

## **Summary of Assessment Oversight Panel Meetings for June 2023 Management Track Stock Assessments**

**February 23, 2023**

### **Via Video Conference**

The NRCC Assessment Oversight Panel (AOP) met to review the operational stock assessment plans for Atlantic mackerel, bluefish, deep sea red crab, longfin inshore squid, spiny dogfish, scup and summer flounder stocks on February 23, 2023. One assessment was recommended for Level 1 Review (Direct Delivery) and this assessment will undergo an internal review before being delivered to the appropriate management body. The assessments for stocks/species recommended for Level 2 and 3 peer reviews will be reviewed during the peer review meeting scheduled for June 26-30, 2023.

### **The AOP consisted of:**

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

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

Cate O'Keefe, Ph.D., vice-chair of the NEFMC Scientific and Statistical Committee, Fishery Applications Consulting Team, LLC.

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

### **Meeting Details:**

These meetings were guided by the NRCC-approved stock assessment guidance documents. Background documents were provided to the Panel: (1) an updated prospectus for each stock; and (2) an overview summary of all the salient data and model information for each stock. Prior to the meeting, each assessment lead prepared a proposal for their Management Track Assessment. The proposal reflected the research track or most recent assessment results, the peer review panel Summary Report results, and any initial investigations conducted for the management track assessment.

At the meeting, each assessment lead gave a presentation on the data to be used, model specifications (if applicable), evaluation of model performance, the process for updating the Biological Reference Points, the basis for catch projections, and an alternate assessment approach if their analytical assessment is rejected by the peer review panel.

### **Major Recommendations for Review of Individual Stocks:**

In general, the AOP approved the plans presented, but recommended several points of emphasis to the recommended review levels as summarized below. AOP guidelines can be found in the [stock assessment process document](#).

Stock	Assessment Lead	Review Level	Rationale and Comments
<b>Atlantic mackerel</b>	Kiersten Curti	Level 1 - Direct Delivery (Provisional)	<b>Rationale:</b> The assessment will be updated with three years of data (2020-2022). There are questions about the availability of the 2022 egg/biomass index. If the 2022 egg/biomass index is not available, the review level should be elevated to Level 2. Ecosystem and Socioeconomic Profile will be provided as supplementary information. I-Smooth approach will be used as an alternate assessment approach.
<b>Bluefish</b>	Tony Wood	Level 2 - Expedited Review	<b>Rationale:</b> A Research Track assessment was completed in December 2022, which updated the previous ASAP model to a state space WHAM model. The Management Track assessment will add one additional year of data. Guild approach used to modify the CPUE index and represents a novel approach. Significant change in constant natural mortality to age based natural mortality. SSB target has been reduced by 50%. Regional estimation of discard weights, which accounts for regional differences.
<b>Deep sea red crab</b>	Toni Chute	Level 2 - Expedited Review	<b>Rationale:</b> Data poor species with no assessment model. This assessment will add 4 years of data (2019-2022). No issue with missing 2020 data since there were reported catches and some observed trips. The sexes segregate by depth and the fishery targets areas with higher densities of males. During the CAMS review, there were issues with the discards for some gear types. CAMS data are not used in the data update. A tagging project had low return rates indicating the potential for high mortality of tagged individuals, or a super abundant population. A level 2 review of the available data and to highlight the limitations of analyses that have been attempted for this species is recommended to suggest potential approaches and generate useful research recommendations.

Stock	Assessment Lead	Review Level	Rationale and Comments
<b>Longfin inshore squid</b>	Lisa Hendrickson	Level 2 - Expedited Review	<p><b>Rationale:</b> This assessment will use the same methods as 2020 Management Track assessment including updating annualized <math>B_{MSY}</math> proxy and <math>B_{threshold}</math> with data, but will explore changing the baseline time period from 1976-2022 to 1997-2022. This change in the time period is a primary reason for recommending a Level 2 review. The AOP would like to see results for both time periods presented to the peer review panel. The AOP panel would like to see consideration of any changes caused by the CAMS transition. Research recommendations from the peer reviewers will be important to contributing to the work of the planned 2026 Research Track assessment.</p>
<b>Spiny dogfish</b>	Dvora Hart	Level 3 - Enhanced Review	<p><b>Rationale:</b> A Research Track assessment was completed in December 2022, which updated the previous stochastic estimator (swept area calculations) to a length based Stock Synthesis 3 model. The Management Track assessment will add three years of data (2020-2022). There was a significant change in natural mortality (Lorenzen M), which resulted in a reduction in the females reaching maturity. There is a significant change in the length at maturity. There is a chance that there could be a status change to overfished. The AOP encourages a careful look at the impacts of transitioning to the use of CAMS catch (landings and discards). The AOP recommends reporting the fishing mortality rate and biomass estimates for the male component of the population.</p>
<b>Scup</b>	Mark Terceiro	Level 2 - Expedited Review	<p><b>Rationale:</b> The management track will add three years of updated catch for 2020-2022 (CAMS landings and discards; MRIP recreational). CAMS discards have a lot of uncertainty and it is unclear what the format of that data will look like and when they'll be available. Revision to NEFSC Bigelow indices ('by-tow' swept area). Minor changes in model input settings (CVs, ESSs). Near threshold for retro adjustments. Projections carrying forward using previously reviewed methods.</p>

Stock	Assessment Lead	Review Level	Rationale and Comments
Summer flounder	Mark Terceiro	Level 2 - Expedited Review	<b>Rationale:</b> The assessment will update the fishery and survey catches for 2020-2022 using CAMS estimates of landings and discards. It will revise the NEFSC survey indices for 2009-2022 to include area swept adjustments by tow. In terms of model adjustments, plan to inflate input CVs of a few survey indices (CT spring, NM fall, Bigelow fall) and recenter input catch ESS's to improve model diagnostics. Also plan to test split of terminal fishery selectivity blocks from 2008-2022 to 2008-2015 and 2016-2022.

**Individual Stock Discussion Summaries:**

**Atlantic mackerel (AOP Lead: Cate O'Keefe)**

**Recommendation: Level 1 (Direct Delivery, Provisional)**

Atlantic mackerel were last assessed in 2021 via a Management Track assessment; the most recent benchmark was in 2017 at SAW 64. 2021 results indicated the stock was overfished based on  $SSB_{2019}$  (42,862mt) being 24% of the  $SSB_{MSY}$  proxy ( $SSB_{40\%} = 181,090\text{mt}$ ), and overfishing was occurring based on  $F_{2019}$  (0.46) being 208% of the  $F_{MSY}$  proxy ( $F_{40\%} = 0.22$ ). The assessment included three indices: the NMFS Spring bottom trawl survey Albatross years from 1968-2008; the NMFS Spring bottom trawl survey Bigelow years from 2009-2019; and a range wide SSB index for 1977-2019 developed from the Canada DFO dedicated egg survey and the NEFSC MARMAP and ECOMON surveys. The assessment assumed constant natural mortality ( $M = 0.2$ ) and included one fishery fleet with time-invariant, flat-topped selectivity.

Kiersten Curti presented the proposed assessment plan for Atlantic mackerel in 2023, which will use the current ASAP model configuration with no changes and updated fishery and survey data through 2022. CAMS estimates of commercial landings and discards will be used for 2020-2022. Survey updates will include the 2021 and 2022 NMFS Spring bottom trawl survey (2020 survey was not conducted) and the SSB index for 2021 and 2022, if available. Reference points will be updated using the SAW 64 projection approach with MSY level proxies of  $F_{40\%}$  and  $SSB_{40\%}$ . Rebuilding projections for 2023-2024 will be based on an assumed bridge year catch in 2023, two-stanza recruitment, and  $F_{rebuild} = 0.12$  as defined in the Atlantic Mackerel Rebuilding Amendment 2.0. The proposed backup assessment approach is the I-Smooth method using the SSB index developed from egg surveys.

The AOP raised questions about DFO data to support the SSB index and availability of data to support the assessment. Dr. Curti explained that the 2020 SSB index will be treated as missing, the 2021 SSB index is available, and the 2022 samples to support the SSB index are currently in transit. She expects that the 2022 SSB index will be available to support the assessment but noted that delays are possible. The AOP asked about model sensitivity to terminal year estimates and suggested that sensitivity analysis to examine the impacts of missing the terminal year SSB

index may be warranted if the index is not available. The AOP also noted that this is the first iteration of the Atlantic mackerel assessment using CAMS data and recommended comparisons of CAMS landings and discards to outputs from previous methods to assess any substantial differences.

The AOP raised questions about application of the two-stanza recruitment assumptions for reference points and projections. Dr. Curti highlighted previous deliberations by the 2021 Management Track assessment process and the SSC. She noted that there is no clear evidence of environmental conditions impacting recruitment. Despite high adult condition since the mid-2010s, recruitment has been low, but Dr. Curti indicated there is little evidence of a shift in environmental conditions. Research in Canada has indicated that SSB and temporal/spatial overlap of larvae with preferred prey are significant drivers of strong year classes. Without clear evidence that recruitment is environmentally driven, the 2021 Management Track assessment did not change the SAW 64 assumptions for reference points and there are no proposed changes for the 2023 Management Track assessment.

The AOP supported continued development of the Ecosystem and Socioeconomic Profile (ESP) for Atlantic mackerel, which describes ongoing examinations of natural mortality and stock productivity. The ESP will be provided as supporting information in 2023 and results to date do not indicate that changes to the assessment model are warranted.

**The AOP recommended a provisional Level 1 review for Atlantic mackerel.** The AOP supported a direct delivery of the assessment to the SSC based on the proposal to maintain the model configuration and update three years of fishery and survey data. The SSC recommended that a Level 2 review may be warranted if the 2022 SSB index is not available for the assessment update or if large differences in CAMS data are detected. The NEFSC will consider all available data in the coming months and determine if the review needs to be elevated to a Level 2.

### **Bluefish (AOP Lead: Russ Brown)**

#### **Recommendation: Level 2 (Expedited Review)**

Bluefish was last assessed in the Management Track in 2021 with data updated through 2019. That assessment utilized an ASAP statistical catch at age model to conclude that the stock was overfished, but overfishing was not occurring. Bluefish completed a Research Track assessment that was peer reviewed in December 2022. The newly accepted assessment developed a WHAM state space statistical catch at age model with deviations on the numbers at age estimates. Natural mortality, which was previously assumed constant at age 2, is now assumed to vary by age. The model employs two fishery fleets (recreational landings & discards and commercial landings), and 5 fleet selectivity blocks (2 commercial and 3 recreational). Three new indices were added to the model: MRIP CPUE Guild Approach index (1985-2021), SEAMAP Age 1 (1989-2021) and ChesMMAP Trawl survey (1985-2018). The 2022 Research Track assessment (data through 2021) concluded that the stock was not overfished and overfishing was not occurring.

The 2023 Management Track assessment will update the current Research Track assessment with one year of additional data (2022). To address concerns of Research Track peer reviewers, the assessment will shift from full multinomial age length keys to only using multinomial

approaches to fill in holes in age length keys (consistent with the approach used by StockEff). This may allow for exploration of alternate likelihoods for age compositions.

The assessment update will conduct short term projections in WHAM, which allows for incorporation of model uncertainty, auto-regressive processes and uncertainty in recruitment and numbers-at-age. Removals in 2023 will be assumed to be equal to the 2023 ABC (13,890 mt) and projections will be carried forward for years 2024-2026.

The AOP was concerned that the spawning biomass target has declined by 50% and is likely caused by changes in M using the Lorezen curve resulting in a reduction in the recruits to fishable sizes. However, the previous target had never been achieved in the fishery and was likely overinflated. This approach may represent a more reasonable level of reference points. It was noted that the SSC was concerned that the average weight of discards has disparities between the MRIP and angler surveys, likely due to higher average weights of large discarded fish. It was noted that the NEFSC and GARFO have agreed to use the same values in setting specifications. Previously, the approach was overestimating discards, particularly in the south (southern fish are generally smaller). The use of regionally stratified estimates is considered to be a more realistic and appropriate approach. **The AOP recommended a Level 2 review for bluefish due to the significant reduction in the biomass target and proposed changes to the age length key approach.**

**Deep sea red crab (AOP Lead: Russ Brown)**  
**Recommendation: Level 2 (Expedited Review)**

Deep sea red crab is a data poor species that has not been considered in previous Management Tracks. A specifications update was completed in 2019 to set specifications for fishing years 2020-2023. This update included a time series from 2002-2019 including landings data from the limited access fleet, incidental landings, LPUE estimates for the limited access fleet and biological information from port samplers and observed trips. There is no assessment model, no biological reference points for this stock and none will be developed during this Management Track cycle.

This data update will add 4 years of data (2019-2022) including landings; LPUE estimates; port sampled carapace lengths for landed males; observer sampled carapace lengths for males; females and discarded males; and observer data on egg-bearing females and discards. There are no issues with missing 2020 survey data since the update relies on reported catches and some observed trips. The sexes segregate by depth and the fishery targets areas with higher densities of males. During the CAMS review, there were issues with the discards for some gear types. However, CAMS data are not used in the data update. A tagging project had low return rates indicating the potential for high mortality of tagged individuals, or a super abundant population. **A level 2 review of the available data and to highlight the limitations of analyses that have been attempted for this species is recommended to suggest potential approaches and generate useful research recommendations.**

**Longfin inshore squid (AOP Lead: Paul Rago)**  
**Recommendation: Level 2 (Expedited Review)**

Longfin squid was last assessed in 2020 at a Management Track assessment. The overfishing status was unknown, but the stock was not overfished. The “not overfished” status was based on a comparison of the average of the 2018 and 2019 annualized, q-adjusted swept area biomass estimates (i.e. averages of the NEFSC spring and fall survey biomass for each year), 63,349 mt, to the threshold  $B_{MSY}$  proxy ( $B_{threshold}$ ) based on a long-term average (1976-2019). The threshold  $B_{MSY}$  proxy is 50% of the  $B_{MSY}$  target (i.e.  $0.5 \times 42,405 \text{ mt} = 21,203 \text{ mt}$ ). It was also noted that the NEAMAP fall survey biomass estimates are added to those from the NEFSC fall survey.

Lisa Hendrickson’s presentation highlighted the complexity of longfin squid life history and the seasonal nature of the fishery which has both inshore and offshore components. Unlike *Illex* squid, longfin squid are neritic (i.e. residents of shelf waters). Hence, both the spring and fall NEFSC bottom trawl surveys likely sample most of the stock inhabiting U.S. waters. The SARC 51 (2010) assessment approach considered the seasonal dynamics of the fisheries by calculating exploitation rates (catch/survey biomass) between the seasonal surveys. SARC 51 concluded that annualized survey biomass estimates were more appropriate. Dr. Hendrickson noted cohort-based estimates of biomass and exploitation rates have always been computed for squid caught in the spring versus fall surveys because the two cohorts have different growth rates and productivity levels. Although an approach based on analyzing each intra-annual cohort independently would be more realistic since it would capture the reliance of summer and fall fisheries on the recruits produced from the spring stock estimates, this approach has been deemed not permissible under the Management Track and will be suggested for exploration under the next Research Track. Similarly, the winter and spring fisheries depend on recruits produced from the fall survey stock estimates. Such a model would also allow inclusion of seasonal differences in growth rates.

Dr. Hendrickson recommended a change in the time series used to compute the  $B_{MSY}$  average from 1976-2008 to 1997-2022. The rationale was based on consideration of rapid warming and other changes in environmental conditions, and possibly productivity in recent years. Changes in fleet characteristics, data quality (i.e. mandatory fishery data reporting as of 1997), and in-season management as of 2000 were also considered relevant by the assessment lead to this proposed change.

Questions from the AOP addressed the basis for the proposed change in years to compute the  $B_{MSY}$  average and whether there was any evidence of trends in the surveys. No trends have been observed but further analyses are needed. The selection of appropriate stanzas of years for projections or measures of productivity are always controversial, so justifying any changes should be data driven and well supported.

Additional questions from the AOP and other meeting attendees included the methods used to estimate catchability in the trawl surveys, comparisons with assessments of species similarly impacted by environmental changes (e.g. Atlantic mackerel), and whether any preliminary changes had been detected. To account for diel vertical migrations, abundance and biomass estimates are based on daytime tows where “daytime” is defined by solar zenith angle because the species is most available to bottom trawls during the daytime. These values vary with location and date. The exclusion of tows outside the solar zenith angle ranges for the NEFSC spring and fall surveys reduces the frequency of low and zero tows, and generally improves precision but also reduces sample sizes within strata. The NEAMAP fall trawl survey swept area estimates will be updated because they are added to those of the NEFSC fall surveys. The

NEAMAP spring survey's intermittent encounters of longfin squid are attributed to varying availability of squid to the survey area; the stock is generally farther offshore in the spring.

**Collectively, these considerations led the AOP to recommend a Level 2 review** and a continuation of the current assessment methodology. The selection of an alternative basis for the  $B_{MSY}$  average should be fully explored and compared to the existing span of years. Results of both approaches should be presented to the MTA reviewers. The inclusion of newly developed CAMS estimates of landings and particularly discards, should be fully explored. Finally, MTA review can lay the groundwork for the Research Track assessment now scheduled for 2026. The groundwork could include any pending or required research on basic biology, alternative modeling approaches, and required data streams from the commercial fleets. The Terms of Reference for the assessment have not been set; the newly chartered Research Track Steering Committee of the NRCC will likely be involved in this process.

### **Spiny dogfish (AOP Lead: Cate O'Keefe)**

#### **Recommendation: Level 3 (Enhanced Review)**

A Research Track assessment for spiny dogfish was peer reviewed in December 2022. The Stock Synthesis 3 (SS3) model was used with a time series of 1989-2019. The stock was not overfished based on Reproductive Output<sub>2019</sub> (239.9 million pups) being 65% of the  $SSB_{MSY}$  proxy (Reproductive Output Target = 370.8 million pups), and overfishing was occurring based on  $F_{2019}$  (0.032) being 128% of the  $F_{MSY}$  proxy ( $F_{SPR60\%} = 0.025$ ). The assessment included the NMFS Spring and Fall bottom trawl survey indices and lengths, two landings fleets and three discard fleets, Lorenzen natural mortality estimates, and two maturity-growth relationship blocks.

Dvora Hart presented the proposed assessment plan for spiny dogfish in 2023, which will use the current SS3 model configuration with explorations and potential modification to the influence of the stock-recruit relationship and updated fishery and survey data through 2022. CAMS and SBRM-derived estimates of commercial landings and discards and MRIP estimates of recreational landings will be used for 2020-2022. Landed and discarded length and sex data by gear type will be updated based on available information. Survey updates include the 2021 and 2022 (2020 survey was not conducted) NMFS Spring and Fall bottom trawl survey indices and lengths. Reference points will be updated using the Research Track approach with MSY level proxies based on SPR60%. The projection method will be investigated to consider disproportional landings and discards. The proposed backup assessment approach is the previously used Stochastic Estimator model, which estimates F and SSB using swept area from the NMFS Spring survey with propagation of uncertainties.

The AOP raised questions about the backup assessment plan and potential challenges with applying reference points from the SS3 model to the outputs from the Stochastic Estimator model. The AOP noted that it is unlikely that the SS3 model would be rejected during the Management Track Peer Review as it was recently approved during the Research Track assessment. Dr. Hart noted that the new BRPs were approved through the Research Track assessment and would remain in place.

The AOP asked about the influences of changes in natural mortality assumptions and age information included in the SS3 assessment. Dr. Hart commented that the use of the Lorenzen M provides better results from the model and is more biologically realistic. Estimates of M range



from 0.3 for newborn pups to 0.08 for large adult females, which influence the per recruit calculations and result in less females reaching the reproductive age. She noted that the only ageing study with a large scope was conducted ~40 years ago and there is evidence that growth rates have changed. Length at maturity has decreased suggesting that either growth has slowed, or females are maturing at earlier ages. Smaller, slower growing females indicate reduced reproductive output. The 2022 Research Track assessment suggested that reproductive output has rapidly declined in recent years, and the stock may be approaching an overfished status.

The AOP and other meeting attendees inquired about providing estimates of F and biomass for males. Dr. Hart commented that this question has been raised in the past and she could provide these estimates but does not propose deriving reference points for males.

**The AOP recommended a Level 3 review for spiny dogfish.** The AOP supported the proposed explorations and potential changes to the assessment and recommended that ample time be allotted for presentation and review during the Management Track Peer Review. The AOP noted the need for review of CAMS data and the potential for a change in stock status. They also highlighted that the 2023 Management Track is the first iteration of the SS3 assessment since the Research Track in 2022 and highlighted major changes in estimates of natural mortality and length at maturity.

#### **Scup (AOP Lead: Paul Rago)**

##### **Recommendation: Level 2 (Expedited Review)**

Scup were most recently assessed in 2021 via a Management Track assessment; the most recent benchmark assessment was in 2015 at SAW 60. Mark Terceiro presented the proposed assessment plan for scup in 2023 that will rely on the model structure (ASAP) but include updated fishery and survey data through 2022. CAMS estimates of commercial landings and discards will be used for 2020-2022, but questions remain about the commercial discard estimates. NEFSC trawl survey indices will include “by tow” area swept estimates but the effect of such changes on general trends are negligible. Some minor changes in tuning parameters will be used to improve model diagnostics. These parameters include the Coefficients of Variation (CV) for some state abundance indices. Population projections will assume a catch in 2023 equal to the approved ABC of 13,458 mt.

The AOP inquired about the potential effects of missing NEFSC survey data in 2020 and the effects of large year classes now moving into the plus group of the population. Such factors can increase the likelihood of retrospective patterns. Dr. Terceiro acknowledged these concerns and noted that noisy indices might cause problems in future years. The model also includes a dome shaped selectivity pattern for the fishery. This creates a large “cryptic” biomass. Consideration of age-based natural mortality rates might be necessary in future benchmarks for this species.

Additional questions from the AOP inquired about the potential utility of methods to aggregate several indices to detect relative abundance and trend. Dr. Terceiro noted that various GLM approaches had been explored but previous reviewers expressed concerns about over-smoothing of abundance estimates outside of the assessment model. In theory, modern models are designed to address competing signals in the composite likelihood function, but they do not address the spatial arrangement of the indices or their covariance. Recent recruitment indices have been low, but attempts to estimate a parametric stock recruitment relationship have not been successful. The low values in recent years do not seem sufficient to support a change in the stanza of years

used for stock and catch projections. Moreover, in view of Dr. Terceiro's responsibilities for summer flounder at the June MTA, the analyses to justify such a change are unlikely to be completed.

No RTAs are currently planned for scup but likely topics for consideration include the aforementioned topics of age-specific M and aggregation of young of the year indices as well as concerns about discard estimates in the earlier decades of the assessment. The model currently starts in 1963, but estimates of age structure only began in 1984. There appears to be sufficient contrast in recent survey indices such that the earlier years of the time series could be dropped. The tradeoff between contrast in the surveys and uncertainty in the discards and age composition of earlier years may justify truncation at an RTA. **The AOP unanimously endorsed a Level 2 review for Scup.**

#### **Summer flounder (AOP Lead: Mike Celestino)**

##### **Recommendation: Level 2 (Expedited Review)**

The currently approved stock assessment model for summer flounder is a 2021 Management Track assessment (MTA) with data through 2019, that builds on the 2018 SAW 66 benchmark assessment. This is an ASAP model with four fishery fleets, three selectivity periods, and a variety of federal, state, and academic fishery surveys. Results of the 2021 MTA indicated the stock is not overfished, and overfishing is not occurring.

New sources of information considered for the 2023 MTA include an update of fishery and survey catches for 2020-2022. CAMS will be queried for commercial landings and discards for these same years; Mark Terceiro noted that preliminary comparisons of SBRM and CAMS for 2018-2021 were within +/- 10%, likely due to differences in stratification, while differences in landings were trivial. Revision of the NEFSC trawl survey indices for the Bigelow years (2009-2020) to include 'by-tow' swept area calculations are also proposed. Model configuration changes that are proposed as part of this MTA include changes to survey input CVs and adjustments to input catch ESS; each expected to have minor changes on assessment results, but result in improved model diagnostics. Dr. Terceiro noted that if time allows (depending on exactly when data are available), he will experiment with splitting the terminal fishery selectivity blocks from 2008-2022 to 2008-2015 & 2016-2022 to determine impacts on model performance.

Consistent with past summer flounder assessments, BRPs will be derived from projections that include recruitment estimates that use the entire time series (1982-2022), while OFL projections will extend the SSC-recommended low-recruitment time series that started in 2011 (2011-2022). For 2024-2025 OFL projections, Dr. Terceiro will assume catch in 2023 = final ABC (15,023 mt), and follow MAFMC risk policy for ABCs (e.g., OFL CV = 60%).

Dr. Terceiro is proposing as a backup assessment plan, should one be necessary, of either recent trends in all normalized survey indices (e.g., the SSC data update procedure) or I-Smooth using the NEFSC Bigelow spring and fall indices.

The AOP further inquired about the source(s) of differences between SBRM and CAMS, to which Dr. Terceiro noted that the differences were not consistent in one direction and that further diagnosis of specific differences will require a line-by-line, stratum-by-stratum examination of discards; he noted there may not be sufficient time to perform that analysis. The AOP noted that highlighting differences to the review panel could be helpful. The AOP supported extending the

low recruitment timeseries for OFL projections but inquired as to whether there was a contingency plan if one of the new recruitment estimates (2020-2022) was anomalously high to which Dr. Terceiro indicated that early signs suggest there is a low risk of this happening, but if it should, he is likely to explore an alternate projection run with the anomalous recruitment(s) removed. The AOP also discussed whether exploration of revisions to historical selectivity blocks would elevate the assessment to level 3, but the AOP felt comfortable that should time allow for this exploration, given the other modest changes proposed for this assessment, there would be adequate review time under a level 2 review; moreover, it appears as though past practice has been to maintain level 2 assessments for this type of proposed change (e.g. scup).

**The AOP supported a level 2 assessment review for summer flounder.** Justification for this recommendation included the notion that the time available for a level 2 review is sufficient to address all proposed changes.

### **AOP Meeting Conclusions:**

The AOP met on February 23, 2023 to review the stock assessment plans for 7 stocks scheduled for the June 2023 Management Track cycle. The panel concluded that a Level 1 review (Direct Delivery) was warranted for Atlantic mackerel; Level 2 reviews (Expedited Review) for bluefish, deep sea red crab, longfin inshore squid, scup and summer flounder; and Level 3 review (Enhanced Review) for spiny dogfish. The Level 2 and 3 reviews will occur during the June 2023 Management Track Peer Review scheduled for June 26-28, 2023. In the case of spiny dogfish, the NRCC decided to delay the review until the September Management Track peer review. 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. In the case of Atlantic mackerel, if the 2022 egg/biomass index is not available, the AOP agreed to raise the review level to Level 2 (Expedited Review) via correspondence. 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 only, no call-in numbers)**

Russ Brown, AOP Chair (NEFSC)  
Paul Rago, AOP (MAFMC)  
Mike Celestino, AOP (ASMFC)  
Cate O'Keefe, AOP (NEFMC)  
Michele Traver - NEFSC

Abigail Tyrell, NEFSC  
Alex Dunn, NEFSC  
Andy Jones, NEFSC  
Anthony Wood, NEFSC  
Brandon Muffley, MAFMC  
Charles Adams, NEFSC  
Charles Perretti, NEFSC  
Chelsea Tuohy, ASMFC  
Chris Kellogg, NEFMC  
Chris Legault, NEFSC  
Cynthia Jones, Old Dominion University (June MT peer review chair)  
David McCarron, NEFMC  
Dvora Hart, NEFSC  
Emily Bodell, NEFMC  
Eric Reid, Fisheries Consultant  
Greg DiDomenico, Lund's Fisheries  
Haley Clinton, NC Division of Marine Fisheries  
Hannah Hart, MAFMC  
James Boyle, University of Miami  
Jamie Cournane, NEFMC  
Jason Boucher, NEFSC  
Jason Didden, MAFMC  
Jeff Kaelin, Lund's Fisheries  
Jon Deroba, NEFSC  
Jui-Han Chang, NEFSC  
Julie Nieland, NEFSC  
Karson Cisneros, MAFMC  
Kathy Sosebee, NEFSC  
Katie Almeida, Town Dock  
Katie Drew, ASMFC  
Kiersten Curti, NEFSC  
Lisa Hendrickson, NEFSC  
Mark Terceiro, NEFSC  
Meghan Lapp, Sea Freeze  
Melanie Griffin, MA Marine Fisheries Institute  
Michael Wayne, American Sportfishing Association  
Paul Nitschke, NEFSC  
Steve Cadrin, SMAST

Susan Wigley, NEFSC  
Toni Chute, NEFSC

**Key:**

NEFSC - Northeast Fisheries Science Center

NEFMC - New England Fisheries Management Council

MAFMC - Mid-Atlantic Fisheries Management Council

ASMFC - Atlantic States Marine Fisheries Council

SMAST - University of Massachusetts School of Marine Science and Technology