Amendment 25 (Revised)

to the

Northeast Multispecies Fishery Management Plan

Appendix I

Scientific and Statistical Committee Recommendations for Atlantic Cod FY2025– FY2027

New England Fishery Management Council
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Eric Reid, *Chair* | Cate O'Keefe, PhD, *Executive Director*

MEMORANDUM

DATE: July 31, 2024

TO: Cate O'Keefe, Ph.D., Executive Director

FROM: Scientific and Statistical Committee

SUBJECT: Response to Terms of Reference – (1) Overfishing Limits and Acceptable Biological Catches for Georges Bank Yellowtail Flounder (FY 2025-FY 2026) and Atlantic Cod (FY 2025-2027), and (2) apportioning Georges Bank Atlantic Cod and Haddock biomass into the Eastern Georges Bank Management Area

The Scientific and Statistical Committee (SSC) met in person in Portsmouth, NH and via webinar on July 30-31, 2024, to address terms of reference (TOR) for recommending overfishing limits and acceptable biological catches for Georges Bank yellowtail flounder and Atlantic cod and to review apportioning Georges Bank Atlantic cod and haddock biomass into the Eastern Georges Bank Management Area.

SSC members in attendance: Anna Birkenbach, Edward Camp, Yong Chen, Jeremy Collie, Adam Delargy, Adrian Jordaan, Lisa Kerr, Gareth Lawson, Kai Lorenzen, Jason McNamee, Richard Merrick, Conor McManus, Fred Serchuk, Michelle Staudinger, Kevin St. Martin, Sam Truesdell, Lindsey Williams

OVERFISHING LIMIT AND ACCEPTABLE BIOLOGICAL CATCHES FOR GEORGES BANK ATLANTIC COD AND YELLOWTAIL FLOUNDER

Terms of Reference

A. Consider the results of the Northeast Fisheries Science Center's (NEFSC) spring 2024 management track stock assessments for the Georges Bank Yellowtail Flounder and Atlantic Cod stocks and information provided by the Council's Groundfish Plan Development Team (PDT).

B. Recommend an overfishing limit (OFL) and acceptable biological catch (ABC) for the following groundfish stocks that will prevent overfishing, meet the management objective to rebuild, are consistent with the Council's groundfish ABC control rule and rebuilding plans, and consider the Council's Risk Policy Statement.

1. Georges Bank (GB) Atlantic cod, fishing years (FY) 2025 – 2027
2. Georges Bank (GB) yellowtail flounder, FY 2025 – 2026

For the SSC recommendations for GB cod and GB yellowtail flounder, the Council requested that the SSC forward a "Summary of Recommendations" report by the end of the SSC meeting on July 31, 2024, so that the information can be delivered to Department of Fisheries and Oceans Canada (DFO) and the Transboundary Management Guidance Committee (TMGC) and it can be considered in developing recommendations for the TMGC meeting.

Documents

To address these TORs, the SSC considered the following information:

a. Stock Assessments
   i. Presentation on GB cod 2024 assessment by NEFSC staff
   ii. Georges Bank Cod 2024 Management Track Assessment Report
   iii. Presentation on GB yellowtail flounder 2024 assessment by NEFSC staff
   iv. Georges Bank Yellowtail Flounder 2024 Management Track Assessment Report
   v. Peer Review Report, Spring 2024 Management Track Stock Assessments
   vi. Assessment supporting materials available at: https://apps-nefsc.fisheries.noaa.gov/saw/sasi/sasi_report_options.php

b. Groundfish Plan Development Team
   i. Groundfish PDT presentation by Council staff
   ii. Groundfish PDT memo to SSC re OFLs and ABCs for GB Atlantic cod, FY 2025 -2027
   iii. Groundfish PDT memo to SSC re OFL and ABC for GB yellowtail flounder, FY 2025 -2026
   iv. Risk Policy Matrix for GB Atlantic cod
   v. Risk Policy Matrix for GB yellowtail flounder

c. Prior SSC memos to Council re OFLs and ABCs
   i. FY 2023 - 2024 GB Atlantic cod, September 2, 2022
   ii. FY 2024 - 2025 GB yellowtail flounder, September 15, 2023

d. Northeast Multispecies SAFE Report, including background information on the social and economic status of the fishery and prior management actions

e. FY 2022 Northeast Multispecies (Groundfish) Catch Report, GARFO

f. Correspondence

g. General Background Documents
   i. The Council's Risk Policy Road Map (2016), which includes the Risk Policy Statement and Implementation Plan, see pp. 4-5
   ii. 2024 State of the Ecosystem – New England. NOAA/NEFSC

GEORGES BANK ATLANTIC COD

TERMS OF REFERENCE FINDINGS

The SSC received a presentation from Northeast Fisheries Science Center (NEFSC) staff on the first management track (MT) assessment of the Georges Bank stock of Atlantic cod since the 2023 research track (RT) assessment. The RT assessment adopted the Woods Hole Assessment Model (WHAM), with this MT assessment updating the WHAM model with recalibrated NEFSC/DFO survey indices, revised weight-at-age and Canadian commercial landings-at-age, and updated US landings and discards using the Catch Accounting and Monitoring System. Short-term projections were updated through 2027. Retrospective adjustments were not made to the model results because the retrospective pattern was minor.

This MT stock assessment estimated the spawning stock biomass (SSB) in 2023 to be 2,668 mt which is 32% of the biomass target (SSB_{MSY} proxy = 8,290). The 2023 fully selected fishing mortality was estimated to be 0.13, which is 56% of the overfishing threshold proxy (F_{MSY} proxy = 0.233). Based on these results, the stock status is overfished but overfishing is not occurring. The stock is not currently in a rebuilding plan, and thus there is no $F_{REBUILD}$.

The SSC also received a presentation from the Groundfish Plan Development Team (PDT) on recommendations of possible overfishing limits (OFLs) and acceptable biological catches (ABCs) for FY 2025-2027 based on projections at 75%F_{MSY} along with a sensitivity run conducted at 60%F_{MSY}.

The SSC supports an OFL of 518 mt for FY 2025, 433 mt for FY 2026, and 420 mt for FY 2027. The SSC recommends ABCs of 397 mt, 331 mt, and 321 mt for FY 2025-2027. These OFLs and ABCs, are not likely to result in overfishing, are consistent with the Council's ABC control rules, and consider the Council's Risk Policy Statement.

RATIONALE INCLUDING SIGNIFICANT SOURCES OF UNCERTAINTY

The SSC applied Option A of the Council's ABC control rule which states that the *ABC should be determined as the catch associated with 75% of FMSY*. There was recognition that while stock status based on the 2024 management track assessment indicates the stock is overfished, this stock has not been added to the Northeast Multispecies (groundfish) fishery management plan, and the supporting analysis required to define a rebuilding plan (i.e., definition of $F_{REBUILD}$ and a rebuilding timeline) have not yet been conducted. The SSC deemed it appropriate to use Option A of the Council's ABC Control Rule in this circumstance. Selecting another value for the ABC (e.g., 60%F_{MSY}) presupposes what $F_{REBUILD}$ will be, although a minority of the SSC members supported the use of 60%F_{MSY} for setting the ABC (see Minority Report).

The recommended ABCs represent a reduction from the FY 2024 catch in the stock area, with decreasing ABCs over the period FY 2025-2027 (i.e., ranging from a 5% to 23% decrease from FY 2024 catch). The SSC believes these reductions support the goal of preventing overfishing. The SSC discussed that while most (~75%) of the stock's harvest is by Canadian harvesters; the decreased annual catch limits will still impact U.S. landings and have socioeconomic consequences.

During discussion, the SSC raised several concerns with the assessment. Recruitment remains a source of uncertainty in this assessment. There were persistent trends in recruitment residuals that could not be fully resolved in this assessment. Additionally, insufficient port sampling, gaps in surveys, and age truncation in the NEFSC fall index terminal years make it more difficult to characterize age composition for this stock. The reliability of population projections for Georges Bank Atlantic cod also cannot be determined because of differences between the data and methods used in the prior RT and in the current MT assessments, such as the change in the survival process error assumptions, which impact how errors are propagated in the projections.

The SSC is concerned about this stock's poor condition (i.e., lowest SSB on record and persistent low recruitment). The SSC anticipates a rebuilding plan with an associated $F_{REBUILD}$ will be developed for the new Georges Bank Atlantic cod stock after May 2025 and that the newly defined $F_{REBUILD}$ will be used in future catch advice setting for this stock.

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

The SSC recommends further consideration of how the NEFSC bottom trawl survey is integrated into the assessment. There were suggestions to explore splitting the Albatross and Bigelow portions of the time series**,** as well as recommendations to maintain the full time series within the assessment with further exploration of the differences in scale (catchability) between the two survey's time series**.** The SSC also discussed the multiple survey indices that inform this assessment and recommends evaluating the utility

of a model-based approach (e.g., Vector Autoregressive Spatio-Temporal model) to derive abundance indices in future management track assessments.

The SSC emphasizes the insufficient port sampling that was raised as a concern for this stock in the assessment and PDT reports and recommends efforts to expand biological sampling. This includes developing ways to address current limitations of port sampling protocols, such as not sampling trips made to multiple stock areas, a situation that often applies to Georges Bank.

The SSC recommends further work to define the appropriate approach to estimating reference points for this stock and continued evaluation of the appropriate use of the full time series of recruitment to inform future expectations of stock productivity. This recommendation reflects evidence from peer-reviewed literature and public comments that overall species distribution and productivity may have shifted for this stock due to climate change and other factors.

The SSC noted that there was limited socioeconomic data provided on this stock. While this was due, in part, to it being a newly defined stock unit, more information, particularly pertaining to fishing practices (e.g., ACE lease price, potential to be a choke stock, ability of fishers to switch to other stocks), would allow the SSC to provide more nuanced management advice. Further research is needed on the impacts to multiple and differentiated communities due to catch advice resulting from the new spatial scale of the cod stock assessments.

SUMMARY OF RECOMMENDATIONS

1. The SSC recommends OFLs of 518 mt, 433 mt, and 420 mt for FY 2025-2027, respectively, for the Georges Bank Atlantic cod stock.
2. The SSC recommends ABCs of 397 mt, 331 mt, and 321 mt for FY 2025-2027, respectively, for the Georges Bank Atlantic cod stock.
3. The SSC recommends further research on: 1) appropriate treatment of surveys included in the assessment, 2) appropriate method for estimating reference points, 3) socioeconomic information on the fishery and communities associated with this newly defined stock area, and 4) development of approaches to expand biological sampling.

Fishing Year	OFL (mt)	ABC (mt)
2025	518	397
2026	433	331
2027	420	321

Minority Report - Georges Bank Atlantic Cod 2025-2027 ABC Recommendation

A minority of the NEFMC SSC members supported setting the FY 2025-2027 GB cod ABC at 322, 274 and 268 mt, respectively. These values result from the 60%F_{MSY} sensitivity run produced by the PDT using a constant F = 0.138, which aligns with the recent fishing mortality rate.

Recommendations from these SSC members included:

1. The current assessment indicates that the Georges Bank Atlantic cod stock is overfished, and, as such**,** it is highly likely that NOAA will determine the stock is overfished, and a rebuilding plan (with $F_{REBUILD}$) will be developed after May 2025. The minority view is that reducing catch now could ease the transition to anticipated reduced catch advice made under a future $F_{REBUILD}$..
2. The stock's condition is poor (declining abundance with SSB lowest on record and continuing low recruitment) suggesting that fishing pressure should not be increased. The minority view is that this supports application of 60% F_{MSY} which would not increase F from recent levels, whereas 75% F_{MSY} would. ABCs calculated with 60% F_{MSY} provide a larger projected SSB in 2025-2027, and the minority view is that this could result in increased recruitment in subsequent years.
3. There is significant uncertainty with the data used in the assessment (e.g., limited port sampling, missed surveys, etc.). The minority view is that this uncertainty suggests a precautionary approach should be followed in setting the ABC.
4. There are inconsistencies between the RT and MT analyses, such that the reliability of the projections cannot be determined. The minority view is that this suggests a need for caution in setting out year ABCs.

A minority of SSC members supported the use of a more precautionary approach (60%F_{MSY}) to define catch advice for an overfished stock that is at historically low abundance levels, shows no sign of increased recruitment, and is struggling to persist under low productivity environmental conditions.

GEORGES BANK YELLOWTAIL FLOUNDER

TERMS OF REFERENCE FINDINGS

The SSC received presentations from Northeast Fisheries Science Center (NEFSC) staff and the Groundfish Plan Development Team (PDT) on the recent management track stock assessment for Georges Bank (GB) yellowtail flounder, and possible ABC and OFL options. GB yellowtail flounder does not currently have an analytical stock assessment and therefore there are no estimates of reference points or criteria to define the status of the stock. NOAA Fisheries previously determined GB yellowtail flounder is overfished but overfishing status is unknown. GB yellowtail flounder is in a 26-year rebuilding plan, with a target rebuild by 2032.

The SSC recommends that the OFL for the GB yellowtail flounder stock remains unknown and recommends an ABC of 200 mt for FY 2025-2026 based on the results of the 2024 management track stock assessment.

RATIONALE INCLUDING SIGNIFICANT SOURCES OF UNCERTAINTY

The SSC is using Option D from the Council's ABC control rule in deriving its catch advice. Option D states: *Interim ABCs should be determined for stocks with unknown status according to case-by-case recommendations from the SSC.*

The SSC recommendation for GB yellowtail flounder ABC of 200 mt is consistent with the GB Yellowtail Limiter Approach developed in 2021, which sets constant catch advice if survey biomass estimates fall within upper and lower biomass boundaries informed by science and management.

The average survey biomass for 2024 using the Miller et al. (2023) catchability estimates was 1,276 mt. This biomass estimate is between the bounds of the Limiter (lower limit: 1,000 mt; upper limit 7,300-8,500 mt). Thus, the constant catch advice of 200 mt is recommended.

The Limiter Approach was designed to include the NMFS spring and fall bottom trawl and Canadian DFO spring surveys. In recent years, missing surveys have been a source of uncertainty in the application of the Limiter approach. However, all three surveys were available in 2024 for the first time since 2019, which reduced uncertainty in the application of the Limiter. The Yellowtail Flounder Research Track assessment, which is ongoing, is evaluating alternative assessment approaches for GB yellowtail flounder to replace or improve upon the Limiter Approach. A peer review is expected in November 2024.

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

Similar to previous years, the SSC noted the continued low stock biomass and poor recruitment for this stock. The SSC recommended continued investigation of the environmental drivers affecting the stock. The size composition of discards and whether there are size-based discard mortality differences within the scallop dredge fishery will have important implications for interpreting the biomass removed by the fishery. The SSC also noted that the Miller et al. (2021) catchability estimates were applied to the NMFS surveys, but not the DFO surveys, in accordance with the Limiter Approach.

LITERATURE CITED

Miller, T.J., Richardson, D.E., Politis, P.J., Roebuck, C.D., Manderson, J.P., Martin, M.H., and Jones, A.W. 2023. Estimation of survey efficiency and biomass for commercially important species from industry-based paired gear experiments. *Fisheries Research*, 259(106565).

SUMMARY OF RECOMMENDATIONS

1. The SSC recommends that the OFL for the GB yellowtail flounder stock remains unknown.
2. The SSC recommends an ABC of 200 mt for FY 2025-2026 based on the results of the 2024 Management Track stock assessment.
3. The SSC recommends investigation of the environmental drivers affecting this species through the ongoing Yellowtail Flounder Research Track assessment process.

Fishing Year	OFL (mt)	ABC (mt)
2025	unknown	200
2026	unknown	200

3. APPORTIONING THE BIOMASS OF GEORGES BANK COD AND HADDOCK INTO THE EASTERN GEORGES BANK (EGB) MANAGEMENT AREA

Terms of Reference

A. Consider the methods of the NEFSC for apportioning the biomass of GB cod and GB haddock into the eastern GB management area and provide feedback on:
    1. Appropriateness of the approach for spatial apportionment of biomass, and
    2. Recommendations for possible future revisions to the methods.

Historically, stock assessments for EGB stocks were developed through the TRAC process. The shift to using domestic assessments to support transboundary management means that a new method was required to apportion total Georges Bank (TGB) domestic assessment advice to the EGB management unit for Atlantic cod and haddock. This change necessitated the development of a new approach to apportion domestic assessment advice from the TGB footprint to the EGB management unit.

The SSC received presentations from Northeast Fisheries Science Center (NEFSC) staff on the method for apportionment of biomass for Georges Bank cod and haddock to the EGB management unit. The presentation outlined the existing Transboundary Management Guidance Committee (TMGC) method to calculate the 2024 resource share allocations for the US and Canada, and the method to apportion advice from TGB assessment footprint to the EGB management unit for Georges Bank Atlantic cod and haddock.

The SSC had clarifying questions regarding the spatial footprint of the surveys, survey timing, averaging of the various surveys, and the smoothing methods. These clarifying comments informed the recommendations for possible future revisions to the methods. Procedurally, the SSC inquired whether any proposed revisions would disrupt consistency between the methods that US and Canada use for the resource sharing allocation. Council leadership noted that there is a strong desire to maintain consistency in the methods for US-Canada resource sharing and domestic apportionment. It was clarified that the SSC could provide recommendations on the apportionment and resource sharing methods (e.g., aligning the methods), but those would be addressed next year at the earliest.

Terms of Reference Findings

Appropriateness of the approach for spatial apportionment of biomass

The SSC considers this approach to be both appropriate and consistent. The approach uses trawl survey data to apportion the domestic advice from the TGB footprint into the EGB management unit. The NMFS spring and fall surveys were relied on for both GB cod and haddock stocks and the DFO spring survey data was only used for Atlantic cod apportionment due to concerns over low sampling coverage on western Georges Bank for haddock. The methods are well-defined and transparent. This method is consistent with the US-Canada resource sharing allocation calculations, with only small deviations that are well described in the report.

Recommendations for possible future revisions to the methods.

The SSC provided several recommendations for future consideration. The SSC recommended considering survey seasonality and reevaluating equal survey weightings when averaging. The SSC also recommended evaluating the frequency of no tows occurring in a stratum and the impact of the assumption whereby stratum with no tows were assumed to have a mean of zero.

The SSC discussed whether the NEFSC and DFO surveys sample similar aspects of the stocks. The SSC recommended looking at the size distributions of the catch from the different surveys to assess whether surveys are providing similar information on the stocks.

The SSC also understands that use of the loess smoother maintains consistency with the calculation of the US-Canada resource sharing allocation, but there are other time series modeling techniques that could be evaluated. Specifically, a desired tool would be a time series model that provides predictions bound between 0 and 100 and that minimizes prediction error.

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Rick Bellavance, *Acting Chair* | Cate O'Keefe, PhD, *Executive Director*

MEMORANDUM

DATE: September 4, 2024

TO: Cate O'Keefe, Ph.D., Executive Director

FROM: Scientific and Statistical Committee

SUBJECT: Response to Terms of Reference - Overfishing Limits and Acceptable Biological Catches for Western Gulf of Maine, Eastern Gulf of Maine and Southern New England Atlantic cod for FY2025 to FY2027

The Scientific and Statistical Committee (SSC) met in person in Portsmouth, NH and via webinar on July 30-31, 2024, to address terms of reference (TOR) for recommending overfishing limits and acceptable biological catches for Western Gulf of Maine, Eastern Gulf of Maine, and Southern New England Atlantic cod. Note: The SSC's response to additional terms of reference discussed during the July 30-31, 2024 meeting are in our July 31 report, including: (1) overfishing limits and acceptable biological catches for Georges Bank yellowtail flounder (FY 2025-FY 2026) and Atlantic cod (FY 2025-2027), and (2) apportioning Georges Bank Atlantic cod and haddock biomass into the Eastern Georges Bank Management Area.

SSC members in attendance: Anna Birkenbach, Edward Camp, Yong Chen, Jeremy Collie, Adam Delargy, Adrian Jordaan, Lisa Kerr, Gareth Lawson, Kai Lorenzen, Jason McNamee, Richard Merrick, Conor McManus, Fred Serchuk, Michelle Standinger, Kevin St. Martin, Sam Truesdell, and Lindsey Williams.

TERMS OF REFERENCE

A. Consider the results of the Northeast Fisheries Science Center's (NEFSC) spring 2024 management track stock assessments for groundfish stocks and information provided by the Council's Groundfish Plan Development Team (PDT).

B. Recommend an overfishing limit (OFL) and acceptable biological catch (ABC) for the following groundfish stocks that will prevent overfishing, meet the management objective to rebuild, are consistent with the Council's groundfish ABC control rule and rebuilding plans, and consider the Council's Risk Policy Statement.

1. Southern New England (SNE) Atlantic cod, FY 2025 – 2027
3. Western Gulf of Maine (WGOM) Atlantic cod, FY 2025 – 2027
4. Eastern Gulf of Maine (EGOM) Atlantic cod, FY 2025 – 2027

DOCUMENTS

To address these TORs, the SSC considered the following information:

a. Stock Assessments
   i. Presentation on SNE cod 2024 assessment by NEFSC staff
   ii. Southern New England Cod 2024 Management Track Assessment Report
   iii. Presentation on WGOM cod 2024 assessment by NEFSC staff
   iv. Western Gulf of Maine Cod 2024 Management Track Assessment Report
   v. Presentation on EGOM cod 2024 assessment by NEFSC staff
   vi. Eastern Gulf of Maine Cod 2024 Management Track Assessment Report
   vii. Peer Review Report, Spring 2024 Management Track Stock Assessments
   viii. Assessment supporting materials available at: https://apps-nefsc.fisheries.noaa.gov/saw/sasi/sasi_report_options.php
b. Groundfish Plan Development Team
   i. Groundfish PDT presentation by Council staff
   ii. Groundfish PDT memo to SSC re OFLs and ABCs for Atlantic cod stocks, FY 2025 - 2027
   iii. Risk Policy Matrix for SNE cod
   iv. Risk Policy Matrix for WGOM cod
   v. Risk Policy Matrix for EGOM cod
c. Prior SSC memos to Council re OFLs and ABCs
   i. FY 2022 - 2024 Gulf of Maine cod, October 25, 2021
   ii. FY 2023 - 2024 GB cod, September 2, 2022
d. Northeast Multispecies SAFE Report, including background information on the social and economic status of the fishery and prior management actions
e. FY 2022 Northeast Multispecies (Groundfish) Catch Report, GARFO
f. Correspondence

General Background Documents

1. The Council's Risk Policy Road Map (2016), which includes the Risk Policy Statement and Implementation Plan, see pp. 4-5
2. 2024 State of the Ecosystem – New England. NOAA/NEFSC

WESTERN GULF OF MAINE COD

The SSC received presentations from Northeast Fisheries Science Center (NEFSC) staff and the Groundfish Plan Development Team (PDT) on the June 2024 management track stock assessment for Western Gulf of Maine (WGOM) cod, and possible ABC and OFL options. This is the first management track (MT) since the 2023 research track (RT) assessment. The RT assessment adopted the Woods Hole Assessment Model (WHAM) and this MT assessment updated the WHAM model with fishery catch data and research survey indices of abundance through 2023, providing updated estimates of projections and reference points. Retrospective adjustments were not made to the model results because the retrospective pattern was minor.

This MT stock assessment estimated the spawning stock biomass (SSB) in 2023 to be 1,847 mt which is 3% of the biomass target (SSB_{MSY} proxy = 62,677 mt). The 2023 fully selected fishing mortality was estimated to be 0.31 which is 163% of the overfishing threshold proxy (F_{MSY}

proxy = 0.19). Based on these results, the stock status is overfished and overfishing is occurring. The stock is not currently in a rebuilding plan, and thus there is no $F_{REBUILD}$.

TERMS OF REFERENCE FINDINGS

The SSC recommends an OFL of 507 mt for FY 2025, 603 mt for FY 2026, and 769 mt for FY 2027 for the WGOM cod stock. The SSC recommends an ABC of 387 mt for FY 2025, 460 mt for FY 2026, and 586 mt for FY 2027. These OFLs and ABCs aim to prevent overfishing, are consistent with the Council's ABC control rules, and consider the Council's Risk Policy Statement.

RATIONALE INCLUDING SIGNIFICANT SOURCES OF UNCERTAINTY

The SSC applied Option A of the Council's groundfish ABC control rule which states that the *ABC should be determined as the catch associated with 75% of FMSY*. There was recognition that while stock status based on the 2024 management track assessment indicates the stock is overfished and overfishing is occurring, this stock has not yet been added to the Northeast Multispecies (groundfish) Fishery Management Plan, and the supporting analysis required to define a rebuilding plan (i.e., definition of $F_{REBUILD}$ and a rebuilding timeline) has not been conducted. The SSC deemed it appropriate to use Option A of the Council's ABC Control Rule in this circumstance.

The recommended ABCs represent a reduction from recent catch in the stock area, with the ABCs over FY 2025-2027 representing a 40%, 30%, and 11% decrease respectively in catch compared to FY 2023 (662 mt). The SSC believes these reductions support the goal of preventing overfishing. The SSC discussed the option of holding catch for the first year under $75\%F_{MSY}$ constant for three years, however recommended adhering to Option A of the ABC control rule with ABCs based on $75\%F_{MSY}$ projections. The SSC is concerned with the higher magnitude of the ABC in the third year of projections but anticipates that specifications will be updated by the third year based on an updated MT stock assessment.

The SSC is concerned about this stock's poor condition (3% of the biomass target). The SSC anticipates that a rebuilding plan with an associated $F_{REBUILD}$ will be developed for the new WGOM Atlantic cod stock after May 2025 and that the newly defined $F_{REBUILD}$ will be used in future catch advice setting for this stock.

A key source of uncertainty for this stock is the spring 2023 datapoint from NOAA's Gulf of Maine Bottom Longline Survey, this value was ultimately excluded from the assessment due to concerns from the peer review panel about the high influence this datapoint had on assessment results. The lead analyst also shared an analysis that suggested uncertainty in the WGOM projections which may be overly optimistic.

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

Noting the reduction in potential catch under the recommended ABCs, the SSC is concerned about the socioeconomic impacts these ABCs will have on the fishery. The SSC recommends further work to define the appropriate approach to estimating short-term projections and reference points for this stock and continued evaluation of the appropriate use of the recruitment

time series to inform future expectations of stock productivity. The SSC raised concerns about how WHAM treats survey indices when the value represents a true zero and the impact this could have on assessment estimates. Currently, in instances where the index is a true zero, the model treats the data point as if the survey was missing (i.e., omits that data point) and concerns were raised that this approach may lead to overestimation of biomass. The SSC recommends work to address this issue in the model. Also, given there are several surveys informing this model, the SSC recommends exploration of approaches such as spatio-temporal model**s** to inform an integrated model-based index of abundance. The SSC recommends that the NEFSC follow up on requests for swept area biomass made during the peer review process in future MT assessments.

SUMMARY OF RECOMMENDATIONS

1. The SSC recommends OFLs of 507 mt for FY 2025, 603 mt for FY 2026, and 769 mt for FY 2027 for the WGOM cod stock.
2. The SSC recommends ABCs of 387 mt for FY 2025, 460 mt for FY 2026, and 586 mt for FY 2027 for the WGOM cod stock.
3. The SSC recommends further research on the definition of short-term projections and reference points, exploration of the treatment of survey zeros in WHAM, exploration of an integrated model-based index of abundance, and estimates of swept area biomass for this stock.

Fishing Year	OFL (mt)	ABC (mt)
2025	507	387
2026	603	460
2027	769	586

EASTERN GULF OF MAINE COD

The SSC received presentations from NEFSC staff and the Groundfish PDT on the June 2024 management track stock assessment for Eastern Gulf of Maine (EGOM) cod, and possible ABC and OFL options. This was the first MT since the 2023 RT assessment. The RT assessment adopted WHAM and this MT assessment updated WHAM with fishery catch data and research survey indices of abundance through 2023, and corrected information associated with the Sentinel Survey abundance index. Retrospective adjustments were not made to the model results because the retrospective pattern was minor.

This MT stock assessment estimated the SSB in 2023 to be 267 mt which is 12% of the biomass target (SSB_{MSY} proxy = 2,184 mt). The 2023 fully selected fishing mortality was estimated to be 0.006 which is 2% of the overfishing threshold proxy (F_{MSY} proxy = 0.27). Based on these results, the stock status is overfished but is not undergoing overfishing. The stock is not currently in a rebuilding plan, and thus there is no $F_{REBUILD}$.

TERMS OF REFERENCE FINDINGS

The SSC recommends an OFL of 63 mt for FY 2025, 50 mt for FY 2026, and 39 mt for FY 2027 for the EGOM cod stock. The SSC recommends an ABC of 48 mt for FY 2025, 39 mt for FY 2026, and 30 mt for FY 2027. These OFLs and ABCs aim to prevent overfishing, are consistent with the Council's ABC control rules, and consider the Council's Risk Policy Statement.

RATIONALE INCLUDING SIGNIFICANT SOURCES OF UNCERTAINTY

The SSC applied Option A of the Council's groundfish ABC control rule which states that the *ABC should be determined as the catch associated with 75% of FMSY*. There was recognition that while stock status based on the 2024 management track assessment indicates the stock is overfished, this stock has not yet been added to the Northeast Multispecies (groundfish) fishery management plan, and the supporting analysis required to define a rebuilding plan (i.e., definition of $F_{REBUILD}$ and a rebuilding timeline) have not yet been conducted. The SSC deemed it appropriate to use Option A of the Council's ABC Control Rule in this circumstance.

Inclusion of estimated discards from the lobster fishery was explored in the MT assessment, however these were eventually excluded due to concerns from the peer review panel about the approach used in estimation and the short time series of data available (i.e., 2020-2023). However, given the magnitude of effort by the lobster fishery in the EGOM stock area and the current estimated stock biomass of EGOM cod, lobster fishery bycatch is recognized as an important component of total catch for this stock. The absence of these data in the model represents a substantial source of uncertainty. There is ongoing work to generate estimates of lobster bycatch removals throughout the time series.

Given this recognized uncertainty, the SSC discussed using recent average catch as an ABC. However, multiple peer reviews have deemed this model acceptable to use for EGOM catch advice, so the SSC did not feel that the uncertainties associated with the lobster fleet removals justified a departure from Option A of the control rule. The ABC proposed by the SSC is considerably larger than recent removals, which have been less than 5 mt since 2018. The SSC was not presented with evidence indicating that removals would be expected to increase dramatically during 2025-2027 so the proposed ABC is not expected to be constraining. Greater Atlantic Regional Fisheries Office (GARFO) staff indicated that lobster bycatch removals would not count against the proposed ABC since this mortality source was not included in the stock assessment.

Historical removals attributed to the EGOM are expected to increase substantially when lobster bycatch is included; these data may be available for the 2026 stock assessment. The SSC notes that inclusion of this source of removals can be expected to change the scale of the stock and potentially the perception of spawning biomass and fishing mortality rate.

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

The SSC recommends research to characterize Atlantic cod discards from the lobster fleet, in particular methods to estimate discards over an extended time period (as compared to CAMS estimates) and that include bycatch in state waters, as well as further review of the adequacy of CAMS discard estimates from the lobster fishery. The SSC also supports the research

recommendations provided by NEFSC staff, including improved biological sampling of commercial and recreational catch and more appropriate consideration of true zeros in the survey data within WHAM. Further, from a socioeconomic perspective, it would be useful to understand the fishing community's participation in the groundfish fishery relative to the new stock areas.

SUMMARY OF RECOMMENDATIONS

1. The SSC recommends OFLs of 63 mt for FY 2025, 50 mt for FY 2026, and 39 mt for FY 2027 for the EGOM cod stock.
2. The SSC recommends ABCs of 48 mt for FY 2025, 39 mt for FY 2026, and 30 mt for FY 2027 for the EGOM cod stock.
3. The SSC recommends research to estimate cod discards from the lobster fishery, additional biological sampling of catch, and exploration of the treatment of survey zeros in WHAM.

Fishing Year	OFL (mt)	ABC (mt)
2025	63	48
2026	50	39
2027	39	30

SOUTHERN NEW ENGLAND COD

The SSC received presentations from NEFSC staff and the Groundfish PDT on the June 2024 management track stock assessment for Southern New England (SNE) cod, and possible ABC and OFL options. This was the first MT since the 2023 research track assessment. The RT assessment adopted the WHAM model, and this MT assessment updated this model with fishery catch data, fisheries independent data, and a recreational catch per unit effort index through 2023.

This MT stock assessment estimated the SSB in 2023 to be 289 mt which is 3% of the biomass target (SSB_{MSY} proxy = 11,258 mt). The 2023 fully selected fishing mortality was estimated to be 0.975 which is 806% of the overfishing threshold proxy (F_{MSY} proxy = 0.121). Based on these results, the stock is overfished and overfishing is occurring. The stock is not currently in a rebuilding plan, and thus there is no $F_{REBUILD}$.

TERMS OF REFERENCE FINDINGS

The SSC recommends an OFL of 29 mt for FY 2025, 47 mt for FY 2026, and 65 mt for FY 2027. The SSC recommends an ABC of 22 mt for FY 2025, 36 mt for FY 2026, and 36 mt for FY 2027. These OFLs and ABCs aim to prevent overfishing, are consistent with the Council's ABC control rules (Option A with modification to hold second year constant), and consider the Council's Risk Policy Statement.

RATIONALE INCLUDING SIGNIFICANT SOURCES OF UNCERTAINTY

The SSC applied Option A of the Council's groundfish ABC control rule which states that the *ABC should be determined as the catch associated with 75% of FMSY*, with a slight modification to hold the 2026 ABC constant during 2027. The additional precaution aims to address the uncertainties associated with recreational fishery data raised by both the MT Peer Review Panel and the Groundfish PDT. Recreational catch estimates are considered to have greater uncertainty than commercial landings and given the harvest for SNE cod is primarily recreational, the SSC recommended this additional precaution in the 2027 ABC specification. The SSC discussed holding the 2025 ABC constant across all years, but this was not preferred for several reasons: it further deviates from the Control Rule, provides less buffering against management uncertainty, and does not allow for flexibility if there are interactions between cod and other target species in either the commercial or recreational sector in this stock area. The SSC acknowledges that this ABC will lead to significant reductions from previous harvest levels in the SNE statistical reporting areas. The SSC anticipates that a MT assessment will be conducted before 2027; as such, this 36 mt ABC for 2027 will likely be revised. This catch advice provides precaution in the event a MT assessment is not completed per the current assessment schedule.

The Peer Review Panel of the 2024 MT identified several assessment uncertainties. One of the largest uncertainties is the absence of biological samples in recent years, during a time period where most removals have come from the recreational fishery. Additionally, there are only two indices included in the assessment model: the NEFSC spring survey and a recreational catch per unit effort (CPUE) index. The former has continued to see very low catch rates (2006, 2007, and 2021 having zero cod observed, and no data in 2020 or 2023), and the latter only includes vessel trip report (VTR) data and thus does not include other sources of recreational catch information (e.g., private angler information from the Marine Recreational Information Program). Recreational discard mortality, bridge year assumptions, uncertainty in recreational catch (compared to commercial landings), and VTR self-reported landings from wave one were additional assessment uncertainties identified by the panel. The SSC discussed concerns with the indices used in the assessment model. For the NEFSC spring survey, the SSC was concerned about how well this survey tracks trends in stock biomass. The CPUE index provides a fisheries dependent framework but given it does not account for all recreational catch sources, there was acknowledgement that it may not entirely capture the stock trends. The SSC again raised concern about how WHAM treats survey indices when the value represents a true zero and recommends further work to address this in the model.

ADDITIONAL COMMENTS AND RESEARCH RECOMMENDATIONS

The SSC recommends improved biological sampling of catch, particularly from the recreational fleet given its significant contribution to total catch for the SNE stock area. If age data becomes increasingly challenging to obtain and limits the performance of the age-structured assessment model, the SSC recommends evaluating the utility of length-based modeling approaches. It was also recommended that there be a broader discussion of different fisheries independent survey techniques that could be used to monitor the stock, perhaps even developing new surveys. Better understanding the species' availability to the trawl survey (e.g., movement dynamics for the stock) would also be helpful to inform future monitoring. The SSC was pleased to see the development of the CPUE index for this stock but noted that if catch limits become too low or economics and other factors drive the CPUE index estimates, the CPUE index may not continue

to represent stock trends. Better understanding of the economic impacts of any recreational fishery catch reductions, and the ability for the recreational industry to pivot to other recreational fisheries, was recommended for further research.

SUMMARY OF RECOMMENDATIONS

4. The SSC recommends OFLs of 29 mt for FY 2025, 47 mt for FY 2026, and 65 mt for FY 2027 for the SNE cod stock.
5. The SSC recommends ABCs of 22 mt for FY 2025, 36 mt for FY 2026, and 36 mt for FY 2027 for the SNE cod stock.
6. The SSC recommends additional sampling of biological catch of SNE cod and work to develop new indices of abundance, as well as continued evaluation of the representativeness of current indices of abundance for this stock over time.

Fishing Year	OFL (mt)	ABC (mt)
2025	29	22
2026	47	36
2027	65	36