Summary of May Assessment Oversight Panel Meetings for September 2024 Management Track Stock Assessments

May 23, 2024 via Video Conference

The NRCC Assessment Oversight Panel (AOP) met on May 23, 2024 to review the Management Track Assessment plans for Georges Bank Haddock, Gulf of Maine Haddock, American Plaice, Pollock, Atlantic Halibut, Witch Flounder, and Georges Bank Yellowtail Flounder. The assessments for Atlantic Halibut and Georges Bank Yellowtail flounder were recommended for Level 1 Reviews (Direct Delivery); these assessments will undergo internal reviews at the NEFSC before being delivered to the appropriate management body. The remaining assessments were recommended for Level 2 and 3 peer reviews and will be reviewed during meetings scheduled for September 16-20, 2024.

Assessment Oversight Panel Members

- Kristan Blackhart (Chair), Northeast Fisheries Science Center, Woods Hole, Massachusetts
- Matthew Cieri, Maine Department of Marine Resources, representing the Atlantic States Marine Fisheries Commission
- Lisa Kerr, Ph.D., Gulf of Maine Research Institute, Chair of the NEFMC Scientific and Statistical Committee
- Paul Rago, Ph.D., NOAA Fisheries (retired), Chair of the MAFMC Scientific and Statistical Committee

Meeting Details

This meeting was guided by the NRCC-approved stock assessment guidance documents. Standard background documents were provided to the Panel in advance of the meeting:

1. An updated prospectus for each stock
2. An overview summary of all the salient data and model information for each stock
3. The NRCC Guidance memo on Management Track Assessments

Additional documents submitted by stakeholders and partners were provided to the AOP where available. 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 should their analytical assessment be rejected during 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
Georges Bank Haddock	Liz Brooks	Level 2	**Rationale:** No anticipated changes to the assessment model; will explore treatment of the 2023 spring BTS; Plan B Smooth as default backup approach but suggests an appropriate backup would need to be based on the specific reasons for model rejection/failure; assessment lead recommends Level 2 due to review of spring BTS treatment
Gulf of Maine Haddock	Charles Perretti	Level 3	**Rationale:** ASAP > WHAM case study endorsement at SSRT; potential inclusion of bottom LL survey, if supported by diagnostics; treat 2023 spring BTS as missing; explore research recommendations from SSRT (e.g. decouple age 1/2 NAA RE; alternative age comp likelihoods); use 2023 SSRT projection methods and explore stochastic (vs. deterministic) projections and SSB reference points; backup Plan B Smooth if WHAM diagnostic issues cannot be resolved
American Plaice	Amanda Hart	Level 2	**Rationale:** Treat 2023 spring BTS as missing; commercial landings already transitioned to CAMS; revisit commercial age comps and decreasing WAA trends in terminal years; address 2022 MT research recommendations as time allows (considering ecov for recruitment; specifications for M); no change to projections methods; backup alternative WHAM configuration; Level 2 to review data changes - AOP agrees, but notes that if either of the previous MT research recommendations are included this would trigger an elevation to Level 3

Stock	Assessment Lead	Review Level	Rationale and Comments
Pollock	Brian Linton	Level 3	**Rationale:** Use of new CAMS commercial discard estimates 2020-2023; exclusion of the 2023 spring Bottom Trawl Survey; evaluation of splitting Albatross/Bigelow spring & fall indices; evaluate the use of spring/fall bottom longline survey; evaluation of increasing the plus group and re-evaluate fishery selectivity time blocks; no changes to projection methods; backup approach Ismooth
Atlantic Halibut	Liz Brooks/Dan Hennen	Level 1	**Rationale:** Plan B methods using empirical FSD approach; no new sources of information available; no changes to methods but will explore the treatment of zeros in indices, the sensitivity of that treatment of zeros; illustrate how advice responds to Canadian discard scenarios and potential changes to projection methods; no changes to the underlying method, no new data - only sensitivity runs
Witch Flounder	Susan Wigley	Level 2	**Rationale:** Uses empirical model (ASAP rejected in 2016); no new information or changes to model; will conduct sensitivity runs to explore missing survey values; planning to update 2016 ASAP (pending diagnostics) and present as informational to the empirical results and stepwise working towards potential resurrection of an analytical model for the stock; no projections are available from the empirical method
Georges Bank Yellowtail Flounder	Alex Hansell	Level 1	**Rationale:** TRAC stock assessed using Limiter method; no changes to methods or data inputs; assessment will be delivered in mid-July for review by SSC (not September MT peer review)

Individual Stock Discussion Summaries

Georges Bank Haddock (AOP Lead: Lisa Kerr)

Recommendation: Level 2 (Expedited Review)

A Research Track Stock Assessment for Georges Bank Haddock was completed in 2022 during which the Georges Bank Haddock assessment transitioned to using the WHAM state space model. A subsequent management track assessment was carried out for Georges Bank Haddock in 2022. The 2024 Georges Bank Haddock Management Track assessment will be updated to include data through 2023.

The assessment scientist proposed a Level 2 Expedited Review for this stock. The proposed management track work will include: 1) updating all fishery and survey data through 2023; 2) fitting the WHAM model with updated data through 2023; 3) updating biological reference points using the Research Track methodology; and 4) completing projections for years 2024-2027 using the Research Track methodology. The analyst noted some additional level of review will be needed to evaluate how to treat 2023 spring NEFSC bottom trawl data due to only day tows being conducted and incomplete coverage of survey strata. The assessment lead will also update recent average life history info to calculate reference points and will monitor Mohn's rho values to determine if a rho adjustment is required. The 2022 Research Track estimates were not rho-adjusted and Mohn's rho values subsequently decreased in the 2022 Management Track. The back-up assessment for Georges Bank haddock is an Ismooth method applied to NEFSC spring and fall survey biomass with year- season- length-based calibration applied.

The AOP discussed the assessment lead's plan for evaluating 2023 spring survey data and found the proposed approach appropriate. The AOP inquired about the use of a two-year average for characterizing maturity and selectivity in defining biological reference points, rather than the more typical 5-year average. The assessment scientist noted that this was evaluated in the Research Track and using a shorter span was adopted to minimize lagging behind observed changes in stock demographics. The AOP also inquired whether there was a need to conduct WHAM sensitivity runs exploring the impact of adopting the median vs mean of estimates and the treatment of recruitment in projections (i.e., bias correction on/off). The assessment lead noted that these questions regarding settings were already explored in the context of the Research Track assessment. The AOP agreed with the back-up assessment plan but also noted some inconsistency among stocks using the WHAM platform regarding proposed back-up assessments (e.g., some propose a simplified WHAM model and others an empirical approach) and it was suggested that a broader discussion of best practices is warranted. **The panel agreed with the recommended Level 2 (Expedited) review for this stock and the outline of work for this stock.**

Gulf of Maine Haddock (AOP Lead: Lisa Kerr)

Recommendation: Level 3 (Enhanced Review)

A Research Track Assessment for Gulf of Maine Haddock was completed in 2022. The current model for use in management for this stock is a statistical catch-at-age model in the ASAP platform. During the recent State Space Research Track, a WHAM state space model fit was explored for this stock. The final WHAM model reviewed in the State-space Research Track (SSRT) is proposed as the base model for this Management Track.

The assessment lead proposed a Level 3 Enhanced Review for this stock. The proposed Management Track work will include: 1) update of fishery independent and dependent data through 2023; and 2) fitting the WHAM state space model to data through 2023 to develop estimates of recruitment, biomass, and fishery mortality. The assessment lead also proposed model explorations, including: 1) potential inclusion of a new survey index (i.e., NOAA's Gulf of Maine Bottom Longline Survey); 2) model explorations as recommended by SSRT review, including the decoupling of age-1 NAA random effects from ages 2+, evaluation of alternative age composition likelihoods, evaluation of self-test bias; and 3) a new projection methodology (i.e., stochastic projections and stochastic SSB reference point). The proposed back-up assessment for Gulf of Maine Haddock is a simplified ("ASAP-like") WHAM model.

The AOP supports the transition to the WHAM model platform for Gulf of Maine Haddock and the updates and explorations proposed by the assessment scientist. The main source of uncertainty in the prior Management Track assessment was the faster than expected rate of decline in biomass that occurred since prior assessment. The AOP discussed whether there was any progress made on the attribution of this large change in the perception of biomass from the last assessment. The assessment lead noted that this was a large part of the motivation for transitioning to WHAM and that the previously existing retrospective pattern was largely resolved by adding NAA random effects to the model. The mechanism behind it is not fully known, but from a diagnostic standpoint it is no longer a major concern. Continued work to better understand the mechanism driving this change would be helpful. The AOP also discussed the proposed shift in projection methods and that the process error from the model will be projected forward**.** The AOP agreed with the back-up assessment plan. **The AOP agreed with the recommended Level 3 (Enhanced) review for this stock given the extensive changes proposed and supported the outline of work for this stock.**

American Plaice (AOP Lead: Paul Rago)

Recommendation: Level 2 (Expedited Review)

American Plaice was last assessed in 2022 via a MT assessment. The MT followed shortly after a RT assessment earlier that same year. Updates of biological reference points were comparable between the RT and MT but the natural mortality rate M was increased to 0.3 from 0.2/yr. The stock is not overfished and overfishing is not occurring. No significant retrospective is present.

Recruitment and survival are modeled as random effects. Two stanzas of selectivity of the fishery are estimated; each uses a logistic function also with random effects. The Albatross and Bigelow based abundance estimates are treated as separate time series. Results of the calibration experiments are not used to convert Bigelow estimates into Albatross equivalents. Previous RT and MT peer review panels highlighted concerns about insufficient biological sampling of commercial landings. Steep but unexplainable declines in weight at age (WAA) may be due to incomplete sampling rather than true reductions in growth. This aspect of the assessment is pervasive and could influence estimates of selectivity, biological reference points and ultimately catch recommendations.

Overall, the stock appears to be near B_{MSY} and lightly fished. Use of CAMS estimates for commercial landings are not expected to be consequential. As noted above, low precision, and potentially biased estimates of WAA due to erosion of the Port Sampling program could have far-reaching effects. **For these reasons, the AOP recommended a Level 2 Expedited Review. If the assessment lead conducts and presents further work on the effects of environmental factors on recruitment, or revisits the earlier decision to increase M from 0.2 to 0.3, a Level 3 Enhanced Review would be warranted.**

Pollock (AOP Lead: Matt Cieri)
Recommendation: Level 3 (Enhanced Review)

Pollock was last benchmarked in 2010, with an update in 2022. The model in use is currently ASAP. The most recent configuration had the base case with domed-shaped selectivities for both the fishery and the surveys, combined recreational and commercial fleets, and four selectivity blocks (1970, 1981, 2002, and 2014 to 2021). Natural mortality was set at 0.2, and the model used both Spring and Fall bottom trawl indices. An alternate sensitivity analysis used domed-shaped fishery selectivity but had flat-topped survey selectivity. The results of this most recent update suggested that the stock was not overfished and that overfishing was not occurring.

For the 2024 management track, the assessment team proposes moving the catch and discard information to CAMS, evaluating splitting the time series for the surveys into Albatross and Bigelow time series, examining the use of the bottom longline survey for use in the model, and dropping the Spring 2023 survey information due to low coverage rates of that survey. The assessment team also would like to examine the plus group configuration as well as reevaluate the historical selectivity blocks. Because they are exploring new data sources and changes to selectivity, the assessment team proposes a Level 3, Enhanced Review.

The AOP discussed potential changes to the selectivity and plus group in the proposed work plan, as outlined by the assessment team. Additionally, there was some discussion on the possibility of moving Pollock to WHAM in the near future, possibly for its next Management Track assessment scheduled for 2026, pending an NRCC decision on the ability to transition

from ASAP to WHAM within the Management Track. However, it was noted there would be staffing conflicts with the Redfish Research Track (peer review scheduled for 2027).

Given the substantive changes proposed by the assessment team, the AOP concurred that a Level 3 Enhanced Review would be needed for the Management Track update for Pollock in 2024. The AOP also supported the use of the backup assessment plan.

Atlantic Halibut (AOP Lead: Matt Cieri)

Recommendation: Level 1 (Direct Delivery)

Halibut was last benchmarked in 2015, which resulted in the rejection of that proposed model. A backup or alternate assessment was last updated in 2022. This model termed First and Second Derivative (FSD), uses combined Fall bottom trawl and discard ratios. The trend and rate of change are then used to make recommendations on the next year's catch. However, while advice is generated, there is no underlying population dynamics, and so stock status, or projections are not possible beyond the advice.

Because the peer review rejected the last analytical assessment, including reference points, the stock status is unknown. Currently, it is thought that the stock may be overfished, but that overfishing is not occurring; though these are highly uncertain. Additionally, there is uncertainty regarding the relationship between this assessment unit and the larger Halibut stock, centered in Canadian waters.

The assessment team proposes little change to the FSD assessment. No new data streams are proposed for inclusion. The assessment team does propose examining the treatment of zero catches in the survey indices, as well as providing illustrations of how advice changes with a change in the Canadian discard ratios. Given these changes, the assessment team indicated a proposed level of review at either Level 1 (Direct Delivery) or Level 2 (Expedited Review). A supporting letter from Maine DMR recommended a Level 3 (Enhanced Review), because of recent changes in Canadian Landings from 5Y and 5Z, as well as a lack of discard information from that fishery.

The AOP discussed both the proposed work plan and the DMR letter in detail. The lack of Canadian discard information as well as indications of increased Canadian catch, suggested a change in how this fishery operates. Because of the concerns expressed, some attendees and AOP members initially thought a Level 2 (Expedited Review) might be appropriate. However, given the lack of proposed changes to the assessment, as well as no foreseen changes in stock status, the AOP members thought a Level 1 (Direct Delivery) would be the best option. That said, the assessment team will be adding an appendix, which will show the effect of increased Canadian discards on management advice. Additionally, they will work with DFO Canada, to see if discard information can be made available for that fishery in 5Y and 5Z.

After careful consideration and suggestions of adding an additional appendix, **the AOP supported a Level 1 (Direct Delivery) for the Halibut Management Track assessment**. The stock is already assessed using a backup methodology, and so no alternative was proposed.

Witch Flounder (AOP Lead: Paul Rago)

Recommendation: Level 2 (Expedited Review)

The stock assessment for Witch Flounder has been based on an empirical approach since the previous analytical model (ASAP) was rejected by the peer review panel at SAW 62 in 2016. At that time, the assessment model had a severe retrospective pattern. This was the primary basis for recommending an empirical approach that relied on trends in the swept area biomass estimates for the spring and fall bottom trawl survey indices. Each of these indices were scaled to total biomass based on empirical estimates of catchability derived from comparative gear studies in 2015, 2016 and 2018. The stock was last assessed in 2022. While the empirical approach is sufficient to provide catch advice, it cannot be used to define biological reference points. Moreover, the adjustments to catches are critically dependent on the realized catches in the previous year, irrespective of underlying factors that might have increased or decreased landings apart from stock size (e.g., regulations, market price, etc.). The absence of reference points has been problematic for the NEFMC and other groundfish fisheries.

In 2020 a Research Track review of Index-Based Methods indicated that retrospective adjustments in age-based assessments were a better strategy than simply shifting to an empirical approach. The loss of age information on the stock ignores important trends contained in the catch composition and the surveys. Hence there is both a strong desire to improve the assessment for management, and strong evidence of improved inference based on the science.

Given this context, the assessment lead plans to update the previous ASAP model with new data. It is not expected that this effort will result in a model suitable for catch advice. Instead, it will be an important step towards a full implementation at a later MT. Model development could continue between MT assessments, perhaps with input from the Groundfish PDT. An important advantage of even a prototype age-structured model is the ability to discern causes for disturbing trends in the Witch Flounder population. Estimated exploitation rates, defined as catch over the recent 2 year average abundance is less than 0.06. Despite this low estimate, exploitable biomass declined markedly between 2020 and 2022. The age structure in both the catch and surveys is severely truncated. A prototype analytical model would provide a logical basis for interpreting these trends; an index-based approach does not have such explanatory power.

The AOP commended the efforts to update the previous model with new data. Retrospective patterns are often ephemeral and an updated model may have a greatly reduced pattern. It is probably not possible for a single individual to revise a model without collaboration with other

scientists and stakeholders. A stage-wise approach that evaluates the potential utility of an ASAP update is strongly endorsed.

The updated empirical approach will use the CAMS estimates for catch but substantive differences between these and historical estimates are not anticipated. The AOP also appreciated the planned sensitivity analyses for missing surveys in 2020 and 2023. **In light of the significant amount of new work to develop a prototype ASAP model and the utility of an initial vetting of these results, the AOP recommended a Level 2 Expedited Review.**

Georges Bank Yellowtail Flounder (AOP Lead: Kristan Blackhart)

Recommendation: Level 1 (Direct Delivery)

The Georges Bank Yellowtail Flounder stock will not be reviewed via the Management Track; instead this stock, which has traditionally been reviewed via the Transboundary Resources Assessment Committee (TRAC), will be delivered to the NEFMC SSC for discussion during their meeting July 30-31 due to in progress changes to the TRAC process in 2024 and beyond. This stock is currently assessed using an empirical method (the "limiter" method); no changes to the methods or input data are planned for the 2024 assessment. Because this assessment is already using the backup approach, no further backup was proposed. It was noted that research to develop an analytical assessment model for the stock is currently underway and progressing well within the Research Track Assessment for Yellowtail Flounder. Because this will be a simple update of existing data indices using established methods, **the AOP agreed a Level 1 (Direct Delivery) was appropriate.**

Meeting Conclusions

The AOP met on May 23, 2024 to review the stock assessment plans for 7 stocks scheduled for the September 2024 Management Track cycle. The panel concluded that Level 1 reviews (Direct Delivery) were warranted for Atlantic Halibut and Georges Bank Yellowtail Flounder; Level 2 reviews (Expedited Review) for Georges Bank Haddock, American Plaice, and Witch Flounder; and Level 3 reviews (Enhanced Review) for Gulf of Maine Haddock and Pollock. The Level 2 and 3 reviews will occur during the September 2024 Management Track Peer Review scheduled for September 16-20, 2024. Any additional 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. Assessment Oversight Panel Meeting participants (names only, no call-in numbers).

Kristan Blackhart, AOP Chair (NEFSC)
Paul Rago, AOP (MAFMC)
Matthew Cieri, AOP (ASMFC)
Lisa Kerr, AOP (NEFMC)
Michele Traver - NEFSC

Alex Dunn - NEFSC
Alex Hansell - NEFSC
Amanda Hart - NEFSC
Brian Linton - NEFSC
Charles Adams - NEFSC
Charles Perretti - NEFSC
Chris Legault - NEFSC
Dan Hennen - NEFSC
Gareth Lawson - Conservation Law Foundation
Jamie Cournane - NEFMC Staff
Jason Boucher - NEFSC
Jon Deroba - NEFSC
Julie Nieland - NEFSC
Kathy Sosebee - NEFSC
Larry Alade - NEFSC
Libby Etrie - Conservation Law Foundation
Liz Brooks - NEFSC
Liz Sullivan - GARFO
Megan Ware - Maine Department of Natural Resources
Paul Nitschke - NEFSC
Richard Merrick - September MT Chair
Robin Frede - NEFMC Staff
Spencer Talmage - GARFO
Steve Cadrin - SMAST
Susan Wigley - NEFSC
Toni Chute - NEFSC
Tony Wood - NEFSC

Key:

ASMFC - Atlantic States Marine Fisheries Council
GARFO - Greater Atlantic Regional Fisheries Office
MAFMC - Mid-Atlantic Fisheries Management Council

NEFMC - New England Fisheries Management Council
NEFSC - Northeast Fisheries Science Center
SMAST - University of Massachusetts School of Marine Science and Technology

Appendix 2. Acronyms Used in This Report

AOP - Assessment Oversight Panel
ASAP - Age Structured Assessment Program
BTS - bottom trawl survey
CAMS - Catch Accounting and Monitoring System
ecov - ecosystem covariate
FSD - First and Second Derivative model
LL - longline
M - natural mortality
MT - Management Track
NAA - numbers-at-age
NRCC - Northeast Region Coordinating Council
RE - random effects
RT - Research Track
SSC - Scientific and Statistical Committee
SSRT - State Space Research Track
TRAC - Transboundary Resources Assessment Committee
WAA - weight-at-age
WHAM - Woods Hole Assessment Model