technical committee reviewed both the stock assessment and also the peer review, and the technical committee agrees with both the stock assessment and the peer review with the following cautionary note regarding the peer review. The technical committee noted that the peer review panel may have misinterpreted the purpose of an incidental catch analysis that was in the stock assessment and that it was not designed for comparison to reported annual landings.

We note that the commercial landings cannot be compared to incidental catch estimates because the commercial landings represent part of the total incidental catch. However, a portion of the incidental catch truly represented by commercial landings is unknown due to a high degree of uncertainty in both estimates. That was the only cautionary note that we had with respect to the peer review report. That concludes my report.

CHAIRMAN DUVAL: Thank you, Larry. Pat.

MR. AUGUSTINE: Excellent reports! In your comments for the technical committee, does that actually skew in any direction or will it have any implications for our management decision to accept at the appropriate time, Madam Chair, the stock assessment and the peer review report?

MR. MILLER: No, it doesn't; we just had that cautionary note that the incidental catch cannot be directly compared the landings because of the fact that they do include data from the landings.

MR. AUGUSTINE: So is there anything that we should do in the notation other than just put that notation from the technical committee to be attached to it so anyone who reads it will be aware of it?

MR. MILLER: Yes.

MR. AUGUSTINE: Okay, and then when you're ready, Madam Chair, I'd like to make a motion to accept.

CHAIRMAN DUVAL: Are there any other comments around the board regarding either the peer review report, the stock assessment or the technical committee report? If not, then, Mr. Augustine, please go ahead.

MR. AUGUSTINE: As I indicated, excellent reports; a tremendous amount of effort went into what you had to work with and we're very appreciative of the work that you've put forth. **I move that the board accept the stock assessment report and peer review report as presented today for management purposes.**

CHAIRMAN DUVAL: Motion by Pat Augustine; second by Terry Stockwell. Discussion? Mr. Grout.

MR. GROUT: Just one note; as I vote for this, if either one of the Kate's could get back to me on that potential switch. If it isn't something that was accidentally switched, I'd really like to know what the stock assessment committee's rationale for having the Exeter as increasing in the past ten years and the Lamprey as unknown.

DR. DREW: Yes, we can definitely get back to you; and if it turns out if it has been a clerical error, that is easy to fix before it's released to the public in non-draft form.

CHAIRMAN DUVAL: Anymore questions or discussion on the motion? The motion reads motion to accept the 2012 River Herring Stock Assessment and Peer Review Reports for management purposes. Motion by Mr. Augustine; second by Mr. Stockwell. Do folks need time to caucus or are people ready to vote. I'm seeing heads shaking around the table. Is there any objection to this motion? **Seeing none, that motion stands approved.**

Thank you very much again to Dr. Sweka, Dr. Limburg, Mr. Miller, especially I think the Peer Review Panel as well since they had to do both the eel assessment as well as this assessment in one fell swoop and all in one week stuck inside the

Brownstone Hotel in Raleigh. I feel your pain having been there many times myself, so thank you very much to all of you.

NEFMC DRAFT AMENDMENT 5

REVIEW MANAGEMENT ALTERNATIVES

CHAIRMAN DUVAL: All right, moving on, the next item on our agenda is to review and discuss the New England Fishery Management Council Draft Amendment 5, which includes a number of potential measures to address river herring bycatch. We're actually going to switch the order of the bullets here a little bit. I'm going to turn it over to Kate to just quickly review the management alternatives in Draft Amendment 5.

MS. KATE TAYLOR: Members of the Herring Section yesterday reviewed alternatives in the Draft Amendment 5 to the Atlantic Herring FMP. I'm just going to go through the alternatives very briefly for the remainder of the board members. There are four parts to the amendment. The first is general adjustments to the FMP; the second is catch monitoring at sea; the third is measures to address river herring bycatch; and the fourth is midwater trawl access to groundfish closed areas.

For this presentation I'm just going to focus on parts of the amendment that have relevance to river herring management and that could impact river herring management and also noted that they also are being under consideration in the Mid-Atlantic Council's Amendment 14 to the Squid, Mackerel, Butterfish Plan.

Just for background, many of the alternatives under consideration in the amendment deal with A, B, C or D herring permits. This table just shows in 2010 the number of herring permits that were issued by herring permit category. The lower table here details by permit category as possible gear, the percent observed trips that occurred by permit category and gear and the amount of discards and catch for river herring that occurred within that gear/permit combination.

As you can see, the observer coverages range from 37 percent to 7 percent, and that's based on the total number of trips, and the amount of river herring catch and discards range from 183,000 to 8,000, depending on the amount of observed coverage. Under the adjustments to the FMP, this begins on Page 8 of the public hearing document that was included with the Atlantic herring material.

The main option under consideration in this section that deals with river herring management is the option to accurately weigh all fish for the herring dealers. This is found on Page 19 of the public hearing document. Under Section 2, the catch monitoring at sea, there is a measure for improving and maximizing sea sampling. These are just kind of a suite of alternatives being considered and this will help increase observer sampling and potentially accuracy of the reporting that occurs.

There is a measure to address net slippage under consideration with a few different alternatives to increase the understanding of the catch when net slippage does occur. There is an option for a maximized retention fishery in the Atlantic herring fishery. The third section of the document deals with river herring bycatch. There are four main parts of it.

One is for river herring monitoring and avoidance. The second is for river herring protection. The third is for mechanisms to adjust and update any river herring management actions that are developed through this amendment. The fourth is for the possibility for river herring catch caps in the Atlantic herring fishery.

Under the river herring monitoring avoidance category, there is kind of three different sections here. The first is the identification of monitoring and avoidance areas. These were based on areas that had greater than 40 pounds of catch. These management options would apply during certain times in these certain areas. These 40 pounds of catch is based off of the 2005 to 2009 observer coverage.

This map just shows an example of one of the possible monitoring avoidance areas. The monitoring avoidance areas will be identified bimonthly as quarter degree squares with at least one observed tow for river herring catch, as I mentioned, greater than 40 pounds from trips that had greater than 2,000 pounds of kept Atlantic herring. These could be modified through a future amendment or framework adjustments.

Just to note, this was for January/February, and they obviously have them for the remainder of the years and they are contained within the public hearing documents. Within these monitoring avoidance areas, there are options for management actions; the first being 100 percent observer coverage when fishing within these monitoring avoidance areas. There are suboptions as to which vessels that they should apply to, either A, B, C or to all vessels.

Additionally under consideration within these monitoring avoidance areas is the implementation of Closed Area 1 Sampling Provisions, which would require pumping of all fish on board and exiting the area if slippage occurs. There are suboptions for 100 observer coverage, less than 100 percent observer coverage and again different category permit vessels that this could apply to.

Additionally there is an option to implement either the observer or the Closed Area 1 Provisions based on a trigger, and there are various triggers that are proposed within either Cape Cod, Gulf of Maine and the Southern New England regions, and these are based on the max, median and mean of river herring caught, so you could see the different types of triggers that could occur.

Then there are also a few options for reporting of river herring catch by either the trigger area or stat area. This just gives an example of where the three different trigger areas would be. Additionally under consideration is the two-phased bycatch avoidance project by the Sustainable Fisheries Coalition, SMAST and Massachusetts DMF, which the board was briefed on during the February meeting.

Under the second section of river herring bycatch, there are options for river herring protection; the first being establishment of protection areas. Under this amendment these areas are identified bimonthly as quarter degree squares for at least one observed tow of herring catch that is greater than 1,233 pounds; again using the same 2005 to 2009 NEFOP data with trips greater than 2,000 pounds of Atlantic herring caught.

Again, this just shows an example of some of the proposed river herring protection areas. Within these protection areas there are options for closed areas. There is an option for trigger-based closed areas. Option 1 would be the closed areas where they are just closed. Option 2 would be the trigger-based areas where based on those same triggers that were presented previously. If that amount of catch is reached, then the areas would close. There are a few options for exemptions.

The third section of river herring bycatch deals with mechanisms to adjust or update these areas or triggers, and this could occur through a framework or an amendment process. There is a PRT review every three years, and so they would look at either the monitoring avoidance areas, the protection areas or any triggers that are implemented and determine

those. There would also be a consultation between ASMFC and the Mid-Atlantic Council.

The fourth option within river herring bycatch deals with river herring catch caps. In the amendment it says the council will consider establishing a river herring catch cap through a framework adjustment to the FMP or specifications process after the completion of the river herring stock assessment. The fourth category was the midwater access to groundfish closed areas, and that does not contain any relevant river herring management actions. Thank you, Madam Chair.

ADVISORY PANEL RECOMMENDATIONS

CHAIRMAN DUVAL: Thank you, Kate. I'm actually going to ask Pam if she will go ahead and give the advisory panel report on Amendment 5.

MS. PAM LYONS GROMEN: The AP convened a conference call on March 16th, and in attendance were ten of the twenty members of the advisory panel. There is a four-page statement in your briefing materials. I know we're on some time constraints today and I'm not going to read that whole statement verbatim into the record today, but I do want to highlight some of the important issues that the advisory panel identified.

I think it's also important to recognize we spent two hours on this conference call. We really wanted to try to reach consensus to provide the board with the best advice that we could; so where we didn't reach consensus, it's noted. Some general observations and recommendations is the AP felt strongly that the consistency issues between Amendment 5 and Amendment 14 to the Atlantic Mackerel, Squid and Butterfish FMP had to be reconciled in the selection of final action alternatives.

Given the overlap between the two fisheries, the AP felt that it just would be overly burdensome for the vessels and for enforcement if we had different measures trying to apply to each. The AP also continues to feel very strongly about the value of portside monitoring programs; and even though these weren't included in Amendment, the AP just wanted to reiterate how important they were and to note that the data from the portside sampling programs can be used to improve bycatch estimates.

The rest of our recommendations are organized according to the organization of the public hearing document. For the FMP adjustments, vessel reporting, in general the AP is supportive of measures

that will improve the timeliness, efficiency and accuracy of vessel reporting; and again consistency was an issue.

Then there was a note that the AP is concerned about compliance with vessel reporting requirements and believes that these should receive more attention. The one alternative the AP really reached consensus about and highlighted in the set was under dealer reporting. The AP felt that an accurate accounting of all catch is important.

That's because recent river herring incidental catch estimates are calculated by extrapolating the observer data to the total catch reported, and so they supported Option 2 under Section 3.1.5, Suboptions 2A through 2C, which would require dealers to accurately weigh and sort all fish. For the catch monitoring at sea alternative set, we had a good discussion.

Dave Ellenton who serves on our advisory panel informed us of a meeting of industry at the Boston Seafood Show, and industry had stepped forward and had volunteered to pay for observer costs, but they noted the cost on the west coast fisheries with \$325 compared to observer costs on this coast. They expressed support for it, but thought that their costs should be comparable to what happens on the west coast.

They felt that also a hundred percent observer coverage, if applied, should apply to the C permit holders. The AP then reached consensus in supporting a hundred percent of observer coverage for the Category A and B permits. However, we didn't really reach consensus about whether a hundred percent coverage should apply to the C permit holders.

The group did agree that it's important to accurately and precisely estimate incidental river herring and shad catch from Category C vessels, but the group also expressed concern as to whether a hundred percent observer coverage was adequate for larger vessels that travel far offshore. A single trip can last several days and many long hours would be required of an observer.

The AP notes that the A/B boats, approximately 50 vessels, catch 97 to 98 percent of the Atlantic herring and C permit holders comprise 55 vessels and the incidental catch of shad and river could be significant. A breakdown of permit category by gear type was not available but it is believed that most Category C vessels are bottom trawlers; and based on the analyses in Amendment 5, the cost of an observer

as a percentage of revenue or daily operating costs is much greater than it is for midwater trawls or purse seines.

The AP also supported funding Option 2 under Alternative 2, which is federal and industry funds. The AP also supported the no action alternative, Option 1, under state agencies as service providers for observer coverage. I was able to clarify with the working group that this does not mean the AP did not support states as observers, but they did not understand why the current system which allows states to apply to be certified as observers didn't work and just noted that the Northeast Fisheries Observer Program had supported the no action alternative, and that was discussed in the Amendment 5 document.

As far as measures to improve and maximize sampling at sea, the AP generally supports the suite of all the suboptions to implement additional measures to improve sampling. They wanted to stress support for Suboption 2D, to require that an observer be deployed on any vessel taking on fish and noted that for limited access herring vessels in 2010, 54 percent or 692,000 pounds of catch classified as fish unknown in the observed data base was attributed to fish being pumped to the pair trawl vessel not carrying the observer.

Catch documented by observers as fish unknown or herring unknown hampers an accurate accounting of incidental catch. For the measures to address net slippage, the AP supports Option 3 under Section 3.2.3, which would apply Closed Area 1 Sampling Provisions to all the limited access herring vessels carrying an observer.

The AP just noted that these measures seem to have been highly effective at preventing slippage in Groundfish Closed Area 1 with no slippage events reported for the 99 hauls in 2010. For the river herring bycatch section, the AP supports Option 2 and Suboptions A and C under Section 3.3.2.2, which would apply Closed Area 1 Sampling Provisions and 100 percent observer coverage to Category A, B and C vessels when they fish in the identified river herring monitoring and avoidance areas.

The AP also supports evaluation and review of the SFC, SMAST, DMF Project as described under Option 4. The AP believes that a river herring catch cap in combination with avoidance strategies could be a very effective means of minimizing incidental catch. If not implemented sooner, a river herring

catch cap should be considered as part of Phase 2, which is the framework adjustment of this option.

For river herring protection, the AP supports Option 1 under Section 3.3.3.2, the closed areas, as an interim measure until a more robust strategy is implemented; for example, an avoidance strategy with a bycatch cap as discussed. The AP believes that the closed areas will provide immediate relief to river herring populations, but is concerned that the distribution of river herring is too variable for these small closed areas to be effective in the long term.

If adopted, we believe that the New England Fishery Management Council should request the Mid-Atlantic Council to take reciprocal action through Amendment 14, and that all small-mesh gear types capable of significant river herring bycatch should be prohibited from fishing in the closed areas regardless of the target species.

For river herring bycatch caps, the AP agreed that incidental catch caps are an effective tool and that Section 3.3.5, the river herring catch cap, should be adopted and incorporated into the Atlantic Herring FMP. This measure would allow a river herring catch cap to be developed through a framework adjustment or Atlantic herring specifications package after the ASMFC completes its stock assessment.

We noted that the river herring stock assessment was undergoing peer review at the time and was expected to be ready for board review. Kate reported on the call that a depleted status would be likely and informed the AP that the catch of immature river herring in ocean fisheries is of concern.

There was disagreement among the AP members regarding the mechanism and urgency for a cap. Some felt that the cap should be biologically based and the measure could wait until the science to construct such a cap is available. Others felt that the need for a cap was more urgent and that a cap could be constructed for catch data initially and replaced with a biologically based number later.

Again, because of the overlap between Atlantic herring and Atlantic mackerel fisheries, the benefits of a cap would be greatly diminished if the New England and Mid-Atlantic Councils did not cooperate on the development and an implementation of the measure. The AP is unclear how a cap could be shared between the councils. Thank you and I can take any questions.

WORKGROUP RECOMMENDATIONS

CHAIRMAN DUVAL: Are there any questions for Pam right now? Okay, if not, I'm actually going to turn it over to Kate to go through the workgroup recommendations. If you recall at the last meeting we set up a workgroup of folks to go ahead and review the measures that were in Amendment 5 and to put something together for the board to consider that we could then pass on to the Policy Board for reconciling with what the Atlantic Herring Section recommendations were.

MS. TAYLOR: The working group recommendations were contained in the briefing material. The quick highlights of their recommendations; the first is the working group recommends that both the New England and the Mid-Atlantic Council should strive for the highest level of consistency possible in approving the final management measures in Amendments 5 and 14.

Additionally the working group is supportive of any measures that will improve accuracy and accounting of catch reporting for all species including river herring, as well as reduce river herring bycatch where it is occurring. Those were the two general themes that went through all of the recommendations the working group developed.

Under the catch monitoring option section in the amendment, the working group is supportive of a hundred percent observer coverage funded by federal resources with phased-in cost-sharing alternatives to be considered. Additionally the working group was interested in understanding the differences in observer costs between the east and the west coast and request that be examined.

Additionally the working group is supportive of the measures to approve sampling and recommended approval of states as service providers. Under the river herring bycatch section, again the working group was supportive of a hundred percent observer coverage. Additionally they reiterated the same concerns of phased-in funding and understanding the differences between the east and west coast observer costs.

The working group was supportive of the Closed Area 1 Sampling Provisions when fishing in the river herring monitoring avoidance areas. They were also interested in seeing the SMAST, DMF and Sustainable Fisheries Coalition approved and further developed under the amendments.

The working group does not recommend the use of triggers in closed areas or protection areas without a method to link the trigger to a peer-reviewed biological estimate of river herring populations. However, the working group notes that if the New England Council approves the use of closures in the river herring protection areas, then these closures should be implemented through a trigger system rather than to occur automatically.

The working group notes that the trigger levels are based off of the levels of bycatch from the 2005 to 2009 NEFOP data. Using this information in the development of a trigger may only sustain the current level of river herring bycatch rather than reduce bycatch. Thank you, Madam Chair.

DISCUSSION OF ALTERNATIVES

CHAIRMAN DUVAL: Thank you, Kate. At this point we're entertaining any discussion of the working group recommendations. Mr. Stockwell.

MR. STOCKWELL: Madam Chair, as a member of the working group I want to especially thank the AP for very detailed comments. You guys did a lot of hard work. Ultimately, on behalf of myself and the rest of the working group, we wrestled with this and thought very deliberately that the public comment period is still open; some concern by board members who are also council members that we might be constrained in our ability to think through the public comments and move forward with more detailed comments at the June council meeting.

We felt comfortable with providing the comments that are very similar to the Atlantic Herring Section comments and they summarize the support for the hundred percent coverage, but responsible and operationally feasible funding mechanism coverage for the river herring bycatch. I hope that folks will support these recommendations being moved forward to the Policy Board.

CHAIRMAN DUVAL: Thank you, Terry. I think that really is a great summary of the working group's discussions. I'd like to thank all the members of the working group, Terry and Doug and Mike and Pam. I also sat in on that and Leroy was a part of that as well. Does anyone have any concerns about the working group recommendations? I know for folks who are part of the Herring Section, this is kind like a rerun of a bad summer movie since you've heard most of this before. Are there are no additional questions or comments, I think we would entertain a

motion to move this set of recommendations to the Policy Board. Mr. Augustine.

MR. AUGUSTINE: Excellent report! It seems like there was so much effort put into this and the recommendations are absolutely crystal clear and hopefully they'll be of great help to the New England Council on this. **I guess the motion would simply state that we accept the working group's recommendations as presented relative to Amendment 5.**

CHAIRMAN DUVAL: And I believe move it along to the Policy Board.

MR. AUGUSTINE: Move it along to the Policy Board for further approval.

CHAIRMAN DUVAL: Motion by Mr. Augustine; second by Bill Adler. Is there any discussion on that motion? I do see one member in the audience who has her hand up. Would you please come up to the mike and state your for the record.

MS. KRISTIN CEVOLI: Kristin Cevoli with the Herring Alliance. Thank you for the opportunity to just quickly comment. I appreciate all the hard work that has gone in by the various working groups and APs to comment on this. However, I just wanted to make a quick note. With all due respect to the recommendations that have been presented to you guys, this is the same board that in 2009 was so concerned about the at-sea catch of river herring and shad they asked NMFS for emergency action on it.

None of these recommendations that are currently before you provide any guidance to the councils on how to address reducing at-sea catch of river herring and shad. I think that's something that's really important to the councils. I'm a little disappointed as a member of the public and for all the organizations.

Right now the Herring Alliance is over 50 organizations that are all concerned about the catch of river herring and shad at sea. I think it will be very useful if the board could provide some recommendations, and I'm not – I don't think you have to go line by line and alternative by alternative specifically on these recommendations, but there are many alternatives in Amendment 5 and there are counters in Amendment 14 on addressing this. I would hope that there would be some discussion at least on that from this board. Thank you.

REVIEW AND DISCUSSION OF MAFMC DRAFT AMENDMENT 14

CHAIRMAN DUVAL: Thank you, Kristin. Are there any members of the board that would care to offer any additional comments in regard to that matter?

MR. GROUT: I'll take a bite at that apple. I think probably the one item that will really get at that is this SMAST Avoidance Project. I think there is something in there that is a recommendation. I think we've seen some information that was provided by the council on some of the work that was done this past year by the SMAST Avoidance Project; that if we had used those closed areas or the protection areas or the monitoring areas in the plan, we would have missed it this past year. I believe we do have something in here that is a recommendation that will get at reducing the bycatch of river herring in the fishery.

CHAIRMAN DUVAL: Thank you, Doug, I tend to agree with that as well. Any other board members have any comments on that? Representative Peake.

REPRESENTATIVE PEAKE: I sort of offer for discussion the notion of the board making maybe some general statement that we support the councils working together and working collaboratively to protect river herring and shad and to reduce bycatch. I think that's a goal that we all share. I don't know if want to make that as a statement on the record in response to the member of the public who just spoke.

CHAIRMAN DUVAL: Well, I do think that the working group recommendations do include support for any measures that will increase the specificity of catch and improvements to catch and catch reporting and also have encouraged both councils to be as collaborative as possible in terms of moving forward with each of these amendments. I'm thinking we may have already encapsulated that, but if there are others around the room who would care to include something a little bit more specific we can certainly do that.

I'm not seeing anyone necessarily bite at that, so I'm just going to go on the assumption that folks feel like we have already included in the working group recommendations takes that into account. Is there a need to caucus before we vote on this motion? Is there any objection to this motion? **Seeing none, this motion stands approved and these recommendations will move forward to the Policy Board.**

I'm going to turn it back over to Kate to just quickly run through the Mid-Atlantic Council's Amendment 14. I'm not sure how many folks sitting around the table right now were on hand last night for the public hearing. It was pretty sparsely attended. Thanks to Mr. Himchak for running the meeting and for Jason Didden for coming all this way. There were a few public comments; but since most folks who are sitting around the table were not here, Kate will give us a brief rundown.

MS. TAYLOR: Within the Mid-Atlantic Council's Draft Amendment 14, many of these topics are very similar to the New England Council's Amendment 5. There are options for vessel reporting, dealer reporting, at-sea observation optimization measures, portside and other sampling and monitoring measures, at-sea observer coverage, mortality caps, restrictions in areas of high river herring and shad catch, hotspot restrictions and also an option for consideration of shad and river herring as a stock in the fishery to the Squid, Mackerel, Butterfish FMP, so it would become the Squid, Mackerel, Butterfish, Shad and River Herring FMP.

The public hearing document was included with the briefing materials. The public hearing document is about a hundred pages long. The entire amendment is about 650 pages long, so that would be a lot to get into especially this late time in the day. For the board's briefing, just so you're aware of the timeline, the public hearings are going on currently.

The public comment period on the amendment is closing June 4th. The council will be reviewing the comments and approving the alternatives to send to NMFS at their June meeting, June 12th through the 14th; with the proposed rule from NMFS made available in the fall; and the final rule published at the beginning of next year; and the rule becoming effective March 1, 2013. Thank you, Madam Chair.

CHAIRMAN DUVAL: Thanks, Kate. Clearly, the public comment period is going to end before we have a chance to meet again, and it seems like the working group approach was a very efficient means to review Amendment 5. I'm thinking that might be a good way to approach a review of Amendment 14 and perhaps provide similar types of comments to the Mid-Atlantic Council. I do know that we've had some discussion about Alternative Set 9, which I believe is the stock is in the fishery option.

I'm a little concerned about getting into some of that discussion here today could become rather protracted and I don't necessarily have confidence that we would reach a conclusion on that. I'm just wondering what folks think about setting up a working group to do something similar with regard to commenting on Amendment 14. I'm seeing some heads nodding around the table.

Are there folks who would like to participate in that workgroup, that we could get some names right now? Anyone willing to raise their hand? Well, I'm thinking we'll probably end up having to strong arm a few folks and I'll contact a few board members. I think it would be good to have some TC representation, Larry, if anybody might be willing, as well as advisory panel representation on that workgroup. Okay, we'll proceed in that manner then unless anybody has any objections. We did have sustainable fishery plans and recovery plans that went back to the technical committee for review, and I think Larry is going to go over those for us.

APPROVAL OF AMENDMENT 3 OF THE AMERICAN SHAD SUSTAINABLE FISHERY MANAGEMENT PLANS

MR. MILLER: The technical committee met last week via conference call to look and review a fishing plan, a recovery plan and an amendment to a currently approved shad fishing plan. The first fishing plan was forwarded by North Carolina. We note that the technical committee commends North Carolina for considering the revisions and recommendations.

This plan had come before the technical committee once before. North Carolina took it back and produced a very good high-quality plan. It was exemplary in that not only did it include the marine section from North Carolina but it also included the inland section. That was indeed an intent of Amendment 3 to have the different fisheries resource agencies within a jurisdiction work together to develop these plans.

They looked at several different alternatives, assessed those alternatives adequately and provided the best recommendations that they could see. Based on the quality of the plan and its comprehensiveness, the technical committee recommended approval of this plan by the board.

The next plan was a recovery plan submitted by Maryland. Maryland submitted a plan that we suggested include the compliance report that they

have submitted in the past as an appendix in order to make available to anyone that reviews the plan what sort of information is being collected and how it's being analyzed and also be available in the future for review of this plan. The technical committee recommended approval by the board.

South Carolina submitted a proposed amendment for the Shad Fishing Plan. The technical committee provided comments on that proposed amendment and they supported capping a particular river fishery to two fishers with a limit of one net per person in that fishery. The technical committee also supported a proposal to reduce the creel limit from its current ten fish per day limit to a five fish per day limit.

The technical committee also recommended inclusion of some sort of recreational monitoring in order to assess the magnitude of the recreational fishery in this particular river. They recommended that they work with the law enforcement officials in order to see if law enforcement would be able to give some indication of what sort of recreational effort was occurring through their enforcement activities on the river. The technical committee recommends approval of this amendment to the South Carolina plan.

CHAIRMAN DUVAL: Thank you, Larry. Are there any questions for Larry on either the recovery plan for Maryland or the revisions to the North Carolina plan or the amendment to the South Carolina plan? If not, I would entertain a motion to – Mr. Augustine.

MR. AUGUSTINE: **Move that we approve the American Shad Sustainable Fishery Management Plans with the addition of that section for recreational for South Carolina and the Maryland plan and North Carolina.** You might to rephrase that but approve them all. Madam Chair, do we have to qualify a statement in there about South Carolina or can we just say we approve the three as presented and approved by the technical committee? Would that be more appropriate?

CHAIRMAN DUVAL: I think, Pat, maybe if we clarify it to say the sustainable fishery plan for North Carolina and the South Carolina amendment. Okay, we have a motion by Mr. Augustine and a second by Mr. Adler. The motion is to approve the American Shad Sustainable Fishery Management Plans for Maryland, recovery; North Carolina; and South Carolina amendment. Is there any objection to this motion? **Seeing none, that motion stands approved.** Mr. Stockwell.

MR. STOCKWELL: Madam Chair, this is to provide the board with a quick update on the status of Maine's recovery plan. We have got new staffing. She is settling in and I anticipate delivery of the recovery plan to the technical committee at some point during the summer.

PROPOSED ESA STATUS REVIEW OF RIVER HERRING BY NOAA FISHERIES

CHAIRMAN DUVAL: Thanks, Terry, I very much appreciate that. Our next item on the agenda is Kate is going to give us a brief review of the timeline for the ESA Status Review for River Herring.

MS. TAYLOR: As the board is aware, there is a petition for river consideration on the endangered species list. That petition was sent in last August. A positive 90-day finding was published on November 2nd, and the management board submitted comments to NMFS detailing that they would provide the stock assessment once approved to NMFS for their use in the status review.

The status review is currently in progress, and the proposed listed, if any, is expected to be published some time this August with the final rule available next year. Just so the states are aware, NMFS is conducting three workshops in the development of the status review; climate change workshop, an extinction risk workshop and a genetics workshop.

Many of the technical committee members and state personnel have been contacted for participation in these workshops. They will be occurring this summer in June and July in Massachusetts. These workshops in conjunction with the stock assessment will be used by NMFS in the status review. Kim Damon-Randall I see in the audience is here if there are any additional questions on that.

CHAIRMAN DUVAL: Thank you for that, Kate. Are there any questions of Kate or Ms. Damon-Randall by any of the board members regarding the timeline for the status review? I see none. I was clarifying with Kate with regard to the process for commenting on the Mid-Atlantic Council's Amendment 14. Once we set up this workgroup and the workgroup develops some recommendations for the rest of the board to consider, we will have to review that by e-mail. Any workgroup recommendations will be sent out by e-mail to the full board for their review and approval given the timeline for the deadline for comments on the amendment. Mr. Grout.

MR. GROUT: Just a quick question for Kate; in the Shad FMP I believe there is a section that required states to provide the commission with an approved Habitat Plan. What is the due date for that for submitting those plans?

MS. TAYLOR: Those plans are required to be submitted with the compliance report next year, 2013.

ADJOURNMENT

CHAIRMAN DUVAL: So everyone is on notice for their next major task with regard to the board. Is there any other business to come before the Shad and River Herring Board? If not, thank you, and we will stand adjourned.

(Whereupon, the meeting was adjourned at 5:40 o'clock p.m., May 1, 2012.)