New England Fishery Management Council
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Daniel Salerno, Chair • Cate O'Keefe, PhD, Executive Director

MEMORANDUM

DATE: November 10, 2026

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 northern silver hake, southern whiting, northern red hake, and southern red hake for fishing years 2027-2031

The Scientific and Statistical Committee (SSC) met in person and via webinar on October 28, 2026, to address Terms of Reference (TOR) for silver and red hake stocks.

SSC members in attendance: Dr. Conor McManus (Chair), Dr. Edward Camp (Vice-Chair), Dr. Anna Birkenbach, Dr. Lauran Brewster, Dr. Adam Delargy, Dr. Alex Hansell, Dr. Lisa Kerr, Dr. Gareth Lawson, Dr. Kai Lorenzen, Dr. Jason McNamee, Dr. Richard Merrick, Dr. Mateja Nenadovic, Dr. Kevin St. Martin, Dr. Michelle Staudinger, Dr. Sam Truesdell, and Dr. Hiro Uchida.

TERMS OF REFERENCE

A. Consider the results of the NEFSC 2026 data updates for northern silver hake, southern whiting, northern red hake, and southern red hake, and information provided by the Council's Small-Mesh Multispecies Plan Development Team.

B. Recommend OFLs and ABCs for these four stocks for fishing years FY 2027 – 2031 that will prevent overfishing, be consistent with the Council's ABC control rule and rebuilding plans, and consider the Council's Risk Policy

NORTHERN SILVER HAKE

The SSC received a presentation from NEFSC staff on the 2026 data update for northern silver hake and from the Council's Small-Mesh Multispecies Plan Development Team (PDT) on developing possible OFLs and ABCs for FY 2027-2031. The assessment uses an empirical approach based on survey biomass indices and relative exploitation rates derived from survey and fishery data. Northern silver hake is considered not overfished, and overfishing is not occurring.

TOR Findings

The SSC recommends an OFL of 48,540 mt and an ABC of 26,260 mt, both held constant for FY 2027-2031. The SSC determined that these OFL and ABCs will likely prevent overfishing and are consistent with the Council's ABC control rules and Risk Policy. The SSC considers these recommendations to be based on the best scientific information available.

Rationale Including Significant Sources of Uncertainty

The SSC applied the Council's OFL and ABC control rule for northern silver hake. The OFL is derived by applying the 1973-1982 average relative exploitation rate used as the F_{MSY} proxy to the most recent three-year average survey biomass (2023–2025). The ABC is determined using P* = 25%, corresponding to the 25th percentile of the estimated OFL distribution and accounting for uncertainty in survey biomass and proxy reference points. The existing P* is a relatively conservative approach and the SSC felt that its recommendations are consistent with the Risk Policy analysis for northern silver hake that placed this stock in the Intermediate Risk Tolerance zone.

The recommended OFL and ABC are about 38.9% and 35.7% lower, respectively, than the FY 2024–2026 recommendations. These reductions reflect declining survey biomass. Catch has also declined in the recent period. The SSC noted the low 2025 survey index and discussed whether the decline could reflect the waning contribution of strong 2021–2023 year classes without comparable recent recruitment.

The three-year average moderates annual variability but includes higher earlier observations alongside the low 2025 value. Consequently, the average may overstate current biomass if the latest observation reflects a sustained decline. This is an important limitation of the empirical approach, particularly when constant catch limits are applied over multiple years.

Recent removals remain well below the recommended limits, which mitigates near term concern about the fishery being restricted by the proposed catch advice. The PDT reports 2023-2025 average catch of 2,182 mt, about 8.7%[1] of the recommended ABC. Low utilization does not remove uncertainty about biomass trends or the performance of the control rule if catches increase, therefore revisiting the information during the specification period to evaluate the stock and fishery performance is important and recommended by the SSC.

The SSC recognizes progress in developing consistent methods to accommodate missing survey data, as described in the PDT's response to the 2023 recommendations. Survey variability and uncertainty in total removals, including discards, remain relevant areas for further investigation. The continued use of an empirical assessment also limits the ability to evaluate recruitment, population dynamics, and future stock trajectories; therefore, when resources allow, developing an analytical assessment may help better inform future management.

Additional Comments and Research Recommendations

The SSC acknowledges that estimating an OFL from this empirical approach differs from its treatment of some other stocks with index-based assessments, where the OFL is reported as unknown. Given the established precedent for northern silver hake, the SSC accepts continued

[1] These values were updated since the SSC meeting, but do not alter the SSC's conclusions.

use of the OFL and ABC terminology and the current calculations for this specification cycle. A more consistent treatment of empirical assessments and the interpretation of their catch limits warrants further consideration.

The SSC appreciates the PDT's responses to its previous recommendations. Delayed assessment updates and resource constraints limited the work completed for this cycle.

The SSC reiterates the need to revisit the reference period used to define the F_{MSY} proxy and develop criteria for selecting control rule reference periods in a dynamic environment. The suitability of historical exploitation rates should be evaluated in light of changes in productivity, recruitment, distribution, and environmental conditions.

Large changes in advice across specification cycles reinforce the need to evaluate alternative smoothing methods and control rules. Such work should assess the tradeoff between stability and timely responses to declining biomass. The SSC also recommends developing an analytical assessment capable of a coordinated and linked assessment of the northern and southern stock areas, including evaluation of spatial approaches such as WHAM or Stock Synthesis.

The SSC recommends examining how the existing P* approach should be evaluated in the context of the Council's new risk policy, including the ecological and fishery considerations already embedded in P* = 25%. This review should distinguish scientific uncertainty from management uncertainty and evaluate whether the separate 5% management uncertainty buffer remains appropriate. The committee recommends a dedicated discussion, perhaps guided by a decision-making process such as LEAN (LEAN is a set of business management practices designed to maximize customer value while minimizing waste, effort, and resources), focused on empirical assessment and catch-advice procedures to help clarify methods, improve consistency across stocks, and identify priorities for analytical work.

Summary of Recommendations

1. **The SSC recommends an OFL of 48,540 mt and an ABC of 26,260 mt, both held constant for FY 2027-2031.**
2. **Revisit the F_{MSY} proxy reference period and establish criteria suitable for changing stock and environmental conditions.**
3. **Evaluate alternative control rules and smoothing methods that improve stability while retaining responsiveness to biomass changes.**
4. **Develop an analytical assessment that can assess the two silver hake stocks simultaneously and evaluate spatial dynamics.**
5. **Review the relationship between P*, the new Risk Policy, and the separate 5% management uncertainty buffer.**

Fishing Year	OFL (mt)	ABC (mt)
2027 - 2031	48,540	26,260

SOUTHERN WHITING

The SSC received a presentation from NEFSC staff on the 2026 data update for southern whiting and from the Council's Small-Mesh Multispecies PDT on developing possible OFLs and ABCs for FY 2027-2031. The assessment uses an empirical approach based on survey biomass indices and relative exploitation rates derived from survey and fishery data. Southern whiting is considered not overfished, and overfishing is not occurring.

TOR Findings

The SSC recommends an OFL of 96,260 mt and an ABC of 53,660 mt, both held constant for FY 2027-2031. This ABC includes an allowance for offshore hake, which are not assessed but often landed together with silver hake as "whiting" and reported as silver hake. The SSC determined that these OFLs and ABCs will likely prevent overfishing and are consistent with the Council's ABC control rules and Risk Policy. The SSC considers these recommendations to be based on the best scientific information available.

Rationale Including Significant Sources of Uncertainty

The SSC applied the Council's OFL and ABC control rule for southern whiting. The OFL is derived by applying the 1973-1982 average relative exploitation rate used as the F_{MSY} proxy to the most recent three-year average survey biomass (2023–2025). The ABC calculation uses P* = 25% to account for scientific uncertainty in survey biomass and proxy reference points. The southern whiting ABC includes a 4% increase to account for the contribution of offshore hake, based on the 2010 benchmark assessment. The SSC felt that its recommendations are consistent with the Risk Policy analysis for southern whiting that placed this stock in the Intermediate Risk Tolerance zone.

The recommended OFL and ABC are about 171.8% and 166.3% higher, respectively, than the FY 2024–2026 recommendations of 35,419 mt and 20,149 mt. These increases reflect changes in the survey biomass used to calculate catch advice. They follow a substantial reduction in the previous specifications cycle, which illustrates the large changes in catch advice that can occur with the empirical approach.

The SSC noted that catch increased in 2024 and 2025, and survey biomass also increased in 2024 before declining in 2025 (though 2025 is above prior levels). The SSC noted apparent patterns of stronger year classes at intervals. Use of a three-year average moderates annual variability, though lower biomass and recruitment in a terminal could be masked by an averaging approach. The lack of stock projections adds uncertainty when constant catch limits are applied over multiple years.

Recent removals remain well below the proposed limits, which mitigates near-term concern about the fishery reaching those limits. The PDT reports 2023-2025 average catch of 4,451 mt, about 8.7%[2] of the recommended ABC. The recommended specifications are therefore not expected to constrain the fishery at recent catch levels. Low utilization does not resolve uncertainty about stock trends or the consequences of increased catches.

[2] These values were updated since the SSC meeting, but do not alter the SSC's conclusions.

Other sources of uncertainty include survey variability, estimated discards, and the assumed offshore hake contribution. The SSC recognizes the PDT's reported progress in developing consistent methods to accommodate missing survey data, addressing an important concern raised during the previous review.

Additional Comments and Research Recommendations

The SSC acknowledges that estimating an OFL from this empirical approach differs from its treatment of some other stocks with index-based assessments. Given the established precedent for southern whiting, the SSC accepts continued use of the OFL and ABC terminology and the current calculations for this specification cycle.

The SSC appreciates the PDT's responses to the 2023 recommendations. Delayed assessment updates and resource constraints limited the work completed for this cycle.

The SSC reiterates its recommendation to revisit the reference period used to define the F_{MSY} proxy and develop criteria for selecting reference periods in a dynamic environment. The suitability of historical exploitation rates should be evaluated in light of changes in productivity, recruitment, distribution, and environmental conditions.

The repeated large changes in advice warrant evaluation of alternative smoothing methods and control rules. Such work should assess the tradeoff between stability and timely responses to declining biomass, including situations in which a three-year average is elevated by earlier strong year classes. Recent catches below the limits provide some near-term reassurance but do not eliminate the need to improve the approach.

The SSC continues to recommend development of an analytical assessment capable of integrating the northern and southern silver hake stock areas. Spatial approaches, including WHAM or Stock Synthesis, should be evaluated to better account for population dynamics and potential distribution shifts across stock boundaries.

The SSC reiterates its recommendation to update and further investigate the assumed offshore hake contribution to southern whiting. Contemporary observer data should be used to develop an estimate of the species composition of the catch and evaluate whether the existing 4% expansion factor remains appropriate. Model based estimation, as proposed by the PDT, could account for variation in the observed species mix. Uncertainty in that estimate and its implications for catch advice should be evaluated before replacing the current assumption.

Summary of Recommendations

1. **The SSC recommends an OFL of 96,260 mt and an ABC of 53,660 mt, both held constant for FY 2027-2031. This ABC includes an allowance for offshore hake.**
2. **Revisit the F_{MSY} proxy reference period and establish criteria suitable for changing stock and environmental conditions.**
3. **Evaluate alternative control rules and smoothing methods that improve stability while retaining responsiveness to biomass declines.**
4. **Develop an analytical assessment that can integrate the two silver hake stock areas and evaluate spatial dynamics.**

5. Estimate the offshore hake contribution using contemporary observer data and evaluate the existing 4% expansion factor and associated uncertainty.

Fishing Year	OFL (mt)	ABC (mt)
2027 - 2031	**96,260**	**53,660**

NORTHERN RED HAKE

The SSC received a presentation from NEFSC staff on the 2026 data update for northern red hake and from the Council's Small-Mesh Multispecies PDT on developing possible OFLs and ABCs for FY 2027-2031. The assessment for southern red hake had previously used the An Index Method (AIM) model, but was rejected during the 2020 research track assessment. Currently, the stock is assessed using an empirical approach combining NEFSC spring and fall bottom trawl surveys. Total swept-area biomass is estimated incorporating chain-sweep efficiency adjustments from industry-based paired gear experiments. Additionally, a refined length-based calibration factor was introduced during this cycle to correctly calibrate *R/V Albatross IV* survey catches to the *R/V Henry B. Bigelow* series, replacing the previous constant average calibration factor to account for size composition differences between the two vessels. This correction had a small effect on the exploitation values used for MSY proxy. Based on the recent management track stock assessment, the stock status is not overfished and overfishing is not occurring.

TOR Findings

The SSC recommends an unknown OFL and an ABC of 5,790 mt, both held constant for FY 2027-2031. The SSC determined that these OFLs and ABCs will likely prevent overfishing and are consistent with the Council's ABC control rules and Risk Policy. The SSC considers these recommendations to be based on the best scientific information available.

Rationale Including Significant Sources of Uncertainty

The proposed OFL and ABC recommendation for 2027-2031 period is based on applying the historical exploitation rate from 1981 to 1994 using the efficiency-adjusted swept-area biomass estimates. Recent catches have remained substantially below the existing ABC (3,129 mt), about 7.8% and 3.6% in 2024 and 2025 ABC, respectively. The majority of removals were discards associated with other commercial fisheries. These patterns suggest relatively low fishing pressure and limited directed landings. Therefore, the SSC's recommended ABC is not likely to result in overfishing for this stock.

Nevertheless, several important uncertainties warrant consideration, particularly: 1) the estimation of commercial discards, 2) potential changes in survey catchability, and 3) the appropriateness of using historical exploitation rates under changing environmental conditions. Of particular concern is the continued decline in spring and fall bottom trawl survey indices from their recent peaks, and exclusion of fall 2025 and spring 2026 observations due to incomplete survey coverages. Considering those declining trends and the about 85% increase in the recommended ABC, the SSC recognizes the need for caution in interpreting recent biomass estimates and evaluating whether the recommended ABC adequately accounts for uncertainty over the next five-years specification period. The SSC felt that its recommendations are

consistent with the Risk Policy analysis for northern red hake that placed this stock in the Intermediate Risk Tolerance zone.

Additional Comments and Research Recommendations

The SSC reiterates its previous recommendation to develop an analytical stock assessment for northern red hake to better inform catch advice and reduce uncertainty associated with the current empirical approach. The SSC also recommends reassessing continued applicability of the different exploitation periods for the two red hake stocks: the northern stock uses a historical period, while the southern stock uses a more contemporary period. The SSC recommends further consideration of these different periods to establish northern and southern red hake MSY exploitation, both their range and whether they should be aligned.

Further research is needed to better characterize the nature and drivers of discards, particularly in the Maine lobster fishery, where additional information from Maine DMR may prove valuable. Given that most removals occur as incidental catch, SSC recommends investigating the relationship between northern red hake bycatch and fishing effort, including how changes in the profitability of related fisheries may influence future red hake removals. The SSC further recommends exploring the viability of managing northern red hake fishery as an ecosystem component species, and if it is an important ecosystem feature, bycatch reduction methods may be warranted.

Summary of Recommendations

1. **The SSC recommends an unknown OFL and an ABC of 5,790 mt, both held constant for FY 2027-2031.**
2. **The SSC recommends development of an analytical assessment for this stock.**
3. **The SSC recommends reevaluating the exploitation rate reference period for this stock.**
4. **The SSC recommends additional work to characterize red hake discards in the lobster fishery.**
5. **The SSC recommends investigating the relationship between northern red hake bycatch and other fisheries.**

Fishing Year	OFL (mt)	ABC (mt)
2027 - 2031	unknown	5,790

SOUTHERN RED HAKE

The SSC received a presentation from NEFSC staff on the 2026 data update for southern red hake and from the NEFMC Small-Mesh Multispecies PDT on developing possible OFLs and ABCs for FY 2027-2031. The assessment for southern red hake had previously used the AIM model, but the assessment model was rejected during the 2020 Research Track Assessment. Currently, the stock is assessed using an empirical approach combining NEFSC spring and fall bottom trawl surveys. Total swept-area biomass is estimated incorporating chain-sweep efficiency adjustments from industry-based paired gear experiments. Additionally, a refined length-based calibration factor was introduced during this cycle to correctly calibrate *R/V Albatross IV* survey

catches to the *R/V Henry B. Bigelow* series, replacing the previous constant average calibration factor to account for size composition differences between the two vessels. This correction had a small effect on the exploitation values used for MSY proxy. Based on previous management track stock assessments, the stock status is considered overfished with overfishing not occurring. The stock is in Year 7 of a 10-year rebuilding plan.

TOR Findings

The SSC recommends an unknown OFL and an ABC of 2,120[3] mt, both held constant for FY 2027-2031. The SSC determined that these OFLs and ABCs will likely prevent overfishing and are consistent with the Council's ABC control rules, rebuilding plans, and Risk Policy. The SSC considers these recommendations to be based on the best scientific information available.

Rationale Including Significant Sources of Uncertainty

The recommended ABC is based on a contemporary reference period for characterizing exploitation, from 2001-2019, which the SSC has previously deemed appropriate for this stock. This period reflects lower exploitation, low stock productivity, and a more recent period than what is used for northern red hake. The SSC recommended ABCs are also those recommended by the PDT, which used the empirical assessment approach to derive catch advice. The southern red hake is currently in a rebuilding plan, which per the FMP, requires an additional reduction in catch by 25%. Given the stock is largely discarded by fisheries and measures are taken to address rebuilding goals, the SSC believes that the recommended ABC is not likely to result in overfishing and will support rebuilding goals for this stock.

The SSC felt that its recommendations are consistent with the Risk Policy analysis for southern red hake that placed this stock in the Intermediate Risk Tolerance zone. The SSC's catch recommendation (both that of the PDT and the five-year specification) were informed by this risk score and tier assignment. Uncertainties for this stock include whether the reference period is unrepresentative. Additionally, given the empirical assessment relies heavily on the NEFSC bottom trawl survey, missing survey data in a given year can increase uncertainty. Inherently, given this approach is empirical and not analytical, uncertainty is perhaps greater than would be through an analytical-based assessment which derives reference points. The SSC does not believe this catch advice will pose economic harm, given in many of the recent years, the realized catch has been lower than the allowable catch.

Additional Comments and Research Recommendations

Like previous discussions on southern red hake, the SSC discussed whether to use historical or contemporary periods to inform catch advice. There is inconsistency in exploitation periods for the two red hake stocks: the northern stock uses a historical period, while the southern stock uses a more contemporary period. Further, the southern red hake contemporary period extends to 2019; as time passes, this contemporary period may no longer be considered contemporary. The SSC recommends further consideration of these periods, both their length or windows and whether they should be aligned across the stocks. The SSC continues to recommend further processing and analysis of the age composition data from the surveys to

[3] This ABC is prior to the necessary reduction due to the rebuilding plan.

better understand recruitment dynamics and changes in age composition over time. Additionally, there were several instances in the presentations that cited that this stock's productivity has declined. A true assessment of productivity changes (e.g., recruits per spawner) in the context of system change (i.e., environmental or harvest) would better support the assertion of whether the stock has undergone true productivity changes. Red hake center of gravity has also been found to shift over the last several decades; disentangling productivity declines and biomass shifts would be informative. Lastly, if a more analytically rigorous assessment product is pursued in the future, the P*40 should also be reevaluated given the original justifications for it may no longer be suitable (e.g., ecosystem role, fishery value.)

Summary of Recommendations

1. **The SSC recommends an unknown OFL and an ABC of 2,120 mt, both held constant for FY 2027-2031.**
2. **The SSC recommends revisiting the reference periods for defining exploitation rates.**
3. **The SSC recommends further quantifying changes in productivity for southern red hake.**
4. **The SSC recommends an analytical assessment and reference points be developed for southern red hake.**

Fishing Year	OFL (mt)	ABC (mt)
2027 - 2031	**unknown**	**2,120***
*** This value does not include the necessary reduction due to the rebuilding plan.**		

DOCUMENTS

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

1. NEFSC 2026 data updates for small-mesh multispecies stocks
2. Small-Mesh Plan Development Team
    a. Presentation by Council staff
    b. Small-Mesh PDT memo to SSC re FY 2027 – 2031 OFLs and ABCs for small-mesh multispecies stocks, October 20, 2026
    c. 2026 risk policy reports for small-mesh multispecies stocks
3. Small-mesh multispecies fishery and other information
    a. Small-Mesh Multispecies Fishery Performance and Risk Policy Factor Data
    b. Amendment 19
    c. Framework Adjustment 62
    d. 2010 Benchmark Assessment
4. Previous SSC recommendations
    a. Meeting materials, October 27, 2023
    b. SSC report, November 15, 2023

Other Documents

1. Risk Policy Statement and Concept, August 11, 2026

2. Risk Policy Application
3. Commercial Fishing Performance Measures portal
4. State of the Ecosystem Reports for the Northeast U.S. Shelf
5. Stock Assessment Support Information portal
6. NOAA 2024 Stock Status Table
7. Correspondence