Summary of Assessment Oversight Panel Meeting

February 26, 2021
Via Video Conference

The NRCC Assessment Oversight Panel (AOP) met to review the operational stock assessment plans for 6 stocks/species on February 26, 2021. The assessments for stocks/species recommended for Level 2 and 3 peer reviews will be reviewed during a meeting the week of June 28, 2021.

The AOP consisted of:

Jason McNamee, Rhode Island Department of Environmental Management, representing the New England Fisheries Management Council

Michael Celestino, New Jersey Fish and Wildlife, representing the Atlantic States Marine Fisheries Commission

Paul Rago, Ph.D., member of the MAMFC Scientific and Statistical Committee, NOAA Fisheries (retired)

Russell W. Brown, Ph.D. (Chair), Northeast Fisheries Science Center, Woods Hole, Massachusetts.

Meeting Details:
This meeting was guided by the NRCC approved stock assessment guidance document. Three background documents were provided to the Panel: (1) an updated prospectus for each stock; (2) an overview summary of all the salient data and model information for each stock; and (3) the NRCC Guidance memo on the Operational Assessments. Prior to the meeting, each assessment lead prepared a plan for their assessments. The reports were consistent across species and reflected both the past assessment and initial investigations.

At the meeting, each lead scientist for each stock gave a presentation on the data to be used, model specifications, evaluation of model performance, the process for updating the biological reference points, the basis for catch projections, and an alternate assessment approach if their analytic assessment was rejected by the peer review panel. In some cases, stocks were already being assessed using an "index-based" or "empirical" approach.

Major Recommendations for Review of Individual Stocks:
In general, the AOP approved the plans presented, but recommended several revisions to recommended review levels as summarized below:

Stock	Lead	Review Level	Rationale and Comments
Golden Tilefish	Paul Nitchske	Level 2 – Expedited Review	**Rationale:** Four years of additional data; questions about selectivity patterns; new tilefish survey data; aggregate vs. annual age key data; recalculation of reference points. **Alternate assessment approach:** Average catch or status quo ABC.
Summer Flounder	Mark Terceiro	Level 1 – Direct Delivery	**Rationale:** Straightforward update to the assessment; minor changes to the projections; very minor retrospective pattern. **Alternate assessment approach**: Recent trend of all normalized survey indices or Plan B smooth using Bigelow spring & fall
Bluefish	Tony Wood	Level 1 – Direct Delivery	**Rationale:** Straightforward Assessment Update; Research Track Scheduled for 2022. **Alternate assessment approach:** Plan B smooth using recreational CPA index.
Black Sea Bass	Gary Shepherd	Level 1 (Direct Delivery) With the contingency that if the retrospective pattern increases or other red flags occur, could be changed to a Level 2.	**Rationale:** One additional year of data; Research Track scheduled for 2022. Concerns about the magnitude of the retrospective pattern, particularly on F. **Continency:** If the retrospective pattern degrades, or if there are other model diagnostics that raise red flags after more work, then it could change to a level 2. **Alternate assessment approach**: Plan B Smooth using trends from the normalized index of surveys, or the catch-per-angler index.
Scup	Mark Terceiro	Level 2 – Expedited Review	**Rationale:** Retrospective patterns are increasing and may be outside confidence intervals; large 2015 year class has moved through the fishery; recent recruitment has been lower; biomass is declining and F is increasing. Application of the retrospective adjustment is questionable. **Alternate assessment approach:** Plan B Smooth using trends in the normalized index of surveys, or the calibrated fall bottom trawl survey index.

Atlantic Mackerel	Kiersten Curti	Level 2 – Expedited Review	**Rationale:** Three additional years of data; revised MRIP data; multiple projections may be required. **Recommendations:** As mackerel is in a rebuilding plan, perform three likely projections: standard p-star, using rebuilding-based ABCs as catches, and catches that would be required in order to rebuild by the target of 2023. **Alternate assessment approach:** Use Plan B Smooth using trends in the egg-based SSB index.

<u>Individual Stock Discussion Summaries</u>:

Golden Tilefish (AOP Lead – Paul Rago)
Recommendation: Level 2 (Expedited Review)

Paul Nitschke provided an excellent overview of the current stock assessment and his recommendations to the Assessment Oversight Panel for the 2021 management track assessment. The stock is currently not overfished and overfishing is not occurring. The golden tilefish stock is assessed with the ASAP model using commercial LPUE as a measure of trend, with an initial year of 1971. There are three different measures of LPUE but these have relatively little temporal overlap. Discards in the tilefish fishery are very low and tilefish are rarely encountered by other fleets. Moreover, there is only a nominal recreational fishery; tilefish are rarely encountered by the MRIP Angler Intercept Survey. The NEFSC bottom trawl surveys rarely catch golden tilefish and these indices are not included in the assessment. Hence the tilefish assessment, unlike others in the Northeast, can be updated with 2020 catch and 2020 measures of abundance.

The golden tilefish stock has had nearly constant quotas for more than a decade. Catch limits have declined slightly in recent years as the population fell to about 80% of Bmsy. This is consistent with the Council's risk policy and the SSC's methods for computing the appropriate level of uncertainty in the OFL.

New information for 2021 MTA will include the findings of a fishery-dependent survey in 2020 and an update of the catch and LPUE data through 2020. The fishery-dependent survey is not included in the model, as it is only the second one to be conducted, but it may be helpful for improving estimates of age-specific fishery selectivity in the model. The ASAP model estimates selectivity for each group independently and the resulting pattern suggests a dome-like pattern. The model will be updated using this approach rather than assuming a parametric model for selectivity.

Analyses of the LPUE series suggest that the fishery is supported by incoming pulses of recruitment with an average frequency of about 7 years between events. During these periods, the age and size structure of the landings appears to broaden and then contract as the older fish are removed from the population. Thus, catch projections pose some higher risk to the population when LPUE is declining. The age at recruitment to the fishery is roughly five years and there are no indices to inform managers of current reproductive success.

Concerns were expressed about the recent reductions in port sampling of commercial landings. The assessment is critically dependent on accurate estimation of age composition and the assessment lead reinforced the adverse consequences for model performance if diminished port sampling continues.

The AOP discussed the potential for changing the basis of the current BRP from and F38% to an F40%. The F38% is derived from an analysis of the F_SPR estimates during the 2002 to 2012 period. F40% is externally derived based on analogy with other species. In view of the small potential effect of such a change, and the huge amount of discussion this would engender, the AOP did not recommend any changes to the basis of the BRP. It was also noted that a Research Track Assessment is planned for 2022 so that developing a case for a change in the basis of the BRPs would probably not be productive.

The AOP agreed that a Level 2 assessment was appropriate. If an unforeseen problem arises, the stock assessment lead will summarize the issue and report findings to the AOP for consideration. In this instance, the AOP might recommend an increase to a Level 3 review.

Summer Flounder (AOP Lead: Jason McNamee)
Recommendation: Level 1 (Direct Delivery)

Dr. Mark Terceiro provided an excellent overview of the current stock assessment and his recommendations to the Assessment Oversight Panel (AOP) for the 2021 management track assessment. The stock is currently not overfished and overfishing is not occurring. The summer flounder stock is assessed with the ASAP model using multiple federal and state fishery independent surveys and determines removals across four fleets (recreational and commercial discards and recreational and commercial landings).

The summer flounder model will be updated through 2019 as approved by the Northeast Region Coordinating Council (NRCC). This will require updating all fishery and survey data through 2019 and will use the current ASAP model configuration as approved during the 2018 Stock Assessment Workshop (SAW) 66 for summer flounder with no changes. Biological reference points (BRP) will be updated using the 2018 SAW 66 approved BRP configurations.

The AOP discussed the recruitment assumption for the projections. The 2018 SAW 66 and Mid Atlantic Fishery Management Council (MAFMC) Scientific and Statistical Committee (SSC) approved the use of a more contemporary period (most recent 7 below average recruitments) in the previous projections. Since the recommendation was for a more contemporary period rather than a specific number of years, the AOP approves the recommendation to extend the assumption to use the most recent 9 recruitments; this keeps the same start year for the recruitments used, but adds the most recent two years to the assumption. Additionally the projections will assume bridge year catches of a fully achieved Allowed Biological Catch (ABC) per the Population Dynamics Branch recommendation, and future catches will be set following the MAFMC risk policy for an overfishing limit (OFL) coefficient of variation (CV) of 60%.

The AOP agreed with the assessment analyst that a Level 1 assessment was appropriate for summer flounder. If an unforeseen problem arises, or if the assessment must default to the backup method which has not been through a formal review for this species, the stock assessment lead will summarize the issue and report findings to the AOP for consideration. In this instance, the AOP might recommend an increase to a Level 2 review.

Bluefish (AOP Lead – Michael Celestino):
Recommendation: Level 1 (Direct Delivery)

The bluefish stock assessment was last updated in 2019 with a management track assessment (MTA). The model was updated with commercial catch data, calibrated MRIP data, and survey indices, from 1985 through 2018. Biological reference points from the 2019 MTA were $F_{MSY} = F_{35\%} = 0.183$, $B_{threshold} = ½\ SSB_{MSY} = 99{,}359$ mt. Terminal year estimates from the model were $F_{2018} = 0.146$ and $SSB_{2018} = 91{,}041$ mt, resulting in a 2018 stock status of not overfishing, but the stock was overfished.

For the current MTA, the assessment lead is proposing to update all fishery and survey data through 2019 using the most recent (2019 MTA) ASAP model configuration with no changes; biological reference points (BRPs) will be updated, stock status determined relative to BRPs, and the lead will perform standard projections of OFL. As with many of the other species considered at this meeting, the analyst is proposing to use the 2020 and 2021 ABC as assumed catch for those years, and project 2022-2023 at $F = F_{MSY}$. The lead proposed as an alternative assessment plan a LOESS smooth of the MRIP catch per angler index to infer catch advice modifications. In light of this work plan, the analyst proposed a level 1 assessment, direct delivery to the MAFMC's SSC.

Following some AOP questions the analyst noted that bluefish is scheduled for a research track assessment (RTA) in 2022 and so viewed the 2021 MTA as a placeholder until more detailed changes could be explored in 2022 [e.g., incorporation of any newly available recreational release length frequency data (especially from southern states), explore data

support for a recreational release fleet in the model, re-examine recreational release mortality estimates, as well as any other workgroup ideas].

The AOP noted that the plan B assessment methodology has not been reviewed for bluefish as the primary assessment method (ASAP) was approved for management use at the 2019 MTA. In response to questions about retrospective patterning, the analysts offered that he does not anticipate terminal year estimates of the updated model to fall outside of the 90% confidence intervals that would necessitate adjustment.

There was discussion about methodology used to estimate the weight of released fish – the analyst noted that he will continue to use what he views as the best scientific information available: length frequency of released fish to characterize their weight. It was noted that this methodology differs from that used by GARFO and MAFMC. There was also discussion about the utility of newly available release length frequency data if those data are of a limited temporal duration; the analyst noted that data could be incorporated either into the base model or as a sensitivity run.

Since the bluefish stock is overfished the AOP discussed whether stock status should impact the level of review for this species. The AOP discussed that the intent behind the current stock assessment process guidelines is that review level should be independent of stock status; moreover, the AOP discussed that a change in stock status, should one occur, was most likely in a projected year (not the terminal model year), and that a full RTA was planned in 2022, where among other things, reference points may be re-evaluated. This discussion led the **AOP to consensus support for the analysts proposed level 1, direct delivery**. Justification from the AOP included: irrelevance of stock status in the current guidance document, straight forward update of model with one additional year of data and no planned model changes, and planned full model and data evaluation planned as part of scheduled 2022 RTA. The AOP noted that if the assessment relies on plan B methods, or if the terminal year estimates require adjustment due to retrospective patterning, the assessment would be elevated to level 2 (in a process described elsewhere in this summary).

A member of the public (G DiDomenico, Garden State Seafood Association) inquired about conditions necessary for SSB to rise above the current threshold, to which the analyst responded that if average recruitment is realized, catches remain stable, and fishing mortality is low. The analyst went on to note that in the most recent MTA the first year of projections indicated SSB above the threshold.

Black Sea Bass (AOP Lead – Paul Rago):
Recommendation: Level 2 (Expedited Review)

Gary Shepherd presented an effective overview of the current stock assessment to the AOP and recommended a Level 1 (Direct Delivery) Management Track Assessment. The stock is currently not overfished and overfishing is not occurring. The assessment models the population as a mixture of northern and southern components and merges these results to obtain an overall estimate of stock biomass and fishing mortality. The MTA from 2019 made significant changes to the 2016 benchmark, most notably the inclusion of the recalibrated MRIP catch estimates. Interestingly, the model formulation, designed to more realistically capture putative dynamics of geographical units, results in larger retrospective patterns. Even more interesting is that retrospective patterns offset each other. A supporting composite model formulation without geographical structure had minimal retrospective pattern. Collectively these results raised concerns about model stability. However, these concerns are allayed by the prospects of a Research Track Assessment (RTA) in the fall of 2022.

The AOP agreed with the recommendation for a Level 1 stock assessment because no changes in model structure are proposed, only one additional year of data will be added, and the aforementioned RTA should address some overarching concerns about model formulation. Gary noted that 2020 catch data will be included in the projections for 2022-2023 projections as conditions allow.

Should the retrospective patterns of the northern and southern submodels become problematic statistically, the combined model will be run. Given that the combined model would represent a new model configuration, a higher level of peer review would be required. Finally, should the combined model fail, a plan B assessment based on a composite of available fishery independent indices will be used to estimate trend. The AOP will be notified in advance if such revisions are required and the AOP will consider elevation of the review process to a Level 2 MTA. ***The AOP agreed that a Level 1 assessment was appropriate*** but noted that a higher level of peer review may be necessary under the circumstances described above.

Scup (AOP Lead – Russell Brown):
Recommendation: Level 1 (Direct Delivery)

Dr. Mark Terceiro presented his assessment plans which include updating the current ASAP model with multiple fleets and surveys from when it was last assessed in 2019. The current status of the stock is not overfished and no overfishing is occurring. No structural changes were proposed for the assessment model and catches would be updated thru 2020 and some state surveys will also be available for 2020.

The panel discussed the unusual direction of the retrospective pattern in the assessments (under estimating biomass and overestimating fishing mortality). There was concern that

a retrospective adjustment would increase terminal year estimates of biomass and decreased estimate of fishing mortality when biomass is likely declining due to the decline in the large 2015 year class. The panel discussed potential causes for the retrospective pattern including the potential for overestimation of catch by Marine Recreational Information Program (MRIP).

The panel discussed ideas on how the model inputs could be altered to reduce the retrospective pattern, noting that recommending a Level 2 review would allow for this flexibility. Dr. Terceiro indicated that he has been shifting weights between catch and survey but there is not much response. He also tried splitting the selectivity series with the final series starting in 2012, but this did not change the retrospective pattern or confirm suspicions that selectivity had changed. He wants to keep the length of the series above the age of the cohorts, which is 6 or 7 years.

The AOP panel recommendation was for a Level 2 (Expedited Review). The panel outlined its rationale for this recommendation including increasing trends in retrospective pattern, declining biomass declining as a large 2015 year class moves into the plus group, recent poor recruitment, increasing fishing mortality, and uncertainty in whether to apply the rho adjustment in response to the retrospective pattern.

Atlantic mackerel (AOP Lead: Jason McNamee)
Recommendation: Level 2 (Expedited Review)

Dr. Kiersten Curti provided an excellent overview of the current stock assessment for Atlantic mackerel (hereafter mackerel) and her recommendations to the AOP for the 2021 management track assessment. As a reminder, this assessment was delayed a year due to issues with data acquisition in 2020. The stock is currently overfished and overfishing is occurring. The mackerel stock is assessed with the ASAP model using two federal trawl surveys (Albatross and Bigelow) and one egg index developed from multiple icthyoplankton surveys. The model determines removals across a single fleet and uses a flat-topped selectivity function.

The mackerel model will be updated through 2019 as approved by the NRCC. This will require updating all fishery and survey data through 2019 and will use the current ASAP model configuration as approved during the 2017 SAW 64 for mackerel with no changes. BRPs will be updated using the 2017 SAW 64 approved BRP configurations. Corroborating models that were run during SAW 64 will not be run for this Management Track assessment. The biggest change for the mackerel assessment will be the inclusion of the recalibrated Marine Recreational Information Program (MRIP) time series.

The AOP discussed the sensitivity analyses requested by the MAFMC SSC as well as projections. It is important to note that mackerel is in a 5-year rebuilding plan, so this

warranted some additional projection work. The likely needed projections are a projection using the standard MAFMC p-star approach, a projection that will use the catches that would be required to rebuild by the target date, and a projection that would use catches based on the rebuilding ABCs as defined previously. The original target for the rebuilding plan was to rebuild the stock by 2023. There was discussion on the impact of the river herring cap on mackerel harvest, but preliminary observer data indicated that river herring caps would not be a factor in this year's mackerel fishery.

The AOP agreed with the assessment analyst that a Level 2 assessment was appropriate for mackerel. The inclusion of the recalibrated MRIP data is the main reason for the Level 2 recommendation, but this would also allow the analyst some additional flexibility if other minor model issues were encountered. If an unforeseen problem arises, or if the assessment must default to the backup method which has not been through a formal review for this species, the stock assessment lead will summarize the issue and report findings to the AOP for consideration. In this instance, the AOP might recommend an increase to a Level 3 review for this stock.

Conclusions:

The AOP convened on February 26, 2021 at 09:00 and adjourned at 2:35 pm. The panel recommended Level 1 (Direct Delivery) reviews for Summer Flounder, Bluefish and Black Sea Bass, and Level 2 (Expedited) reviews for Golden Tilefish, Scup and Atlantic Mackerel. The panel also agreed that the review level for Black Sea Bass could be raised (to Level 2 or 3) if the contingencies discussed during the meeting were realized. Changes in the required review level would be triggered by a Northeast Fisheries Science Center request to increase the review level for a given stock. The AOP could concur to increase the review level via email or request to reconvene the AOP panel to have further discussions with the stock assessment lead. Any need to reconvene the panel would be a publicly announced meeting and any subsequent changes to the review level would be publicized to assessment partners and stakeholders.

Appendix 1. Meeting Participants (names, not call in numbers)

Abigail Tyrell - NEFSC
Alan Bianchi - NCDMF
Alissa Wilson - NJDEP
Aly Pitts - GARFO
Anthony Wood - NEFSC
Antonie Chute - NEFSC
Alex Dunn - NEFSC
Brandon Muffley - MAFMC Staff
Brian Linton - NEFSC
Charles Adams - NEFSC
Charles Perretti - NEFSC
Chris Kellogg - NEFMC
Chris Tholke - NEFSC
Cynthia Ferrio - GARFO
Dustin Colson Leaning - ASMFC Staff
Emily Keiley - GARFO
Gary Shepherd - NEFSC
Greg DiDomenco - Lund's Fisheries
Jamie Cournane - NEFMC
Jason McNamee - NEFMC SSC Chair. RIDEM
Jose Montanez - MAFMC Staff
Julia Beaty - MAFMC Staff
Karson Coutre - MAFMC Staff
Kiersten Curti - NEFSC
Laura Solinger - University of Southern Mississippi
Laurie Nolan - Tilefish Industry
Luis Leandro - NEFSC
Mark Terceiro - NEFSC
Mary Clark - MAFMC Staff
Matthew Seeley - MAFMC
Michael Celestino - AOP Member, NJFWD
Michele Traver - NEFSC
Paul Nitschke - NEFSC
Paul Rago - AOP Member, MAFMC SSC Chair
Ricky Tabandera - NEFSC
Russ Brown - AOP Chair, NEFSC
Steve Cardin - SMAST
Susan Wigley - NEFSC
Thomas Miller - Management Track Peer Review Chair, MAFMC SSC Member

Appendix 2: Assessment Oversight Panel related guidelines.

Overarching statement from the Guidance Document. "If a change proposed by an analyst is not detailed below, the AOP will determine whether the modification is permissible and which level of peer review would be required."

Table elements in the columns 3 to 5 would be factors considered by the Panel. The Panel would put its comments in the most appropriate box irrespective of the Guidance Level (column 2). The final recommendation would be based on the preponderance of the evidence of comments in each column. A summary of the cumulative effects of within each Guidance Level is a row following each level. This would be an opportunity for synthesis of the evidence regarding the above factors.

Guidance Template for Deriving Recommended Level of Assessment Review

Task	***Guidance Level***	***Direct Delivery (1)***	***Expedited Review (2)***	***Enhanced Review (3)***
Model has been updated with revised data, with minor changes (such as small adjustments to data weights, fixing parameters estimated at bounds, correcting minor errors in previous model)	1			
Incorporation of updated data from recent years in the estimation of biological information (growth, maturity, length-weight relationship)	1			
Effects of delayed seasonal surveys or missing strata on fishery-independent measures of abundance	1			
Identification by lead analyst on potential problems of adding or revising data on model performance	1			
Cumulative Impact of Level 1 changes				
Updated discard mortality estimates, when based on peer-reviewed experimental evidence	2			
Evaluating effects of delayed seasonal surveys or missing strata on fishery independent measures of abundance if significant analysis is required to characterize the effects	2			
Recalibrated catch estimates (e.g., transition to Marine Recreational Information Program, area	2			

allocation tables, conversion factors (whole to gutted weight))				
Simple changes, corrections, or updates to selectivity, including but not limited to: --Changes to most recent selectivity stanza. --Changes to historical selectivity stanza if they are corrections or reinterpretations of previously used block timeframes	2			
Retrospective adjustment to management metrics following established retrospective adjustment protocols	2			
Adjustment of method for estimating biological information (growth, maturation, sex ratio, changes to length-weight relationships, etc.), when based on methods developed with sufficient peer review or justification for its use.	2			
Calculate new values for the existing BRPs	2			
Cumulative Impact of Level 2 changes	2			
Inclusion of new or alternate interpretations of existing indices	3			
Changes to estimation method of catchability, including but not limited to: ○ Empirical estimations ○ Changes in habitat/availability /distribution on catchability ○ Use of informed priors on catchability in a model	3			
Updating of priors on parameter estimates based on new research AND if done on a previously approved model	3			
Recommend significant changes to biological reference points, including but not limited to: --Change in the recruitment stanza --Number of years to include for recent means in biological parameters --Suggestions of alternate reference points if based off a similar modeling approach (e.g. age-based, length-based, etc.)	3			
Updating of historical selectivity stanzas	3			

Changing recruitment option used, meaning using a stock-recruitment relationship, or cumulative distribution function, etc.	3			
Changes to selectivity functional form (i.e. such as a new selectivity model) if supported by substantial empirical evidence.	3			
Changes to fleet configuration	3			
Changes to natural mortality (M)	3			
New modeling framework, if the new framework was evaluated during a previous research track topic investigation, and the species in question was one of the examples evaluated.	3			
Cumulative Impact of Level 3 changes. Determine if Research Track is warranted.				