

Atlantic States Marine Fisheries Commission

Tautog Management Board

January 25, 2022

1:00 – 2:30 p.m.

Webinar

Draft Agenda

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

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|--|-----------|
| 1. Welcome/Call to Order (<i>M. Luisi</i>) | 1:00 p.m. |
| 2. Board Consent | 1:00 p.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from October 2021 | |
| 3. Public Comment | 1:05 p.m. |
| 4. Review and Discuss Hypothetical Scenarios from Risk and Uncertainty Decision Tool (<i>J. McNamee</i>) | 1:15 p.m. |
| 5. Review Feedback from Law Enforcement Committee on Commercial Tagging Program (<i>J. Snellbaker</i>) | 2:00 p.m. |
| 6. Elect Vice-Chair (<i>M. Luisi</i>) Action | 2:25 p.m. |
| 7. Other Business/Adjourn | 2:30 p.m. |

MEETING OVERVIEW

Tautog Management Board

January 25, 2022

1:00 - 2:30 p.m.

Webinar

Chair: Mike Luisi (MD) Assumed Chairmanship: 11/21	Technical Committee Chair: Craig Weedon (MD)	Law Enforcement Committee Representative: Jason Snellbaker (NJ)
Vice-Chair: Vacant	Advisory Panel Chair: Vacant	Previous Board Meeting: October 18, 2021
Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NMFS (9 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 18, 2021

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

4. Review and Discuss Hypothetical Scenarios from Risk and Uncertainty Decision Tool (1:15-2:00 p.m.)

Background

- In October, the Board reviewed a preliminary report of the Risk and Uncertainty Decision Tools for Tautog. The report summarized technical input from the Technical Committee, the Committee on Economics and Social Sciences (CESS) and preliminary weightings for the decision tools' components developed from Board input. The Risk and Uncertainty Decision Tools were developed in conjunction with the 2021 Stock Assessment Update in order to use the most current information to help inform management decisions.
- The 2021 Stock Assessment Update showed improvements in most regions from the last assessment in 2017. Since the Assessment Update indicated no regions are experiencing overfishing, the Board chose to not make any management changes.
- With no management action taken in response to the assessment, the Board requested staff develop hypothetical scenarios to further evaluate the Risk and Uncertainty Decision Tools. **(Briefing Materials)**

Presentations

- Hypothetical Scenarios from the Risk and Uncertainty Decision Tool by J. McNamee

**5. Review Feedback from Law Enforcement Committee on Commercial Tagging Program
(2:00-2:25 p.m.)**

Background

- In October the Board approved questions for the Law Enforcement (LEC) to aid in assessing the impact of the commercial harvest tagging program on the illegal harvest and sale of tautog. The commercial harvest tagging program was fully implemented by all states in the management unit in 2021.
- The LEC met in December to respond to the questions of the Board and provided considerations in evaluating the effectiveness of the tagging program (**Briefing Materials**)

Presentations

- Feedback from LEC on Commercial Tagging Program by J. Snellbaker

6. Elect Vice-Chair

7. Other Business/Adjourn

Tautog 2022 Tasks

Activity Level: Low

Committee Overlap Score: High (Menhaden, BERP, Summer Flounder, Scup, and Black Sea Bass)

Current Committee Tasks:

- TC – May 1, 2022: compliance reports due

TC Members: Craig Weedon (Chair, MD), Alexa Kretsh (VA), Coly Ares (RI), Linda Barry (NJ), Sandra Dumais (NY), Scott Newlin (DE), David Ellis (CT), Sam Truesdell (MA), Kirby Rootes-Murdy (ASMFC Staff)

SAS Members: Coly Ares (RI), Linda Barry (NJ), Aexei Sharov (MD), Sam Truesdell (MA), Jacob Kasper (UCONN), Katie Drew (ASMFC Staff), Kirby Rootes-Murdy (ASMFC Staff)

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
TAUTOG MANAGEMENT BOARD**

**Webinar
October 18, 2021**

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

Draft Proceedings of the Tautog Management Board Webinar
October 2021

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1. **Approval of agenda** by consent (Page 1).
2. **Approval of proceedings** from August 3, 2021 by consent (Page 1).
3. **Move to adjourn** by consent (Page 28).

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ATTENDANCE

Board Members

Dan McKiernan, MA (AA)	Joe Cimino, NJ (AA)
Raymond Kane, MA (GA)	Tom Fote, NJ (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Adam Nowalsky, NJ, proxy for Asm. Houghtaling (LA)
Jason McNamee, RI (AA)	John Clark, DE (AA)
David Borden, RI (GA)	Roy Miller, DE (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Justin Davis, CT (AA)	Mike Luisi, MD, proxy for B. Anderson (AA)
Bill Hyatt, CT (GA)	Russell Dize, MD (GA)
Jesse Hornstein, NY, proxy for J. Gilmore (AA)	Pat Geer, VA, proxy for S. Bowman (AA)
Emerson Hasbrouck, NY (GA)	Chris Wright, NOAA

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

Ex-Officio Members

Coly Ares, Technical Committee Chair	Jason Snellbaker, Law Enforcement Representative
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Staff

Robert Beal	Jeff Kipp
Toni Kerns	Dustin Colson Leaning
Tina Berger	Savannah Lewis
Pat Campfield	Kirby Rootes-Murdy
Lisa Carty	Sarah Murray
Maya Drzewicki	Mike Rinaldi
Emilie Franke	Caitlin Starks
Lisa Havel	Deke Tompkins
Chris Jacobs	

Guests

Dennis Abbott, NH	Richard Cody, NOAA
Max Appelman, NMFS	Margaret Conroy, DE DFW
Pat Augustine, Coram, NY	Heather Corbett, NJ DEP
Richard Balouskus, RI DEM	Jessica Daher, NJ DEP
Linda Barry, NJ DEP	Lennie Day
Chris Batsavage, NC DENR	Jeff Deem
Sarah Bland, NOAA	Steve Doctor, MD DNR
Colleen Bouffard, CT DEEP	Sandra Dumais, NY DEC
Delayne Brown, NH F&G	Lynn Fegley, MD DNR
Jeff Brust, NJ DEP	James Fletcher
Thomas Burrell, PA F&B	Alexa Galvan, VMRC
Peter Clarke, NJ DFW	Jim Gilmore, NY (AA)
Richard Cody, NOAA	Angela Giuliano, MD DNR

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Guests (continued)

Asm. Eric Houghtaling, NJ (LA)
Carl LoBue, TNC
Chip Lynch, NOAA
Eric Malone
Genine McClair, MD DNR
Conor McManus, RI DEM
Steve Meyers
Sen. Craig Miner, CT (LA)
Jerry Morgan
Brandon Muffley, MAFMC
Allison Murphy, NOAA
Lindsey Nelson, NOAA
Gerry O'Neill, Cape Seafoods
Rep. Sarah Peake, MA (LA)
Nick Popoff, FL FWS

Jill Ramsey, VMRC
Elizabeth Rasheed, SELCNC
Tara Scott, NOAA
Somers Smott, VMRC
Rachel Sysak, NYS DEC
Steve Train, ME (GA)
Marisa Trego, NOAA
Sam Truesdell, MA DMF
Scott Curatolo-Wagemann, Cornell
Mike Waive, ASA
Craig Weedon, MD DNR
Wes Wolfe, *The News-Leader*
Erik Zlokovitz, MD DNR
Chao Zou, NOAA

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The Tautog Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Monday, October 18, 2021, and was called to order at 1:30 p.m. by Chair William Hyatt.

CALL TO ORDER

CHAIR WILLIAM HYATT: Good afternoon, everyone, this meeting of the Tautog Management Board is called to order. My name is Bill Hyatt; I'm the Governor's Appointee from Connecticut, and the current Chair of this Board. In fact, this is my last meeting as Chair, which is really strange, because we haven't done a single in-person meeting during my tenure as Chair, so very strange times, indeed.

APPROVAL OF AGENDA

CHAIR HYATT: First item on the agenda is Approval of the Agenda. Does anyone have any modifications? Toni, any hands?

MS. TONI KERNS: I see no hands, Bill.

CHAIR HYATT: Seeing none, the agenda is approved.

APPROVAL OF PROCEEDINGS

CHAIR HYATT: Next is approval of the proceedings from the August meeting. Does anyone have any edits? Any hands, Toni?

MS. KERNS: I see no hands, Bill.

PUBLIC COMMENT

CHAIR HYATT: Okay, so the proceedings are approved. Next on the list is Public Comment. Toni, is there anyone signed up or do we have any hands?

MS. KERNS: Technically we don't have a sign up, so I would just be looking for hands, and I do not see any hands at this time.

REVIEW OF THE 2021 STOCK ASSESSMENT UPDATE

CHAIR HYATT: Having none, we'll move right along to Item 4 on the agenda, and that's Review of the 2021 Stock Assessment Update. Coly, I think you have a presentation.

MS. NICHOLE ARES: I do, it looks like it's up on the screen now. Thank you all for giving me the opportunity to do this stock assessment update presentation for you. I'm Coly, I'm the Tautog Technical Committee Chair. To start, I just wanted to make sure we could recognize everyone who worked on the Tautog Stock Assessment Subcommittee for this update, myself, Linda Barry, Jacob Kasper, Alexi Sharov, Sam Truesdell, Katie Drew and Kirby Rootes-Murdy.

To start, I'm going to review the data that went into the updates this year including the new MRIP estimates. As you all know, there was a recalibration done recently to the MRIP program, which resulted in some pretty drastic changes across all species. Also, to the estimates has F and SSB and how those new MRIP numbers impacted both of those metrics, and do a review of the stock status and some short-term projections that were done as a result of that status. As a quick little reminder, Tautog is managed in four separate regions. Those regions are seen here. In blue you can see the MARI region, which is Massachusetts and Rhode Island. In green we have the Long Island Sound Region, which is Connecticut and most of New York, that is New York and the northern part of Long Island Sound.

In orange you can see the New Jersey/New York Bight Region, which is the southern portion of Long Island Sound and New Jersey. Then in red you can see the DelMarVa Region, which is Delaware, Maryland and Virginia. Because we have this in four separate regions, I have four little updates to show you for the entire coast on this species.

The previous assessment had data through the terminal year 2015, where this update for 2021 had

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data through 2020. We are adding five years of data for this assessment. With adding all this data, we did see a few challenges. The first one I mentioned earlier was those new MRIP numbers for all the regions, which did include data for the entire time series, that is 1981 to 2020. That was the first big thing we had to look at.

The second thing, not unexpected, was the impact of COVID-19. Because of COVID-19 not all of the fisheries independent surveys were able to be completed in 2020, leaving some data gaps there. In addition to those fisheries independent surveys not being completed, MRIP did have some remote sampling in 2020.

As a result, some of the 2020 removals were estimated with imputed data from prior years, just to account for that inability of sampling during that time. To start here we have the new MRIP numbers. As you can see, we have these four separate regions here. In the top left you can see the MARI region, the top right you can see the New Jersey/New York Bight Region, on the bottom left you can see the Long Island Sound Region, and in the bottom right you have the DelMarVa Region.

In that gray line you can see the original estimate, and then in the black line you can see the calibrated new numbers from MRIP. As you can see across all four regions, we did have increases in the total removal estimates, and these removals are the landings plus 2.5 percent mortality rate on the Y releases in millions of fish. Again, you can see that we just see increases across all four regions, in terms of total removals.

Here you can see a similar spot, in terms of where the regions are situated. But instead of being the removals in millions of fish on the Y axis, you can actually, this shows you the percent difference, as in the increase in removals across those four regions during all of

the time series. All the regions did have very, very large increases due to the new recalibration.

These increases averaged between 133 percent increase to 163 percent increase across those four regions. Here we have the total removals for the four regions. Again, MARI is in that upper left, New Jersey/New York Bight in the upper right, Long Island Sound is the bottom left and DelMarVa in the bottom right.

Here we have the total removals in metric tons. The light blue color is the recreational removals. The dark blue is the recreational release mortality, again that is that 2.5 percent mortality rate on those recreational harvests, and the white is the commercial harvest. Overall, the targets are highly recreational fishery, upwards of 90 percent recreational removals, as you can see in these figures here. Overall, you can see similar patterns for all four regions, and that is that we have high removal in the beginning of the time series, with a decline over time.

Again, the important thing to note here as well, is that those recreational removals do make a large part of the total harvest. Those new recalibrated MRIP numbers did have a large impact on the total removals for each region. I'm going to go through now the indices that were used within each region in this stock assessment update.

Here we have the MARI Region, and see there are four indices for this region. In the upper left you can see the Massachusetts Trawl Survey. This is an Age 1 plus survey. As you can see here, we have some high values up in the beginning of the time series, with a decline overall. In the upper right you can see the Rhode Island Trawl Survey.

This is a fall trawl survey targeting Age 1 plus individuals. You can see a similar trend here really had high values in the beginning of the time series, with a decline over the time. In the bottom left you can see the Rhode Island Seine Survey. This is a young of the year seine survey that targets

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Narragansett Bay, and you can see a little bit more variability with an index over time here.

Then the bottom right you can see the MRIP CPUE index, which is an Age 1 stock survey. Again, you can see some of those higher values in the beginning of the time series with a little bit of a decline over time. Here we have the indices used for the Long Island Sound portion of the assessment. In the upper left you can see the Connecticut Long Island Sound Trawl Survey.

This is an Age 1 plus survey. Again, you can see some of those higher values in the beginning of the time series, with a little bit of a decline over time. It's also important to note that this is one of those surveys where we have a data gap in, as this survey was not able to be conducted in 2020, due to the COVID-19 pandemic.

In the upper right you can see the MRIP CPUE Survey, which is an Age 1 plus survey for the region. In the bottom left you can see the New York Peconic Bay Trawl Survey, this is an Age 1 survey. Then the bottom right you can see the New York Western Long Island Seine Survey, which is a young of year survey.

There were some modifications to the sampling of the New York Long Island Seine Survey, and that is just to account for the fact that New York does border those two different regions, the Long Island Sound Region and the New York/New Jersey Bight Region. Here we have the indices of abundance for the New Jersey/New York Bight Region.

In the upper left you can see the Western Long Island Seine Survey. Again, that's that Age 1 survey with some modifications to account for the differences between the two regions that New York does border the Long Island Sound, and the New Jersey/New York Bight Region. In the upper right you can see the New Jersey Ocean Trawl Survey. This is an Age 1 plus

survey, and was not conducted in 2020 due to the COVID pandemic. Therefore, we do have a small data gap there. IN the bottom left you can see the MRIP CPUE Survey, which is an Age 1 plus survey. Here we have the index for the DelMarVa Region, which is just the MRIP CPUE Survey. In this region we do not have any fisheries independent surveys, so we just have the MRIP CPUE for this particular portion of the stock assessment.

The first step that the Stock Assessment Subcommittee took was to see what the impacts of the new MRIP numbers would be on the stock assessment, before we added more years of data. This gave us the ability to just see how the new MRIP numbers would impact the stock assessment looking at the additional years of data.

Because of this, we ran a Bridge model. We took the 2016 update, which was the most recent assessment before this one, that included data through the terminal year 2015. We then put in the new MRIP Numbers in place of the older uncalibrated numbers, and reran the model. This gave us the ability to see how those numbers impacted the previous assessment, before we added the five new years of data in the 2021 update, which is what we are looking at today.

Here we have the results of the three models, the 2016 update in the orange, the 2016 Bridge model that is the 2016 model with the new MRIP numbers, and in black we have the 2021 update. We have the four regions here, MARI the upper left, New Jersey/New York Bight in the upper right, Long Island Sound in the bottom left, and DelMarVa in the bottom right.

As you can see here, we have F on the Y axis, and the time series along the X axis. The new MRIP numbers had very little impact on the differences in F. There were some changes over time, but there wasn't any consistent overestimation or underestimation in any of the four regions. Here we have the same layout for the spawning stock biomass.

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As you can see here, the 2016 update again in that orange is lower across all four regions than the Bridge model in blue or the 2021 update in black. We did see an increase in the estimation of the spawning stock biomass across all four regions. This is expected, as we did see an increase in harvest.

Therefore, we would anticipate seeing an increase in the fish available within each region. Generally, adding the additional years of data didn't have a very large impact on the results. Although you can see in the Long Island Sound Region you did see in the Bridge Model and estimated a little bit of a decline from 2010 to 2015.

However, when we added those additional five years of data, we do see that population starting to bounce back upwards. Here we have the results of the model for recruitment, with recruitment on the Y axis again. As you can see, across all the regions we did see a little bit of a scaling upwards in recruitment.

That is, you can see that 2016 update in orange, and then the 2016 Bridge model in the 2021 update in black. You can see that recruitment scaling upward in all four regions. Again, this is somewhat anticipated, given that we just see more removals, therefore there must have been more fish to support those additional removals for each region. Now for some changes from year to year in each region. Again, there was no consistent over or underestimation of recruitment in any individual region. Now I'll go into the stock status for each region, based on the assessment update. First up we have the MARI Region, where we are not overfished. The SSB was estimated to be 6,568 metric tons in 2020, with a threshold of 4,335 metric tons. This region is not overfished and is above the threshold and the target.

In the bottom frame you can see the F estimate. You can see that overfishing is not occurring in this region. The three-year average of F is estimated to be 0.23, which is below the threshold of 0.49. They are also below the target for this region. Here we can see we added a blue vertical line to indicate what the status was in 2015, which was the time of the last assessment.

For the MARI Region in the top image here, you can see that that blue line intersects the dark black line at the SSB. We're below the target, but we were above the threshold and below the target in 2015, indicating that we were not overfished. In 2020 we continued to be not overfished in this region, as we do have that SSB above the threshold, as well as the target indicating there has not been a change in status for this region.

In the lower image here, you can see that blue line intersecting the F estimate, below the threshold in 2015, indicating that overfishing was not occurring during that time period. In 2020 we continue to see that the F is below the target and the threshold, indicating that overfishing continues to not be occurring in 2020, indicating that there has been no change for the region as well. We continue to be, overfishing is not occurring.

Here we have the results of the Long Island Sound Region. Long Island Sound currently is not overfished, as indicated in the top figure. SSB was estimated to be 6,413 metric tons with a threshold of 5,044 metric tons. As you can see here, we are above the threshold and we're right on, pretty close to the SSB target. We are currently not overfished.

In the bottom figure you can see F. As per year average of F is estimated to be 0.3, which is below our threshold of 0.38, indicating that overfishing is currently not occurring in the Long Island Sound Region. Here once again we've added that vertical blue line to indicate where we stood in 2015 as a comparison.

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In 2015 in the top figure, you can see that SSB was below the threshold in 2015, indicating that in 2015 the stock was overfished in the Long Island Sound Region. We have seen an increase in SSB, and actually got a change in status, where in 2020 we are no longer overfished in the Long Island Sound Region.

In the bottom figure you can see in 2015 where that blue line intercepts that we were overfishing. Since 2015, there has been a decline in F in the Long Island Sound Region, and currently overfishing is not occurring in the region, indicating an improved stock status for Long Island Sound. Here we have the stock status for the New Jersey/New York Bight Region.

The region is overfished, with an SSB estimated to be 4,782 metric tons, with our threshold of 4,890 metric tons. While we still are overfished, I would just like to draw attention to the fact that we do see that SSB improving over time, and we are seeing an uptick in that trend for SSB for the New Jersey/New York Bight Region. In the bottom figure you can see the F, and we can see that overfishing is currently not occurring in the New Jersey/New York Bight Region. The three-year average F is estimated to be 0.26 with our threshold of 0.3, so we are below that threshold, so overfishing is not occurring in this region. Here we have that comparison between the 2015 status and the status from 2020.

In the New Jersey/New York Bight Region, you can see that in 2015 where that vertical blue line intercepts the SSB estimate that we were overfished. Again, in 2020 we are still currently overfished, but we are seeing that upward trend in SSB. While there is no change in the stock status, we are seeing that trending upwards, closer to being a no longer overfished stock.

In the bottom figure you can see the change in status for F. In 2015 we were overfishing, indicated by that intersection between the vertical blue line, showing where 2015 exists, and the F status. We were above the threshold in that period, so we were overfishing. However, we have seen a decline in F since then, and now we can see that overfishing is not occurring in this region, and therefore we do see an improved stock status there.

For the last region we have the DelMarVa Region. We are currently not overfished in this region. SSB is estimated to be 4,396 metric tons, with the threshold of 3,355 metric tons. Additionally in the lower figure, you can see that overfishing is not occurring in this region. The three-year F average is 0.06, which is below the threshold of 0.27.

In comparison to 2015, in 2015 the DelMarVa Region was considered overfished, as you can see here where that blue line is intercepting with the annual SSB in the top figure. Since then, we've seen an increase in SSB, to the point where in 2020 you can see this region is not overfished, so there has been an improvement in the stock status there.

In the lower figure, you can see in 2015 overfishing was not occurring within this region. As you can see that blue line is intercepting with the three-year average F below the threshold. In 2020, we continue to see that overfishing is not occurring, so there has not been a change in stock status, in terms of F for this region.

Just as a little bit of a summary here, I do recognize that with four regions there was a whole lot going on. For the SSB status in the MARI Region, we are currently not overfished, and there has been no change in that status from 2015, where we were also additionally not overfished then. In the Long Island Sound Region, we are currently not overfished, which has been an improvement from the 2015 stock status, where we were overfished.

In the New Jersey/New York Bight Region we are currently overfished, which has not changed from

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2015, although it is worthwhile to note that we have seen an improvement in the SSB since 2015. In the DelMarVa Region we are currently not overfished, and this has improved since the 2015 stock status, where we were overfished.

In terms of F, in the MARI Region there is no overfishing and that has not changed since 2015, where we were not overfishing as well. In the Long Island Sound Region, we are currently not overfishing, and that has improved since 2015. In the New Jersey/New York Bight Region there is no overfishing, and that again has improved since 2015. In the DelMarVa Region there is currently no overfishing, and again that has improved since 2015. In addition to the assessment update the Subcommittee also conducted some short-term projections for each region. For these projections we used the most recent three years of removals, which was 2018 to 2020. The projections, we did show the probability that the stock would be overfished, that is the SSB would be less than the threshold, and the probability that F would be above the target in 2025.

For the projections, so we have each region the probability of being at or below the F target in three years. The MARI Region with 100 percent probability of being at or below the F target. The Long Island Sound Region has a 3 percent probability of being at or below the F target. New Jersey/New York Bight had a 15 percent probability of being at or below the F target, and the DelMarVa Region had a 100 percent probability of being at or below the F target in three years.

We also did the projections for the probability of being at or above SSB threshold in three years for the MARI Region, had a 100 percent probability of being at or above the threshold in three years. The Long Island Sound Region had a 97 percent probability of being above the threshold. The New Jersey/New York Bight Region had a 53 percent probability of being at

or above the threshold, and the DelMarVa Region had a 100 percent ability of being at or above the threshold in three years.

Generally, there was a low probability of being overfished under the current landings and management scenarios for each region. But some regions did have a higher probability of being above the F target in that three-year window. That is the quick overview of the stock assessment update. With that I am happy to take any questions.

CHAIR HYATT: Thank you, Coly, that was an excellent presentation, and it contained quite a bit of good news. At this point, are there any questions for Coly, and keep in mind that the next item on the agenda will include a discussion of management response. At this point just please limit yourself to technical questions regarding the stock assessment. Any hands?

MS. KERNS: I have Jason McNamee, Adam Nowalsky, Justin Davis, and Jeff Brust.

CHAIR HYATT: Okay, go ahead, Jay.

DR. JASON McNAMEE: Coly, awesome job with the presentation. It's no small feat getting through not one stock assessment but four simultaneously. Nice job with that. There was one thing, so I'll just sort of echo what the Chair said. I wish all news on fisheries could be like this. This is pretty amazing.

I don't think I've ever seen anything quite like it during my time, so that's great. One thing that caught my eye was on the series of slides you had on the Bridge models. Specifically, I was wondering about the Long Island Sound SSB plot, where you've got the 2016, then you have the 2016 with the updated MRIP, and then the latest update.

In the Long Island Sound version of that, there was a lot of, across all of them a lot of them were pretty congruent, they sort of matched more or less, maybe scaling a little different, but ups and downs kind of look the same. But yes, thank you. If you

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look at the bottom left on Long Island Sound, that is the one that kind of caught my eye, where it departs from the 2016 update with the new MRIP, where that one seemed to be indicating a downward trend, and then you know the latest update sort of reverses that, makes it go up by quite a lot. I'm just wondering if you guys, the Technical Team, discussed that, if you have any thoughts on what creates the difference between the models in that case?

MS. ARES: Thank you, Jay. We did look at that within the Subcommittee. There are quite a few factors playing in here. We didn't come up with a complete consensus as to how and why that that was so dramatically different. We did have regulation changes that went in due to the last assessment, so that could account for some of the changes that we see there, where we saw some decreases in harvest, allowing the SSB to increase.

We also did add a good chunk of data. If you actually look at the 2016 update, in orange you can kind of see it kind of leveling off, and then the new MRIP numbers you can kind of see that going down a little bit, and then with the new additional data it starts to pick that other feedback up. We also did look at the retrospective patterns, and we did run analyses to determine if we require an adjustment due to the changes that we did see.

We did see, when we did those analyses for the four regions, that the retrospective patterns fell within that 95 percent confidence interval, indicating that we didn't have to look, even though we did see that patterning throughout the period, it wasn't a significant change overall. Does that answer your question, or do you have anything else you would like me to kind of elaborate on?

DR. McNAMEE: No, I think that's good Coly. You know basically, there is no, I was kind of

wondering, oh yes, you know what happened was we updated a survey and the numbers were higher. I was wondering if there was something like that. But it sounds like it's just an accumulation of factors.

I'm imagining too, you know with the statistical forward projection model, you know if you had some re-estimated recruitments that kind of change that trajectory a little bit moving forward in time, I guess. In any case, there was no like smoking gun, just to use that term, it was probably just an accumulation of a number of factors. In any case it's good news, so it's good to see.

CHAIR HYATT: Go ahead, Adam.

MR. ADAM NOWALSKY: I appreciate the presentation. With regards to stock status for the New Jersey/New York Bight Region. I just wanted to confirm that as I looked at Page 72 of the Assessment Update itself, that I believe was showing 95 percent confidence interval around the SSB estimates, that the SSB threshold is well within the confidence, that 95 percent confidence interval, if I'm interpreting that correctly, and in fact, the upper bound of that confidence interval is in fact very close to the SSB target.

MS. ARES: You are correct there. That region, let me just pull up my numbers for you. We were overfished in that region, but there certainly is very, very close to our threshold there, so there is a little bit of the confidence interval for that is slim, but we are very, very close to that threshold changing the stock status for that region.

CHAIR HYATT: All set, Adam?

MR. NOWALSKY: Yes, just wanted to make sure I was interpreting where that was correctly. Thank you, very much.

CHAIR HYATT: Very good. Justin Davis.

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DR. JUSTIN DAVIS: Thank you, Coly for this presentation. I have a question relative to the short-term projections for the Long Island Sound Region, specifically with respect to the projections of F, as noted in the presentation. The short-term projections show that there is only a 3 percent chance of the LIS Region achieving the F target in three years.

When I first saw that, I guess I was a little surprised, given that if I have this right, the estimate of F for the terminal year in 2020 from the assessment is 0.3, which is certainly closer to F target, 0.26 than F threshold, 0.38. Then when I went and looked at the plots for the short-term projections for the Long Island Sound Region, this would be Figure 22 in the assessment.

I realize we're a bit handicapped here, because this wasn't a figure that was in the presentation. It showed the estimate of F for 2021 as being 0.38, essentially right at the threshold, which is substantially higher than the 2020 estimate of 0.3. I'm just wondering if you have any insight on why the short-term projection is showing such a higher F rate in 2021, relative to what the terminal year estimate was in 2020.

MS. ARES: We do see that for those projections I can get back to you with a little bit more detail later on, once I speak to the individuals who did these projections. I don't have the best answer for you, in terms of why we see that probability changing there. But I can certainly get back to our experts for that region, and come back with a better answer for you, unless Katie or Kirby might have some additional insight on that particular question.

DR. KATIE DREW: Yes, this is Katie. I think it is related to kind of Number 1, the figures we're showing that we're using for stock status is based on that three-year average of F. It's been declining for a bit, but we're then using sort of

that three-year average of landings as well, which it is higher than kind of that terminal year of 2020.

The three-year average over that time period is going to be higher than what it was in 2020, I believe. That's kind of just bumping that up a bit, bumping the effect on the population up a little bit, compared to say just that three-year average and the terminal year value of F, when you're starting the projections going forward.

The projections going forward are handled a little bit differently than sort of that three-year smoothed average that we use to evaluate stock status. I think that is also due to some of the uncertainty around, and the shape of the distribution around that terminal year value of abundance going into the projections, and fishing mortality coming out of the projections, if that makes sense.

CHAIR HYATT: All set, Justin?

DR. DAVIS: Yes, thanks, that was really helpful, thank you.

CHAIR HYATT: Toni, I know we've got Jeff sitting there in the queue, is there any other Board members who have their hands up at this point in time?

MS. KERNS: That was the last of the Board members. Jeff was the first member of the public with a question.

CHAIR HYATT: Okay, I'm going to jump in, just with a quick question for you Coly. Just wondering if you could just comment in general on any of the constraints or limitations that might come forth with having only one index to work with for the DelMarVa Region, just if there is anything that we should know about the results that are presented here as a result of only having the one index, the catch-per-unit effort from MRIP.

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MS. ARES: That is one thing that we did address in the risk and uncertainty tool that I believe might be two agenda items down. It is one thing that was considered. It did limit the number of sensitivity-runs that could be completed for that region, as we were unable to draft indices, to see their impact on the stock assessment.

However, based on the data we have available, what we have here with that one index is what we are able to complete at this time. It is something that would be interesting and beneficial in the future, to see if there were some more fisheries independent indices that could be created in that region.

But given what we have at the current time, this is the best data we have, and even then, when we did look at some of the retrospective patterning and did the analyses on that, there was not any significant patterning to cause us to do any sort of analysis to see if those retrospective patterns were a concern. It is unfortunate we couldn't do more with that region, but given what we have this is the best we can do, and we did not see anything overly concerning, based on the lack of indices for the region.

CHAIR HYATT: Very good, thank you, and like you said, that will be covered a little bit more under the agenda item dealing with the risk and uncertainty tool. Okay, Jeff. Jeff, go ahead.

MS. KERNS: He's not able to unmute himself, I don't think.

**CONSIDER MANAGEMENT RESPONSE TO
2021 STOCK ASSESSMENT UPDATE**

CHAIR HYATT: Very good, Toni, okay so we will move to the next agenda item, which is Item Number 5, Consider Management Response to 2021 Stock Assessment Update. But before we open this topic for discussion, Kirby is going to

quickly review some items from Amendment 1, particularly 4.2.1. These provide the procedure for developing management measures. Kirby, I believe you've got some slides to go through.

MR. KIRBY ROOTES-MURDY: Yes, thank you, Mr. Chair. All right, first of all to the stock assessment update. I'll provide the Board with some management background to consider as they weigh a potential management response. To provide a quick overview, I'll highlight two relevant parts of Amendment 1. The first is fishing mortality target in Section 2.7.1 on Page 52.

The second is process for developing regional measures in Section 4.2.1 on Page 68. Based on the stock assessment update, I wanted to bring the Board to the following language under Section 2.7.1. It states, the management board will evaluate the current estimates of F, as determined by the most recent stock assessment, with respect to its regional reference points, before proposing any additional management measures.

If current F exceeds the regional target but is below the regional threshold, the Board should consider steps to reduce F to the regional target level, and if the current F is below the regional target F, then no action would be necessary to reduce F. For both the Long Island Sound and New Jersey/New York Bight Regions, the current estimate of F exceeds the target, but is below the threshold.

Comparing this information to the last assessment update, F has decreased, which is important, as an improvement from 2015 status. The other regions, Massachusetts and Rhode Island, as well as the DelMarVa, Delaware, Maryland, Virginia Regions. Their regional F estimate is below the regional target.

The other consideration of this section is the probability of achieving the F target. It states that the management measures will be developed based on at least a 50 percent probability of achieving the F target. As part of developing the risk and

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uncertainty decision tool for tautog, the Board will be providing input in a later agenda item, in terms of the preliminary report that was developed and included in supplemental materials, and providing some further considerations on generating stock projections.

The other relevant section from the Amendment that I wanted to flag for the Board, was in considering changes to the regional measures. If a region is considering consistent measures across all states within a region, then a regional working group would be developed to discuss appropriate alternatives.

Really, this regional working group is important, whether it's trying to set up the same exact measures and changing, or if one state is interested in adjusting their measures. If a state wants to proceed that way, then under the general procedures within Section 4.11 of conservation equivalency, that would be followed.

It's recommended similarly that this regional working group is convened, in order to make sure that all the states within the region are on the same page in understanding what the proposed management measures are. Last, any modifications to these management measures, bag limit, minimum size, seasonal closures and quota, would be reviewed by the TC and approved by the Board. Once it's approved by the Board, measures can be implemented. With that I'll take any questions, and turn it back over to you, Chairman Hyatt if there aren't any.

CHAIR HYATT: Do we have any quick questions for Kirby? Toni, any hands?

MS. KERNS: Adam Nowalsky.

CHAIR HYATT: Go ahead, Adam.

MR. NOWALSKY: With regards to what the Amendment tells us to do, we're basically saying that the Long Island Sound and New Jersey/New York Bight Region, because they are currently above the target, we should consider measures. Whatever measures we consider need to have at least a 50 percent probability of achieving the target. Again, if I understand the presentation and what the Amendment called for.

The presentation we had prior showed that projections have already been done, that with current measures both the Long Island Sound and the New Jersey/New York Bight Region are projected to have greater than 50 percent probabilities of having F below the target. Where would that leave us? It seems that on the one hand we're being told to consider changes, but we've already run some projections that say we're on track to have F below the target.

CHAIR HYATT: Kirby, do you want to respond or do you want me to?

MR. ROOTES-MURDY: I'll go ahead. Thanks, Adam, for the question. Yes, in terms of what the current measures that were implemented as a part of Amendment 1. That has improved the stock status. Based on the language we have in the Amendment, if there is interest in adjusting those measures, then I think the Board would need to consider how to get them closer to the regional F target. But it's just a consideration, there isn't a timeframe in which they have to meet that F target.

In terms of the probability of achieving the F target. You know those were just included; you know as our status quo measures. As part of the risk and uncertainty decision tool agenda item, which will get into more detail. We're going to look to the Board for further guidance if there is interest in pursuing different probabilities than the default 50 percent from the Amendment. I'll leave it at that if that hopefully answers both of your questions.

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CHAIR HYATT: Adam, are you good with that, or at least did it sufficiently answer your question?

MR. NOWALSKY: I'll just ask one follow up, and that is that should the risk and uncertainty tool ultimately, that we as a Board come up with a different number. If the Amendment is saying we need at least a 50 percent probability in our use of the risk and uncertainty tool, and maybe I'm jumping too far ahead here, tells us something different.

Are we going to need an addendum to the Amendment at that point, or if it's just anything more conservative than we would be okay? But if it came out with something more liberal, where is that going to play with this Amendment mandated 50 percent probability? I'm fine if the answer is just, sit on that for another half hour, and we'll get there.

MR. ROOTES-MURDY: Yes, that would be my suggestion.

CHAIR HYATT: Okay, are there any other discussion points regarding management response? Toni, any hands?

MS. KERNS: I see no other hands at this point, Bill.

CHAIR HYATT: Okay, I'm just going to interject something then, which may be my oversimplified view of where this leaves us at this point, recognizing that we still have ahead of us the discussion on the risk and uncertainty decision. But my thought, with regards to process here was that following this meeting if any region wants to consider a management change.

That they would subsequently get together following this meeting, put together what they think is a reasonable approach, bring it to the next Board meeting for discussions, at which time the Board would have the option of

moving it along to the Technical Committee for analysis, both traditional analysis as well as analysis under the risk and uncertainty tool.

Then bringing it back to the following Board meeting for approval for consideration and discussion, then potentially approval by the larger board. At least from a process standpoint maybe a bit oversimplified. But I'm thinking that we're at the discussion point phase right now, and that any consideration or chance to implement changes would be two Board meetings down the road. I'll ask Kirby or Toni if they think that anything in which I just said was maybe off target.

MS. KERNS: I think that can work, Bill. Then it partially depends on the pleasure of the states, and how they want to move forward.

CHAIR HYATT: Okay, fair enough.

MS. KERNS: I do have an additional hand that has come up since you were chatting, Dan McKiernan.

CHAIR HYATT: Dan, go ahead.

MR. DANIEL MCKIERNAN: Bill, I agree with you. I would just ask, as Toni mentioned, that this be a longer process. I would want to do some scoping, you know to our industry and also to our sister state that we share that stock with, and to try to move forward with something that both states are interested in, to try to keep things uniform.

I think that might take a little bit more time than just one meeting coming up with proposals. I would also have to deal with my Regulatory Commission, so I would want to get buy-in from them before I would come to the Commission with a proposal for changes.

CHAIR HYATT: Yes, the assumption in what I said was that following this meeting the Regional Workgroup, which in your case involved both Massachusetts and Rhode Island, would be working together to develop any type of proposal that would be subsequently brought to the next Board

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meeting. Absolutely agree with you, and I think I was speaking in terms of what I would see as the fastest that the process could move forward. Any other hands, Toni?

MS. KERNS: That is all.

**REVIEW AND PROVIDE FEEDBACK ON THE RISK
AND UNCERTAINTY DECISION TOOL FOR
TAUTOG**

CHAIR HYATT: Okay, very good. Well, then we can move right into the next item on the agenda, which is Review and Provide Feedback on the Risk and Uncertainty Decision Tool for Tautog. Jay, I believe you've got a presentation to provide.

DR. McNAMEE: Yes, there it is, like magic. Hi everybody, I've got an update here for you on the Risk and Uncertainty Policy. We've done a number of things since we last spoke. This is an update for you on that. Thanks, as always to Sarah Murray, Kirby, and Katie Drew for putting the presentation together.

Just a quick overview of what the presentation covers, quick background, because I've said this to you about a thousand times, so I think everybody has got the background pretty well at this point. We'll talk a little bit about the process, mainly to kind of let you know where we're at in that process.

Then we'll talk about the report. We did a couple of things, including generating the weightings, and we've gotten some technical inputs for the decision tool, so have some cool stuff to report there, and then we'll wrap it up with some questions for the Board, seeking a little bit of input from the Board on a couple of the elements.

A background, as you recall the risk and uncertainty decision tool, what it is it's a method for arriving at a recommended risk

level for a stock. What it does is it takes the Commission's priorities, the characteristics of the stock in the fishery, and in the end what you produce is the risk level that we want to use when we start to identify management options.

Our process to date has been more or less just sort of peppering the Technical Committee with giving us a number of different potential probabilities, and this adds a little more structure to the process. It really requires us to be a little bit more thoughtful about why we're picking these different probabilities.

Again, the decision tool itself, it's a structured method. Again, it arrives at the Commission's risk and tolerance for a species. It can be species specific or should be species specific. Then we take that information and we incorporate it into management. Just a really important nuance here is, the tool answers the question, how much risk is appropriate for the stock when making a management decision?

What it doesn't do is assess the level of risk associated with specific management actions. If we wanted to do that, we would have to do a management strategy evaluation. To sort of look at different management options, so if we want to do three fish in a season that had 100 days, and a 14-inch fish versus some different configuration of management options, and then compare those two things that's something different. What we're doing here is we're saying, we believe we need to be precautionary to some degree, based on these attributes that we built into the decision tool. Here is a graphic of the decision tool process. We developed the decision tool. It incorporates different information related to risk and uncertainty for a species, and these are the technical inputs that are within the decision tool. It takes those technical inputs and combines it with the relative importance of that information.

That is the weighting. That is that weighting exercise that we just went through a couple weeks

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ago. In the end we take those two things, we put them together and we come up with a recommended probability of achieving our management objectives. Generally, the way this is broken up is the Board provides the input on the weighting.

We decide what is more important within our decision tool, whether it be the stock status information or the socioeconomic information. Then we get a little bit of help from our friends on the Technical Committee, and the Committee for Economic and Social Science. They provide the responses to the decision tool questions.

They get input from the Advisory Panel. But we also, as the Board, have the purview to make adjustments to their inputs if warranted, and that's another nice aspect of this is, the Board maintains control of the process in total. However, we have to be explicit about what we're doing, if we're making a change to any of the technical inputs that are provided to us by our experts.

It's an iterative process. That's that little loopy arrow on the left-hand side there. The Board can provide feedback on the weightings, and the decision tool to adjust things as needed, and that's exactly what we're going to be talking about today. The risk-and-uncertainty process is made up of two parts, basically.

We have the developing the species-specific decision tool, and then we have the second part, which is actually using that decision tool for helping us with the management decision. What we've done so far has been to develop the tool, or as is the case for tautaug, we developed four region specific decision tools.

We got the stock status inputs. Those came out of the 2021 assessment update that Coly so eloquently just told us all about. The Technical Committee scored and provided input on the

sections on model uncertainty, management uncertainty, environmental uncertainty, and then the ecosystem and trophic importance components of the tool.

Then the Committee for Economic and Social Science scored the socioeconomic importance components, and those are the commercial economic value, commercial community dependence, recreational desirability and recreational community. The AP was also consulted on the technical inputs, but did not provide any feedback. Either they were satisfied with it, or didn't see a need to comment.

Then we, the Board, provided the weightings, and we did that via a full and, for those who couldn't make the webinar where we did the poll live. There was also a survey that was issued to the Board members. We did all this work. Now we're at the second part here, and that is if a management action is initiated, or is being considered, then implement the second part of the process. That would be to use this decision tool. What will happen is additional analyses will be conducted, and from those extra analyses we will produce the recommended probability of achieving the management targets, or the reference points that we're trying to achieve with our management changes.

Now I'll get into the report itself. I'll probably try and go through this relatively quickly, and then we can come back to any specific areas anybody wants to. Here is a table of the weightings themselves. These are basically all of the component within the decision tool. You've got your SSB information, the threshold and target, the F threshold and target, and then all of those other components there.

What you can see are there in the second column are the survey scores. You can see, remember the survey is on this scale from 0 to 5, and then we took all of those scores that all of the Board members gave, and then averaged them to come up with the

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overall survey score. You can see the SSB threshold, that was an important one for us.

The F threshold, that was another important one for us. Then ecosystem importance was one of the lower ones. You know in the case of tautaug that probably makes some degree of sense. Those other survey scores, and then what happens is from those, those get kind of prorated and developed into our weightings.

You can see with the higher weightings, you see those at the SSB threshold, the F threshold, which correspond to the high survey scores, and then ecosystem importance you can see has the lowest weighting. You can see how this all kind of came out in the end. Remember, we went in with everything being weighted equally at 0.1. You can see how things have adjusted from that kind of equal weighting scenario.

This is just a graphical representation of how the information kind of sorted itself out. Just to orient you to these plots. We've got all of the different components, and then the X axis is your 1 to 5 scoring, and then you have the frequency is what the bars represent going up the Y axis there. The way you can kind of look at these is to determine if you've got any situation where the scores are really spread out across the whole range.

You can kind of see that for the long-term recreational one down at the bottom. Most of the scoring was at the score of 4, but you had responses across the whole range, as opposed to model uncertainty, which most of the scores were between 3 and 4. It just gives you a sense of how consistent we were as Board members with our weightings in these different areas.

From my eye, I think, with a couple of exceptions we were pretty good. The vast majority of folks were kind of scoring things within a point or two of that 1 to 5 scale. Now we're going to go region by region on the

technical inputs. Here is the MARI Region, and you can see the stock status information. Those come directly out of the stock assessment.

This is exactly the information that Coly was just talking to us about. Those, the P with the little parenthetical after them, that is the probability of SSB being less than the SSB threshold. For the case of MARI there is a 0 percent probability of that, and so on and so forth. The only one there where there is any information is the probability that the SSB is less than the SSB target, and there is a small probability that that is the case, 6.9 percent probability. Everything else is 0. Those get plugged in directly to those first four questions, and then we've got the next component is the model uncertainty, that score right about the middle of the range there.

I won't read all of those out, but you can see some of the reasons why the Technical Committee scored this in the way that they did. But this is roughly in the center of the range there. Management uncertainty, a little bit less but still pretty close to the center of the range. Then environmental uncertainty towards the lower end of the range, so that had a lower score.

Then again, ecosystem trophic importance, that had the lower score at 0.8. It says no known key ecosystem trophic roles. I think that is accurate. I think tautaug does have importance, obviously in the ecosystem. I guess it's this notion of connections and impacts within the ecosystem, there is not a lot of information on that for tautaug.

Here is Long Island Sound, so in this case if you're looking at the table at the top, you've got information in all of the boxes there, with a probability of fishing mortality and SSB being within range of the thresholds and the targets there. You can see those. The model uncertainty pretty consistent with the MARI Region, right about the center of that 0 to 5 range.

Management uncertainty a little bit greater for this region for management uncertainty, and

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environmental uncertainty and ecosystem trophic importance are at the lower end of that range. Here is the New Jersey and New York Bight again. There are probabilities of exceeding or being below the different thresholds and targets there.

You can see those in the table consistent with the other areas, with regard to model and management uncertainty being sort of central to the scoring range there, and again environmental and ecosystem importance lower end of the range. There is a lot of consistency in the reasoning, with these for the different areas or regions, rather.

Shift highlight, so one of the reasons the management uncertainty gets up-weighted for both Long Island Sound and New Jersey/New York Bight is the illegal harvest is believed to be a significant concern in these areas. Then beyond that everybody knows tautog has a really high recreational component. Just because of that there is always going to be management uncertainty, based on the way we understand our recreational fisheries.

Last but not least, DelMarVa. You've got a little bit of information in the stock status boxes there for probabilities, generally in good shape in the DelMarVa Region with regards to that. Here the model uncertainty got a little bit of a higher score than the other areas. One of the main reasons for that is that there is no fishery independent index in this region, and the retrospective was kind of in that risky direction, where it's under predicting F, over predicting SSB, with regard to the retrospective patterns there.

Middle of the range there for management uncertainty, and then low end of the range for environmental uncertainty and ecosystem and trophic importance. A little bit about the socioeconomic criteria. This is just a reminder. We have the importance scores, that is what

I'm going to be reviewing in the next slide coming up here, so that part is completed. Then there is a management effects scores, and those are only calculated if there will be a management action. Because the management effect is a multiplier, the total socioeconomic score can't be calculated unless there is a potential management action.

Basically, the total score bringing those two things together is essentially characterizing what the socioeconomic effects would be of implementing the level of precaution indicated by the rest of the decision tool. You can't get out in front on that one. You have to sort of have something in mind before you can do the second component of those socioeconomic criteria.

But we do have the importance scores. These were calculated based on coastwide socioeconomic indicators. In other words, I don't have four slides here, there is only one, and that is because this is done once and applied to all of the regions. For the commercial economic value, scored at the lower end of the range, and that's because in the grand scheme of things the commercial economic value, while important for those fishers who prosecute this fishery.

In the overall grand scheme of things, it's not a huge fishery in the area from Virginia to Mass in particular. Commercial community dependence is at the higher end, and that is a 4, and that is because the commercial community dependence for the top 10 communities is about 35.1 percent, so kind of the communities again, that do depend on tautog, they're kind of dependent on them. I think it's generally fisheries that are kind of cobbling together small-scale fisheries throughout the year, and tautog is an important component of that.

That had kind of a higher score. Moving down to the recreational part of this. Recreational desirability is about the middle of the range there. It's pretty important. I think folks who fish for tautog are passionate about it, there are just not as many of them as say there are for those that fish

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for striped bass, for instance. Then the recreational community dependence is towards the lower end of the scale there. Yes, so that one scored about a 2. This is the end of it for the presentation here, and this is looking for a little bit of feedback.

You've got the report, are there any questions or feedback on the weightings or the technical inputs? That is something that we're looking to get feedback on. The next steps, so we would like to know if the Board would like to task the Technical Committee or the Committee for Economic and Social Science with any additional analyses.

If there will be a management action, would you like us to produce the recommended probability to help with that process, or if there won't be a management action, as we just saw earlier, a lot of really good news? Conceivably we might not be doing much here. But if we don't, what we could do is kind of produce some hypothetical scenarios to sort of illustrate how we would have used the decision tool to kind of go from the beginning to the end with tautaug here.

Another potential next step to consider, maybe beyond the scope of this Board. But we might want to think about beginning the development for some other species, you know weakfish or striped bass, or something like that. Then finally, we went through the process for tautaug. We would be interested in any feedback on the process itself, for instance the webinar that we have, the survey that was sent out, pretty much anything with that last one. We would be interested in getting some feedback. With that, Mr. Chair, happy to take any questions.

CHAIR HYATT: Great, Jay, thank you. I will say that with each and every presentation that I hear on the risk and uncertainty tool, I think I understand it a little bit better. The bad news is

there is still a little way to go before I'm totally comfortable with it. Toni, have we got any hands up? Basically, we're looking for comments and questions for Jay, any type of feedback on what's been presented.

MS. KERNS: I have one hand, Tom Fote.

CHAIR HYATT: Tom, go ahead.

THOMAS P. FOTE: Yes, when I looked at the commercial side, we put an economic value on what would be a loss within the recreational community. We did not say the impact, you know nobody buys the green crabs that the tackle stores are selling. The charter boats can't sell if we don't have a season, or sometimes it is the only thing we can fish for during the gaps between sea bass and summer flounder. The economics might not seem as great, but it seems to be very important, because then you don't have trips going out. I'm just trying to understand why we didn't include that.

DR. McNAMEE: Yes, I think that's an awesome question, Tom. Why we didn't include it? I just don't think it, you know of course we all understand these things. I think in one regard we were trying to keep things sort of high level and tractable for our first run through here. But I think this is good feedback that we can sort of take back, and that is, because the dependent scores were high on the commercial side.

I think that was high without thinking about these indirect impacts to like, bait and tackle shops. In any case, I think I'll take your question as feedback that we can go back and think a little bit more about and try and incorporate it, because I agree with you. It's like super specialized, right. You have things that occur in the tautaug fishery that don't occur in any other fisheries, like green crab sales and things like that. We'll kind of take that one back and think about how to shoehorn that into the process here. I think it's a good comment.

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MS. SARAH MURRAY: This is Sarah Murray. Is it all right if I chime in here for a moment?

CHAIR HYATT: Absolutely.

MS. MURRAY: Yes, I just wanted to piggyback off of what Jason was saying about the socioeconomic component. A piece of this that he alluded to is that we were trying to come up with a way to make this workable on a management timeline, so for the socioeconomic component we were looking for things that could be indicators of the general importance, for lack of a better word, of the commercial or recreational fisheries.

They are not necessarily capturing every dynamic of it, but they might be a way to get at the scale of the impact of the fishery. For commercial we have a little bit of an advantage that we at least have ex-vessel value data. That's what we ended up using for the commercial indicators. But I will note that is not an economic impact assessment. That is only price of landed tautaug, it doesn't include anything beyond that, the broader economic impacts. For recreational we don't really have something to parallel that on a coastwide basis that would be able to be used for an indicator.

What we did was look at directed trips instead, because that was the data that we had. That said, the socioeconomic indicators or the socioeconomic components are set up for the indicators to be a starting point, so a way to sort of sort the different species. But there is room for the SAS or the Board or AP providing input to say, we don't think that this indicator is actually capturing the reality of the fishery.

In the example of tautaug, if we think that the trip actually isn't really capturing either the sort of importance on a coastal scale, or the community dependence, if it's not capturing some of those dynamics there, and we want to sort of override the indicator. That is

something that we've written in to how the economic components work.

We would just document that change in the report, include sort of justifications for why we're doing that, and change the score accordingly. Hopefully that helped clarify the socioeconomic component, and the recreational, and why there isn't necessarily dollar value associated there, although we know there is definitely economic impact.

MR. FOTE: Can I follow up?

CHAIR HYATT: Go ahead, Tom.

MR. FOTE: That is one of my major concerns. We're designing a tool because of lack of data. Over the years, you know we've been talking about management plans, and we always get to the point where we talk about the recreational socioeconomic impact. We always say, it's the best data we have available.

We're trying to basically do things that we never basically count the economic data that is in the recreational community, and fully in the commercial community. I see all these tools, but in the end it's because of lack of resources we have to get the data necessary to actually do things. We look for tools that will let us get around that, but we're still lacking the data we need to make decisions. This is not helping that, in my estimation.

MS. KERNS: Next Bill, you have Roy Miller.

CHAIR HYATT: Go ahead, Roy.

MR. ROY W. MILLER: This comment, or question actually, probably relates more to Kirby's presentation rather than Jay's, although perhaps the answer to Kirby's also applies to Jay's presentation as well. Specifically, I'm concerned about the relative lack of fishery independent surveys in the DelMarVa Region. There is a Delaware Bay Trawl Survey, but I presume that that data wasn't particularly useful for this purpose,

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probably because of a relatively low catch rate of tautaug in that survey. It's somewhat of an unusual event to catch one. That is one presumption, which may or may not be correct. But I'm wondering, how about federal offshore trawl surveys? They had no utility in providing a fishery independent mechanism for estimating tautaug relative abundance? The question is, why weren't the federal surveys, offshore trawl surveys used?

CHAIR HYATT: Who wants to take a stab at answering that question?

DR. McNAMEE: Mr. Chair, this is Jay. Maybe I'll lead off just sort of topically on the decision tool, because I think there is a relevant response there. But then on the technical question that Roy has, hopefully someone else will jump in, maybe Katie or Kirby. I don't know if Coly is still on. She might be able to help too.

As far as the decision tool goes, just at the highest level, Roy, of your question. You know with the lack of a fishery independent index for that particular region, that is actually one of the real beauties of this tool, and that is you can, because of that fact, and why that is hopefully we'll hear about that in a minute.

But because of that fact, you can be more precautionous in that area, and the tool is sort of built to do that, and in fact it did exactly that in the scoring by the Technical Committee. They ranked that uncertainty a little higher because of that in that component. That is exactly what the tool is built to do, is to accommodate and to prescribe a risk tolerance for exactly this type of a scenario.

I just wanted to sing the attributes of the decision tool with this particular topic, but if anybody has a direct response to the question about a trawl survey. I have like a sense, based on my history with tautaug, but I'll let the folks who are more involved more recently answer.

CHAIR HYATT: Thanks, Jay, so if Coly is still on or Kirby. If anybody can jump in and address Roy's question as to why federal data sources weren't used. Once Roy's question is answered I'm going to have a question, and then we can go back to Toni, whoever has their hand up. Coly, Kirby, does anybody have an answer to the question that Roy asked?

MR. ROOTES-MURDY: I'll jump in and just say that this assessment update, updates the last update from, it was 2016 and that data wasn't used then, so that's the simple answer. We're just updating the surveys that were used in the last assessment. But going back to that previous assessment, a decision why that wasn't looked at, I would have to go back and double check. Maybe Katie has more insight from the first benchmark back in 2014.

DR. DREW: Yes, basically the answer is, we looked at it for the last benchmark assessment, and those federal offshore trawl surveys just really don't catch tautaug. Trawl surveys in general are not great for tautaug, because they are so structure oriented, and the encounter rates in the NOAA surveys were very low. You just get one or two a year, or sometimes none, so we decided those surveys were not providing accurate indices of abundance, because they just couldn't catch them out there.

CHAIR HYATT: Very good. Jay, jump to the question that I have. I'm intrigued by your suggestion of hypothetical scenarios. I think as I mentioned earlier, I'm still struggling somewhat with getting comfortable with the level of understanding, as to what the risk and uncertainty tool would provide us, and how that would be applied. In your slide you ask, are there any questions regarding weightings, are there any questions regarding technical input.

I myself, I'm not really sure if I have any questions, given that I don't think I have a practical understanding of this tool yet. I was wondering if you could just talk for a minute about what you would envision in hypothetical scenarios, and well,

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how you would envision doing it playing out. If you or others on the Board think that that is a useful way forward with it. I don't know how many people are struggling with this in the same manner that I am, but if you could talk about that for a minute it would be great, thanks.

DR. McNAMEE: Maybe Sarah could jump in as well. I don't know if the ASMFC team had talked more explicitly about this internally at ASMFC. But first I will sort of empathize with you a little bit. I struggle with these sorts of things in the abstract, and it's nice to see a good application.

That's exactly why we have that second sub-bullet there. It's sort of a good problem to have, and that is maybe we won't need to actually take any management action, because the news is good by and large. There may be an opportunity there, so it may be a moot point. Maybe we will do something here.

But you know the direct answer to your question is, that is the value of doing the hypotheticals is so that we can run this process from beginning to end, so everyone can see a full application of it. You know even in the case that we might not be making any management changes. I think that is the point where you would say oh, all right.

What the decision tool is going to tell us is, you know if we want to achieve some level of reduction in fishing mortality, it's going to give us the probability that we should set that at, and then the management measures will use that as the target. That's kind of the, there are like two more steps that this gets rolled into.

That is the point of doing the hypotheticals is for exactly the reason you highlight, and that is to run it from beginning to end, so that we can see the full application of the tool, rather than kind of ending here and having it remain sort of

an abstract idea. Sarah, I don't know if you guys talked a little bit about what hypotheticals we might be thinking about, if we don't end up taking any management actions this time around.

MS. MURRAY: Yes, we did talk about it to a certain extent. We probably need to flesh these ideas out a little more if we go down that road. But I think the idea is essentially to give the Board a more fully fleshed out view of what this tool results in, and then also what sort of tinkering with the different pieces of the tool would do.

As we mentioned earlier in the presentation, this can be an iterative process, so when it comes to the weightings, for example, you all provided input on that. But there would be an opportunity that if you didn't quite agree with how that landed, that those could be changed, or an example of the socioeconomics component, where there might be concerns that one of the components isn't capturing things. There could be a chance of tweaking those. Some examples to just show what it would look like if you did change the weightings, for example, or if you did change the score on a socioeconomic component would be what we were thinking of, in terms of the hypothetical scenarios.

You know we haven't sorted out exactly what those would look like. We want to steer away from, I guess getting confusion around actual management of, versus what is happening. But the intent would be different scenarios that help the Board understand what the nobs they have to turn on in this decision tool would be.

CHAIR HYATT: Well, thank you, Jay and Sarah. From my perspective that would be extremely helpful, running some hypothetical scenarios to take this from the abstract to the practical. That includes some level of sensitivity analysis towards the variables. I'm talking for everybody here, and I hope there is agreement, and if not let me know.

But I'm thinking that that would take everybody a long way down the road towards understanding

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this, and better understanding its practical application. I guess my question to you would be, do you need anything from the Board in order to proceed in that direction at this point in time, or is there agreement amongst the members of the Board that that is a good direction to move in?

MS. KERNS: Before Sarah answers that question, Bill, John Clark put his hand up during this discussion, so I don't know if he has a question related.

CHAIR HYATT: Go ahead, John.

MR. JOHN CLARK: Yes, I was just saying that I agree with Bill. I would really like to see these hypothetical scenarios. I'm just kind of curious also, if they did start being used more often, maybe Jay can answer this. Could you get to the point where the system could inadvertently be kind of game.

Let's say you had states that didn't want to see action taken. They both say put very low weights on certain of the items, other areas where they might be much more concerned about if they put very heavy weights on those, would it kind of cancel each other out, and then you end up with almost like a neutral weighting there?

DR. McNAMEE: Good question, John. I think there are two things to answer. I think that could happen mathematically. I think it would take a pretty concerted and coordinated cabal. You know one of the nice things about the survey is we all sort of took it independently, and then everything gets sort of averaged together. My hope is, you know any one individual who is trying to do something nefarious would get sort of, you know it would come out in the wash.

MR. CLARK: Jay, I think I worded it poorly. I didn't mean like an intentional system, but I just

meant, you know let's say one region thinks the stock is doing well, and another region doesn't think it's doing well. There is some very much a subjective element to this whole thing. Could those type of things happens though, where it just kind of works out that you end up with a neutral recommendation based on the fact that everybody's kind of canceling each other out?

DR. McNAMEE: Yes, okay, I'm sorry. I was being a little cynical as well. I apologize. It probably wasn't the way you worded it.

MR. CLARK: Well, you are right to be cynical though, because those things could happen.

DR. McNAMEE: In answer to your question. In the case of tautaug, again maybe you didn't mean it this way, but the regions are independent from each other. They are succinct units. Within a region, if people felt differently about the stock status, yes that could happen, and in fact you sort of see that in the case of the socioeconomic factors, they sort of offset each other.

It can happen, but that is again, I think that's the opportunity we have here, is for you to look at the stuff and say hey, I don't think that looks quite right, I think maybe we all didn't understand this correctly, and we adjust the weight. But we have to do it transparently, and get the consensus of our fellow Board members to adjust that weighting post survey. I think yes, it can happen mathematically, absolutely. But there are ways to account for that, and the nice aspect of the process we've developed here is you have to be really transparent about it.

MR. CLARK: See, and that's real helpful, because I figured it would probably end up being an iterative process. But there is a lot of subjectivity involved in the process.

DR. McNAMEE: Yes, for sure.

CHAIR HYATT: Toni, do we have any hands up now?

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MS. KERNS: We don't have any other hands up, so you can go back to Sarah, to answer your question about what we would need to do.

CHAIR HYATT: Go ahead, Sarah.

MS. MURRAY: The question really comes down to whether we want to look at hypothetical scenarios for the next Board meeting, or whether we want to kind of produce the real world recommended probability for each of these regions. The distinction there is, if we're going through the full real exercise of producing the recommended probability.

That involves working with the TC to produce harvest levels associated with the different probabilities, and looking at the potential change in harvest levels, and feeding that back through the management change effects, to then produce the recommended probability. In the hypothetical scenarios, at least how we had talked about it.

Rather than working with the actual projections, we would probably look at just different hypothetical percent changes, for example. That is kind of the nuance there of whether we want to continue forward with this, and work with the TC to do with the actual projections, or whether we just want to look at some hypothetical scenarios. A sort of middle option is to say, we want to look at hypothetical for now, and potentially do the real option later if we are actually looking at management possibilities, or both for the next scenario. Not to give ourselves too much work there, but I think that is kind of the real question we have for you. Do you just want hypothetical so that you can understand the tool, or are we wanting to take the next step to produce some potential probabilities to actually inform potential management actions?

CHAIR HYATT: It sounds to me like there is a little bit of a catch 22 there, in the sense that even if they are hypothetical, they have to be

real enough to enable people to envision the use of the tool in a manner that leads to greater understanding, familiarity, and comfort. I don't know exactly, well off the top of my head, what type of guidance to give in response to the question you just asked. I think I will throw it out to the group for further consideration.

MS. KERNS: You have Adam Nowalsky, Mr. Chair.

CHAIR HYATT: Go ahead, Adam.

MR. NOWALSKY: If it is not the intention of this Board to change management measures, particularly I think in a more restrictive direction for Long Island Sound and New Jersey/New York Bight. Is there another species board that might get more out of doing the hypotheticals in the near term and/or possibly using this in the near term, if this Board doesn't intend to actually use it and it's just really hypothetical?

CHAIR HYATT: Jay, Sarah, I don't know if you have any thoughts on that. My immediate reaction, Adam, is that we've gone this far with developing it, and a lot of work has gone into developing it, with regard to tautaug. Jay and Sarah, correct me if I'm wrong, but this tool could be used not just in assessing more restrictive management measures, but also could be useful in addressing liberalization of future management. Am I correct?

MS. MURRAY: Yes, that is correct. It can be used in either direction. Perhaps as a note on workload. The hypothetical scenarios, at least as we envision them, shouldn't be terribly complicated to produce. Just as a way to visualize and maybe wrap it up, even if the Board is not looking to take a management action. At least to produce a few of those just so that for future reference you have a sense of how this would have turned out wouldn't be too much of a workload.

When it comes to whether or not, I can't speak to whether or not in regard to the Board action specifically, so that is up to the purview of the

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Board. But producing the hypothetical wouldn't be particularly complicated. Producing the actual recommended probability is a bit more work, it's still feasible for the next board. It just depends on how the Board is seeing this, and whether it is useful for the Board.

CHAIR HYATT: Thank you, any other hands, Toni?

MS. KERNS: We have Justin Davis and then Adam Nowalsky.

CHAIR HYATT: Okay, go ahead, Justin.

DR. DAVIS: I guess I feel that seeing some hypotheticals might be helpful in sort of really bringing home to the Board whether or not this is a tool we want to adopt and use in an actual live fire management action in the future. I do think we need to be careful that moving forward with hypothetical runs of this tool is not sort of viewed as a pretext to management action, when the Board has not yet made a decision to take any management action at this point, relative to tautaug.

I'm not in favor of sort of just stopping at this point and not doing something further, until such time as a management action might be taken, because I think we need a more detailed look at how this might play out, to make the most informed decision about whether this is something we want to use in a future management action. I guess I would be in favor of some hypothetical applications of this, to give sort of a fuller look at what it might actually look like if used in a management action, if that's helpful.

CHAIR HYATT: Yes, it was helpful. Adam, go ahead.

MR. NOWALSKY: Like others who have spoken, I am completely interested in continuing to see this move forward. I'm not looking for a full

stop on this. I think a lot of great work has been done. I think there are definite applications to this. I am thinking, however, that it was not this Board's request to have this tool brought to us first.

I believe it was ultimately a Policy Board decision when they looked at the tool, to say hey, this is a species that we think this would make sense to go to. That decision was made when we had information about stock status. This last assessment I think has significantly changed the Commission's perspective on where stock is, and I think again that's a great position to be in. I would rather be in that position than the other direction.

I'm leaning towards thinking, maybe the best approach here is not for this species board to be making this decision today, but for staff to spend some more time thinking about what is the best application for this at this point? Is there a better application than the Tautaug Board at this point, and ultimately have the Policy Board make the decision, whether they want an individual species board dealing with hypotheticals, or whether they think there is a better use of this moving forward in the near term?

CHAIR HYATT: Okay, so it is clear that some folks do believe that we should move forward with some hypothetical scenarios within this Board, take a further look at it. Adam has suggested that we move this over to the Policy Board, to see where would be the most appropriate place to do some additional and further development and analysis. What do other folks think?

MS. KERNS: Bill, I just want to step in really quick and in response to Adam. You know Adam, you are correct, the Policy Board thought that the Tautaug Board would be a great second run of the risk and uncertainty tool, or test run I should say, because of the previous stock status. We had an assessment coming up, where we thought, we might have to make a management response. If we go back to the Policy Board, we would have to start all over again, which would be potentially a considerable amount

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of time before we even do another test run. It's been several years in the making, this tool. I think from the staff's perspective, we would like to try to be able to bring something back to the Policy Board, in terms of like how informative the tool was for the Board, so that they could make a decision on whether or not they want to approve the tool for use across the board for all of the species.

Doing a test run could achieve that for giving feedback to the Policy Board, I think. I'll just put that notion out there, if we could come back to the Board with like just make something up to say we needed to do reductions for tautaug in one of the regions. Here is a list of scenarios, based on some hypothetical to provide that information to you all, to see how it would work out. That said, I'll let the Board chew on that, and Tom Fote has raised his hand.

CHAIR HYATT: Go ahead, Tom.

MR. FOTE: I know it's supposed to be hypothetical, and we go through the exercise. But I have watched what happens in hypotheticals over the years, and the tendency of somebody jumping on it for their own, wherever their own philosophy is going, or what direction they want to go, and they start using your numbers on a hypothetical, which was never meant to be used.

It winds up in a lot of controversy going on. That is my concern here. Because fisheries management is no longer done in a bubble, but it's done on the internet a lot of times. I'm always concerned when you put out things to the public that are hypothetical, because some people just jump on and say that's the truth.

CHAIR HYATT: I will add that doing it clearly up front as a hypothetical does actually mitigate some of that risk that you had suggested, as opposed to jumping in and doing real life

scenarios, maybe where you don't intend to take management action. I would argue that in order to protect against what you're concerned about, that it's actually better to work with hypothetical scenarios, at the stage in the process where you're still trying to understand the usefulness of a tool.

At this point, what I'm going to do is suggest that we do take one additional next step in this process. I'm going to suggest as a Board that we should go forward, and at least move one step forward and allow for the folks that have dedicated a lot of time and effort working on this, to prepare some hypothetical scenarios.

With the understanding that these will be presented to us at the next Board meeting, and if it's not practical by the next Board meeting, at least at a subsequent Board meeting. I don't think we need a motion here, unless there is a strong objection to this or any objection to this. I will throw that out for folks to see if members of the Board are comfortable moving forward at this time in that manner. Toni, have we got any hands?

MS. KERNS: We have two hands, Justin Davis and then Chris Wright.

CHAIR HYATT: Go ahead, Justin.

DR. DAVIS: I'll just offer one thought. I don't know if this is useful or not, but I wonder if in doing some hypothetical scenarios, if it might be useful and perhaps a little less, I don't know what the word is, but if we did something retrospective, where if for instance we looked at the management decisions that were made after the last assessment, which I think were all based on a 50 percent probability of reaching F target by some timeline. If there is a possibility of looking at the available information from the assessment at that time.

Coupled with this tool, and sort of determining whether we would have chosen a different probability for achieving F target at that time. In that case we sort of have a real-world comparison

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of sort of what we did under the “old model” versus what we would have done under this model. That also avoids sort of the issue here of not wanting to create a pretext for management action at this point, that the Board hasn’t shown any indication they want to take. That is just a thought thrown out there.

CHAIR HYATT: That’s a very interesting suggestion, and Jay and Sarah, does that seem like something that could be within your wheelhouse to address in that manner?

MS. MURRAY: Yes, I think I’ll provide a little more context on these hypotheticals that we are thinking of, and how those would work. In the real process we would take the probability that is produced from just the sort of scientific biology-based components of the stock status, model uncertainty, environmental uncertainty, ecosystem trophic importance, and then also the management uncertainty.

Those would produce a probability without the socioeconomic component, and we would look at the with projections what harvest level would achieve that probability, and see how that stacks up to the status quo, so in terms of whether that would be an increase or a decrease, or what percentage that would be. That would be what is used to produce that final socioeconomic score.

In the hypothetical scenarios that we’re talking about here, we’re essentially breaking this component of the decision tool. You can’t take the hypothetical scenario and say, okay we want to apply it. Instead, what we’re doing is we’re taking out that component of looking at the harvest level from just those TC components. We’re not doing that. Instead, we’re saying, okay what if the scores that the TC produced suggested a 5 percent decrease. What would the management affect score for the SAS component be?

What if the TC component set a 10 percent increase? What would the management at that score be? There wouldn’t be any justification for using that in a real-world scenario. When it comes to looking at a past, like the past management decisions, we could look at the percent decreases, for example, and use that for one of the hypothetical scenarios.

But actually, reproducing the full decision tool based on the reality of the time of the last management decision would be a lot of additional work, because we would need to produce all of those scores based on that time, and go back and do the socioeconomic scores based on that time period, and things like that. It sort of depends on exactly what you’re thinking, in terms of using that past scenario. Hopefully that helps to explain things a little more, but if you have additional questions, please let me know.

CHAIR HYATT: Thank you, Sarah. It’s clear that what you’re suggesting is very sensitive to the concerns that Tom Fote brought up. It is consistent with some of the suggestions that have been made so far in the discussion. At this point, what I’m going to do is just ask the Board if there is any objection to having the folks move forward with the risk and uncertainty tool, to look at some hypothetical scenarios, as Sarah has described, and to report back to this Board at a subsequent meeting. Is there any objection to that?

MS. KERNS: I see no hands.

CHAIR HYATT: Okay, very good, thank you. Then we will move in that direction, and I will just ask, is there any further discussion that needs to be had, or that people are interested in having on this topic?

MS. KERNS: Chris Wright had his hand up.

CHAIR HYATT: Go ahead, Chris.

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MR. CHRIS WRIGHT: I support the going forward, but what timeframe were you thinking, the next meeting, or which meeting are we going to hear back on this scenario analysis?

CHAIR HYATT: I'll jump in. I was thinking the next meeting. But I think, given the discussion that's been had, I think really depends upon Sarah and Jay and the folks who are going to be hands on, letting us know whether or not that is possible. Sarah, do you have an answer today, or is that something that you're going to need to think about a little bit?

MS. MURRAY: Yes, winter meeting should be feasible for coming up with some hypothetical scenarios to look at. As long as that makes sense with ISFMP and their agendas for that meeting, it shouldn't be an issue to have that analysis ready for them.

CHAIR HYATT: Very good, any other hands?

MS. KERNS: No hands.

MR. ROOTES-MURDY: I just wanted to jump in and say, in summary what I'm hearing is we don't have any feedback from the Board on the report, in terms of weightings or technical input at this stage. As you've suggested, we have a path forward, and coming up with some hypothetical scenarios that we will report back to the Board, in terms of the next steps, as there hasn't been any indicated management action at this point, the Board wants to take.

The last question we were hoping to get some feedback from the Board on, I think to help the risk and uncertainty process, you know moving forward, is on how the information has been presented, the previous webinars, survey, understanding the decision tool. You know I think that would be helpful for us as staff as well.

CHAIR HYATT: Thank you, Kirby. My feelings have been that the process moved rather smoothly, and it's been a learning experience. But I would love to hear from others. Anybody have any comments?

MS. KERNS: I have no hands, Mr. Chair.

CHAIR HYATT: Okay, Kirby. If anybody does want to provide any comment or any feedback to Kirby, relative to that question, I suggest you reach out directly to him or through me. That would be wonderful.

DEVELOP GUIDANCE FOR LAW ENFORCEMENT COMMITTEE REVIEW OF THE COMMERCIAL TAGGING PROGRAM

CHAIR HYATT: At this point then, we will move on to Item Number 7 on the agenda, it's Developing Guidance for Law Enforcement Committee Review of the Commercial Tagging Program. Kirby, I believe you've got a short presentation on this as well.

MR. ROOTES-MURDY: In August, the Board was presented an initial report from the TC, feedback from industry members and questions answered by the Law Enforcement Committee on the implementation of the tagging program. The focus of those questions going into the summer meeting was generally on how the tagging program was working.

Given the tagging program was implemented to address illegal harvest markets for tautaug, there has been noted interest by the Chair, Bill Hyatt, to put together a bit more information of how compliance and impact is having on the illegal harvest currently, in terms of tags being applied to fish across the management unit.

What was included in supplemental material for the Board to consider ahead of today's meeting were just four questions that we're trying to get at more specific feedback from the Law Enforcement Committee regarding compliance and impact on illegal harvest. The goal of today's presentation is

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to highlight those questions to the Board, and try to get Board feedback on whether they will fully address the interest and further understanding the tagging program's impact.

If the Board is able to come to agreement on those questions today, and we are able to convene the Law Enforcement Committee in the coming months, we should be able to report back to the Board at the winter meeting, assuming that that all lines up. I'll next go through these four questions for the Board to consider, and then to wrap up have you all provide feedback.

The first is, are there any areas of concern, specific fisheries or markets where compliance of tautaug tagging requirements remain a significant issue? This would be helpful, obviously to better understand if there are other fisheries outside of the tautaug fisheries that it's having an impact on it. The second question is, is there a practical way for agencies to collect information on noncompliance with tagging requirements in the fishery or markets that could inform and improve the efficiency and effectiveness of law enforcement efforts?

Examples might include specific types of advanced information gathered by Agency biologists or by partner organizations. The third is, any additional thoughts or recommendations for improving the efficiency and effectiveness of enforcement at the tagging program, and the fourth and final question is, now that the tagging program has been underway for a couple of years, what is your expectation on if the program will ultimately be successful at reducing illegal fishing and markets? Again, we're looking for feedback on these draft questions, and if there is agreement that these questions address what the Board is hoping to better understand on compliance with the tagging program and impact on illegal harvest, they could be forwarded on to the Law

Enforcement Committee to get feedback. At this point I'll turn it back over to you, Bill.

CHAIR HYATT: In a nutshell, what this is, is basically the tagging program has been implemented, and compliance with it is important, in order for us to achieve the objectives of that program. The law enforcement officers in the various states that are working on the ground, they've got the most hands-on, most detailed, most up to date information on where issues are occurring and where concerns might be.

This is just an attempt to reach out to those law enforcement officers and try to solicit some feedback on both where efforts should be focused, and any suggestions as to how the efficiency of law enforcement efforts could potentially be improved. That is the whole purpose behind this short list of questions. Any feedback on what we're doing and thoughts on the specific questions would be welcome.

MS. KERNS: You have Dan McKiernan.

CHAIR HYATT: Go ahead, Dan.

MR. MCKIERNAN: Thank you, Bill. I guess my concern is that some jurisdictions haven't even finished their first year with this program. But having said that, it's never too soon to get good feedback from the officers, as you've said. The officers who are on the front line are definitely going to have insights for us that will be very valuable.

I do have a question on the first of the four questions, if Kirby could bring up that slide. It was a little vague to me what was being asked, Question Number 1. Is this supposed to identify, say supply chain situations, where like a market might have some untagged tautaug? What is being asked of the officers to provide feedback on here?

CHAIR HYATT: This will, to get at the most specific information that the officers have. I think it should

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be accompanied by the suggestion or a request that they talk directly with the field staff, as you say on the front lines, and whether it's specific geographic areas, whether it's specific type of markets, whether it's specific parts of the chain of custody, where the problems are occurring. I think that's the intent here. If you or others think that this question needs to be fleshed out a little better to garner that information, then that is the feedback that we're looking for here. I think it would take us a long time to wordsmith everything and get it perfect here, but I think just following the meeting, working with Kirby to make some changes to these questions might be appropriate, if they come after further thought.

MR. McKIERNAN: Okay, well thanks for that, I'll yield.

MS. KERNS: Next you have Tom Fote.

CHAIR HYATT: Tom.

MR. FOTE: Yes, one of the questions, one of the concerns I've always had is when we put rules in place is that states that are not required, because they are basically markets. You know when I go to like say, Pennsylvania, I always check out the fish markets when I'm going there. I'm always concerned about, when I see striped bass in the market there, where they're coming from.

Because I know that is transportation of illegal fish over the state lines. If they're not required to use the tags in Pennsylvania is that a loophole? Is that a problem? I guess since Pennsylvania is not required to do tagging programs, how do we check on the import to their markets like that? I'm just curious on that.

MR. ROOTES-MURDY: This is Kirby, I can jump in.

CHAIR HYATT: Go ahead, Kirby.

MR. ROOTES-MURDY: Yes, this question came up before the tagging program went into effect, which was for Pennsylvania, because they don't have a fishery but they do have markets, how to ensure enforcement. Andy Shields, who as you know Pennsylvania doesn't sit on the Board, did indicate that they were going to have their officers check to ensure that they had tags on fish in the marketplace now.

I think to what Bill is trying to get at with these questions is, this could be a set of follow up questions to the LEC on these concerns that you're raising, Tom, of whether that is still the case that they are checking in that marketplace to ensure that the tags are being applied, even though the state is not on the management board and does not have a fishery.

MR. FOTE: Yes, because it's not only the market, there is also the restaurants, because that is where a lot of the tautog wind up in.

CHAIR HYATT: Thanks, Tom, and yes, the hope is that law enforcement officers would be well positioned to have some of the type of information that you're talking about needing, absolutely. Any other hands?

MS. KERNS: I see no other hands raised.

CHAIR HYATT: I'm going to interpret this discussion that people are comfortable with going forward to the Law Enforcement Committee with a set of questions, that there might be some tweaks to those questions, and that people will get whatever suggestions they might have to Kirby. Providing they're not dramatically significant from what's been presented here, we'll move forward accordingly. Very good. Where were we on the agenda, that was the next to the last item. The last item is Other Business, so I will ask, is there any other business to come before the Board today?

MS. KERNS: You have Dan McKiernan.

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CHAIR HYATT: Go ahead, Dan.

MR. McKIERNAN: Bill, earlier in the meeting you had mentioned this was your first and last Board meeting, and so it appears to me that you have some kind of Midas Touch, so I was wondering if in the Policy Board we could nominate you for Northern Shrimp, or maybe Striped Bass.

CHAIR HYATT: Thanks, Dan, I don't even know what to say to that except no. Thanks. I will add here is, before we go to adjourn, I'm going to say I want to thank Kirby for an absolutely excellent job he has done the last two years supporting this Board, and I particular keeping me on task.

Over those two years I got a lot of "Hey Bill, just a reminder" e-mails, and those e-mails and the discussions are greatly appreciated, so thanks, Kirby, and if we were meeting in person, I think the Board would be giving you a nice round of applause right now. With that, Toni, I'll just ask once more. Is there any other business to come before the Board, and are there any hands?

MS. KERNS: I don't see any other hands, and I am not aware of any other business.

ADJOURNMENT

CHAIR HYATT: Okay, very good, so with that we are ahead of schedule and we are adjourned. Thanks, folks!

(Whereupon the meeting adjourned at 3:47
p.m. on Monday, October 18, 2021)

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Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Tautog Management Board

FROM: Sarah Murray, Fisheries Science Coordinator

DATE: January 10, 2022

SUBJECT: Risk and Uncertainty Decision Tool Hypothetical Scenarios

Background

In recent years, the Commission has been developing a policy to better account for the risk and uncertainty that is inherent to fisheries management. One of the key components of accounting for risk is determining risk tolerance – in the case of the Commission, how much risk is acceptable for a species or stock. The Commission’s preliminary Risk and Uncertainty Policy provides a consistent yet flexible method for arriving at a recommended risk level that takes into account the Commission’s priorities and characteristics of the stock and fishery.

In the typical management-decision process, projections of biomass are used to help determine the appropriate harvest level for a stock. Different harvest levels result in different probabilities of achieving the reference points; for example, higher harvest levels have a lower probability of being at or below the F target, while lower harvest levels have a higher probability of achieving the F target. Management priorities and risk tolerance determine the appropriate probability to use to set the harvest level for a stock. In the past, the Commission decisions regarding this probability have been made via *ad hoc* Board discussions.

The preliminary Risk and Uncertainty Decision Tool provides a structured method for arriving at the probability of achieving the reference points. The decision tool incorporates different information related to the risk and uncertainty for a species (technical inputs) and combines it with the relative importance of the information (weighting) to arrive at the recommended probability of achieving the reference points.

Tautog Pilot Case

At the 2021 Winter Meeting, the ISFMP Policy Board recommended using tautog as a pilot case for the Commission’s draft Risk and Uncertainty Policy. Preliminary Risk and Uncertainty Decision Tools were developed for each of the four tautog management regions based on input from the Tautog Management Board, Tautog Technical Committee (TC), and Committee on Economic and Social Sciences (CESS). The Board reviewed the preliminary Tautog Risk and Uncertainty Report, which summarized the preliminary decision tools, at the 2021 Fall Meeting.

M22-08

Normally, the risk and uncertainty process would only continue to the next stage if a management action was initiated. Otherwise, the species decision tool would be saved for future use. While the Tautog Board did not initiate a management action at the 2021 Fall Meeting, the Board tasked staff with developing hypothetical scenarios to illustrate how the tool would have worked and complete the tautog pilot case.

Decision Tool Process

If a management action had been initiated, the next step would be for the TC to produce a preliminary recommended probability (Table 1) of achieving the fishing mortality (F) target reference point for each of the management regions. The preliminary probabilities would include all of the components of the decision tool except for the socioeconomic component – in other words, this would be the recommended level of precaution if no socioeconomic considerations were taken into account. The TC would conduct projections to determine the harvest level that would result in F being at or below F target with the preliminary probabilities. Next, the CESS would compare the preliminary harvest levels to the status quo harvest levels and use the difference to score the management effect portion of the socioeconomic component. The socioeconomic scores would be added to the decision tool to produce a final recommended probability that includes socioeconomic considerations. The Board would review the final recommended probability and decide whether to accept it and use it to determine the future harvest level, or adjust the weightings to better reflect Board priorities.

Hypothetical Scenarios

In the case of tautog, a management action was not initiated and, as a result, the final stage using the probabilities with projections will not be completed. To complete the tautog pilot, hypothetical scenarios (Table 2) were developed to illustrate how the decision tools would have worked. These scenarios are not based on projections and therefore do not represent real scenarios or management options. While the real process would use the difference between the preliminary harvest level and the status quo to score management effect, these scenarios use hypothetical percent differences. For example, scenarios 2a-e (Table 2) demonstrate what the final recommended probabilities would be if the preliminary harvest level was a 5-10% change from status quo; this change could be an increase or a decrease in harvest.

The scenarios (Table 2, scenarios 2b - e) also include different potential weightings for the socioeconomic components. In the decision tool, the short-term socioeconomic component often decreases the probability (reducing precaution) and long-term socioeconomic component often increases the probability (increasing precaution). The socioeconomic component serves as a way to balance tradeoffs between short-term and long-term socioeconomic considerations, based on Board preferences. In the weightings produced from the Tautog Board's input, the short-term and long-term components were weighted roughly the same (Table 2, scenario 2a). This is a result of differing opinions on short-term and long-term

tradeoffs, which averaged out to similar scores. Because the short-term and long-term socioeconomic technical inputs were the same scores, the two components largely balance each other out. As a result, the different hypothetical management effect scores have little to no impact on the final probability.

To illustrate how the management effect score could impact the final probability, additional scenarios with alternate weightings for the socioeconomic components were added. The original decision tool weightings were based on Board input on the relative importance of each decision tool component compared to the others, scored from much less important (1) to much more important (5). Scenarios 2b and 2d demonstrate what the hypothetical scenarios would look like if short-term was scored as a 5 and long-term was scored as a 1, and vice-versa. While the original weightings were all based on the 1 – 5 scores, it is possible to weight a component even higher than this. Scenarios 2c and 2e demonstrate a more extreme weighting, which is the equivalent of having scored the short-term or long-term component as a 10. The tautog FMP mandates that the Board must use at least a 50% chance of achieving the *F* target when taking action to reduce *F*, so for the hypothetical scenarios, 50% was used as the lower limit and scenarios or weightings that would have resulted in a recommended probability of less than 50% were not included. A higher probability of achieving *F* target would result in a lower harvest limit.

For all regions, putting more weight on short-term socioeconomic considerations resulted in a lower recommended probability, while putting more weight on long-term socioeconomic considerations resulted in a higher recommended probability. The amount that the probability was changed depended on how much higher the weights for these components were. For the scenarios where the short-term socioeconomic considerations were weighted higher (2b-c), the standard most important score (5) resulted in a 2% decrease from the preliminary probability, while the more extreme weighting (10) resulted in a 4% decrease. For the scenarios where the long-term socioeconomic considerations were weighted higher (2d-e), the standard most important score (5) resulted in a 2% increase from the preliminary probability while the more extreme weighting (10) resulted in a 4% increase. In all cases, the adjustments do not result in radical departures from reasonable probability levels. At the same time, the process creates a more refined and transparent representation of the Commission’s risk policy in the management decision-making process.

Next Steps

The next step for the tautog pilot case is to report back to the ISFMP Policy Board on lessons learned. For tautog, the regional decision tools will be saved for potential consideration with future management actions.

Table 1: Tautog Regional Decision Tool Preliminary Probabilities (Probabilities without Socioeconomic Considerations) for Achieving F Target

Tautog Regional Decision Tool Preliminary Probabilities				
Region	MARI	LIS	NJ-NYB	DelMarVa
Amendment 1 Status Quo	50%			
Preliminary probabilities by region (probabilities without socioeconomic component)	54%	59%	61%	56%

Higher probabilities of achieving the F target have a lower risk of overfishing but will result in lower harvest limits.

Table 2: Tautog Regional Decision Tool Hypothetical Scenarios

Tautog Regional Decision Tool Hypothetical Scenarios								
Scenario	Socioeconomic Component Weightings				Regional Final Recommended Probabilities (All Components)			
	Commercial		Recreational		MARI	LIS	NJ-NYB	DelMarVa
	ST Weight	LT Weight	ST Weight	LT Weight				
Scenario 1: No change to harvest level								
1: Any weightings	*	*	*	*	54%	59%	61%	56%
Scenario 2: 5-10% change to harvest level								
2a: No change to weightings	0.09	0.09	0.10	0.10	54%	59%	61%	56%
2b: Short-term socioeconomic considerations (ST) most important (5); long-term (LT) least important (1)	0.16	0.03	0.16	0.03	52%	56%	59%	54%
2c: ST most important, with extra high weighting (10); LT least (1)	0.25	0.03	0.25	0.03	50%	55%	57%	52%
2d: ST least important (1); LT most (5)	0.03	0.16	0.03	0.16	56%	61%	63%	58%
2e: ST least important (1), LT most, with extra high weighting (10)	0.03	0.25	0.03	0.25	58%	62%	65%	60%

*If the change to the harvest level is 0, the socioeconomic component will be 0 regardless of the weightings



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Tautog Management Board
FROM: Law Enforcement Committee
DATE: January 7, 2022
SUBJECT: Law Enforcement Committee Feedback on Tagging Program and Illegal harvest

The Law Enforcement Committee (LEC) met on December 2nd to review questions posed by the Tautog Management Board on the impact of the commercial harvest tagging program in reducing illegal harvest and sale. Below is the summary feedback provided by each state's LEC representative.

1) Are there any areas of concern (ex. specific fisheries or markets) where compliance with tautog tagging requirements remains a significant issue? Please be as specific as possible.

The LEC identified the following areas of concern:

- Commercial harvesters returning to dock or penning up fish at sea with catches above the commercial limit or as part of efforts to avoid fishing during bad weather and then selling the fish at the trip limit quantity over multiple dealer reports. When there have been reports of this, Marine Patrol attempt to meet boats and intercept commercial harvesters when they possess catch over the limit. This has been challenging as some commercial harvesters have warned other harvesters in real time via cellphones.
- While there appears to be good compliance with the commercial fishery in all states- both among commercial harvesters, markets (fresh and live), and restaurants- the LEC noted concern that some recreational harvest is illegally being sold in secondary or underground markets. Suspicion that this illegal sale is occurring are instances of recreational trips arriving to docks with both legal and illegal (i.e. more than the legal trip limit or undersized fish) catches; in some of these instances the anglers are nonresidents making them hard to track; and instances in recent years of markets being shut down where there was illegal harvest (i.e. undersized fish or fish without tags) being sold. Finding and monitoring additional market places and proving that recreational harvest is ultimately being sold illegally is challenging.
- Individuals that are illegally harvesting tautog in the recreational fishery have been observed by Marine Patrol to work in groups across multiple boats, which can be challenging to catch in the act. These individuals can call or text others in their group to warn if they are intercepted by law enforcement, whether returning to shore or fishing in specific locations.

M22-07

- A number of states are dealing with a shortage of Marine Patrol staff and competing priorities to monitor illegal harvest in the tautog fishery. If there has been generally good compliance with the tagging program, it becomes difficult for Law Enforcement to do extensive monitoring when there is no evidence that illegal activities (illegal harvest or sale) is happening.

2) Is there a practical way for Agencies to collect information on non-compliance with tagging requirements in the fishery or markets that could inform and improve the efficiency and effectiveness of law enforcement efforts? Examples might include specific types of advance information gathered by agency biologists or by partner organizations. Please be as specific as possible.

The LEC noted that trying to effectively use either other agencies or organizations would be very difficult in a number of states because in markets selling tautog, there is a strong distrust of anyone not from community coming in. In checking whether illegal undersized or untagged fish are being sold, a challenge is having those checks occur at the same time; checks have to be synchronized, otherwise vendors in one store or market will tip off vendors at other locations.

Regarding collecting information on non-compliance, it is unclear whether that would make efforts to combat illegal harvest more effective or efficient. Unless Law Enforcement Agents receive calls or information that indicates illegal harvest or sale is happening, it is very difficult to make regular surprise checks of markets when there isn't any evidence or information. Having the LEC meet on a regular basis to share notes and updates on activities in their state is very important in trying stay on top of illegal activity.

Based on the LEC's discussion, the group was in agreement that the recreational fishery is where much of the illegal harvest is likely occurring. But monitoring that fishery more than current efforts- which for some states often becomes the primary focus of law enforcement activity- is challenging given many of the states' limited law enforcement staff.

3) Any additional thoughts or recommendations for improving the efficiency and effectiveness of enforcement of the tagging program?

A few LEC members noted that commercial harvesters in their state have expressed frustration with the current tag type- that it causes sores on the fish and/or that it can increase mortality of fish intended for live markets. The injuries or mortality can affect the price the commercial harvesters can get for the catch. The LEC members indicated that the best way to maintain and strengthen compliance with the tagging program is to have full buy-in from the commercial sector. If there is the ability to evaluate a different tag type through more testing, that might satisfy those who have taken issue with the current strap and may further improvement compliance the ease of enforcement.

4) Now that the tagging program has been underway for a couple of years, what is your expectation on if the program will ultimately be successful at reducing illegal fishing and markets?

Overall, the LEC was in agreement that the tagging program has reduced the illegal harvest and sale of tautog, but to what extent is difficult to quantify. The tagging program has changed how the illegal harvest is happening- the LEC indicated the recreational fishery is where the majority of violations- specifically catches above the legal recreation trip limit- is occurring, but as mentioned earlier it is difficult prove the intended destination of fish caught on those recreational trips is for illegal sales.

Kirby Rootes-Murdy

From: Kirby Rootes-Murdy
Sent: Monday, December 6, 2021 9:02 AM
To: Kirby Rootes-Murdy
Subject: FW: [EXTERNAL] tautog tags

From: Tor Vincent <duckislandmarine@gmail.com>
Sent: Monday, November 29, 2021 11:01 AM
To: Snellbaker, Jason [DEP] <Jason.Snellbaker@dep.nj.gov>
Subject: Re: [EXTERNAL] tautog tags

Hello Jason,

I can be available late afternoon any day. 631 275 4248

I have attached the study from NYSDEC.

The tag in the study looks like the national 1005-4, the stainless stainless steel applicator is listed at .5 lbs. It is listed as designed for 4-10 lb fish,rabbits,racoons,

By contrast we were given the national 681. Instead of a dimple to hold the point for a smooth surface after application like the 1005-4 it has the folded point exposed to create an abrasive surface on the internal gills when applied "properly". This makes sense since it seems designed for swine and sheep ears or turkey wings and the point would be external away from the animal skin. The applicator weighs 1 full pound and is made from aluminum. Again this makes sense since it is designed for external ears and wing application. The choice to use the large tag and bulky tool where the inside of the gill is impacted during application by the tool then the weight of the tag on the gill causes the incision to remain open could contribute to the infections we are seeing on the gills. Chaffing on the gills was observed with the smaller dimpled tag. Without question the 681 is doing multiple rates of damage. The study was done in well water sourced tank water which flushed out. In the business we call this holy water because almost every tank problem goes away in these systems, the input water is sanitary and all the wastes leave quickly. But the proper location is required and usually cost prohibitive. Industry sources said over 99% of the tanks used are closed systems which have pathogen loads similar to back harbor water which uninjured fish with sealed skin have no problem with. Sadly we learned all this with the lobster claw pegs years ago. The infected lobster lost value because they had reduced tank life. With live fish, which are eaten whole ,the appearance through a glass walled tank is part of the buying experience. The scarred fish with infections have by now become noteworthy to the buying public. They are removed from the tank and filleted or returned to the seller and the bill gets cut. Tautogs are tough enough to survive with some fairly large gill infections but the value drops. To those of us that work hard to keep our fish in top quality and hold market relationships built up over time for delivering good quality products this situation is a terrible disgrace.

Regards,
Tor Vincent

On Wed, Nov 24, 2021 at 7:24 AM Tor Vincent <duckislandmarine@gmail.com> wrote:

Good morning Jason,

Happy Thanksgiving

I have been trying to get a copy of the tank study done on the tautog tags. I read it years ago but I can't seem to find it. So far NY has not provided it. Do You have access to share it ?

Let's have the call next week

Regards,
Tor

On Fri, Nov 19, 2021 at 2:40 PM Snellbaker, Jason [DEP] <Jason.Snellbaker@dep.nj.gov> wrote:

Tor-

Please send me your telephone number and a good time next week we can have a discussion on this. Thanks for reaching out to me and I look forward to speaking with you.



Jason Snellbaker

Deputy Chief

NJ Division of Fish and Wildlife

Bureau of Law Enforcement

2434 Route 563

Egg Harbor City, NJ 08215

Phone: 609.748.2050



From: Tor Vincent <duckislandmarine@gmail.com>
Sent: Friday, November 19, 2021 9:34 AM
To: Snellbaker, Jason [DEP] <Jason.Snellbaker@dep.nj.gov>
Subject: [EXTERNAL] tautog tags

Hello Jason,

I just caught a tagged tautog which had a messy sore around the tag. some legwork and the owner was located. He explained some offloading mishap and spill where a few wiggled off the dock. Lost three weeks before capture, a month at the longest.

The day before I was at an artificial reef meeting at NYSDEC. There I had a conversation with a participant in the tag study they did. When I showed him the attached photo of the bloody aftermath from tagging the limit his comment

was that they didn't see any blood. The picture is from a video i made for my state assemblyman when he couldn't come to the boat to witness my concerns. There have been many infections from the tag site on my tanked fish. Many coming as returns along with price negotiations not in my favor.

The comment from Rachel Sysak at DEC to the photo of the recovered fish was that the tag was not put on properly. Seriously, then a paragraph about proper tagging and videos coming. My response was that a close inspection of the photo shows a fully crimped tag with a hole starting in the proper place. My professional opinion is it was put on according to directions but fish movement caused the aftermath from the bulky metal tag and it rotated. I consider the wild the best tank conditions and have serious doubts that their study was valid.

She refered you as a source for data from other tags considered for the program. I hope you will take the time to consider my observations. If the study done to confirm the tag as safe is not valid then many decisions may need to be reconsidered. Is it possible for a file with data about the other tags considered to be sent to me ? At this point the next public meeting here could put Rachel in a position of stating she saw no blood to a crowd of fishermen who have been flushing bloody tanks in the aftermath of tagging. That comotion will not be productive.

Thank you,

Tor Vincent